

THE
ENTOMOLOGICAL CABINET

BEING A

NATURAL HISTORY

OF

BRITISH INSECTS.

WITH PLATES

ILLUSTRATIVE OF THE PRINCIPAL BRITISH INSECT
GENERA.

SECOND EDITION.

BY GEORGE SAMUELLE, A.L.S.

AUTHOR OF THE "ENTOMOLOGIST'S USEFUL COMPENDIUM,
ETC.

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P R E F A C E.

THE study of Natural History, within the last few years, has made a wonderful progress in England, much beyond what the author could have expected : and it is with heartfelt joy that he can perceive the still farther research that is now making by able, strong-minded and most worthy men, who have taken up the subject, and are pursuing it with a warmth and a degree of fervour that it is well worthy of; for most certainly no works of the GREAT CREATOR exhibit so much wonder in their organization as insects, or so much perfection in so small a space—the simple fact of the numerous eyes in the common house-fly.—Insects, indeed, appear the most important agents in the work of creation—active, minute and numerous; they are capable of producing famine, pestilence and disease: they are also the agents far beyond our knowledge of the fructification of plants,—they are also the consumers of decompo-

sing animal and vegetable remains, that, without their invaluable assistance, would contaminate the air and render it death to breathe. We may further observe that insects in their transformations, and in the organization of the larvæ, present to the physician, facts, with respect to circulation, worthy of his observation, and which no other class of animated nature would afford him, and thus offer to the physiologist an extensive field, in which his time will not be thrown away, should he direct his attention to it. Of the value and importance of insects we have yet no idea, from the little we know of them. Mr Kirby says, "We have heard that the vaccine disease is derived from the cow and the horse, and the small-pox is said to have originated in the heels of the camel : but neither the ingenious Dr. Jenner ; nor any other writer on this subject has informed us that the rein-deer is subject to the distemper last named.—The inoculator, in truth, is the gad-fly, the tumours it causes are the pustules, and its larvæ are the pus."—The lives saved by vaccination would imply the importance of the study of insects.

Insects are the most numerous, and equally perfect in their structure, with the higher orders of animals in the great scale of creation ; but this is only to be discovered by a close and accurate examination of the originals, collectively and in their several parts ; and following up their adaptation to the habits and

manners of the respective species. If we contemplate a painting or piece of sculpture, it pleases the eye and commands our attention, but it requires time to discover all its perfections—we only admire according to the extent of our knowledge of the subject;—so on viewing a map, those places interest us the most that we have visited, or where some peculiar circumstance has occurred, to impress the recollection on our minds, in a pleasing or a painful way.—Thus it is, with all other objects around us: a portrait of a departed friend whom we loved, or an individual whom we knew or respected, creates a more lively emotion than that of a total stranger, though he be celebrated in the annals of history. In all branches of human knowledge each individual sees with a different eye, and judges with a different mind, according to his knowledge of the subject, or the powers of his discrimination.



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Order COLEOPTERA.

Fam.		No.	Fig.
<i>Cicindelidæ.</i>			
	<i>Cicindela germanica</i>	1	1
<i>Carabidæ.</i>			
	<i>Carabus hortensis</i>	3	1
	<i>Cychrus rostratus</i>	25	1
	<i>Calosoma inquisitor</i>	25	2A
	<i>sycophanta</i>	25	2B
<i>Harpalidæ.</i>			
	<i>Panagæus quadripustulatus</i>	26	1A
	<i>Crux major</i>	26	1B
<i>Brachinidæ.</i>			
	<i>Lamprias cyanocephalus</i>	4	1
<i>Scaritidæ.</i>			
	<i>Clivina fossor</i>	17	1
	<i>Pterosticus brunnipes</i>	15	1
<i>Bembidiidæ.</i>			
	<i>Tachypus Andreæ</i>	14	1
<i>Elaphridæ.</i>			
	<i>Blethisa multipunctata</i>	14	2
<i>Dyticidæ.</i>			
	<i>Acilius scoticus</i>	7	1

Fam. <i>Gyrinidæ</i> .			
	<i>Gyrinus villosus</i>	. . . . .	10 1
<i>Heteroceridæ</i> .			
	<i>Heterocerus lævigatus</i>	. . . . .	16 1
<i>Limniidæ</i> .			
	<i>Georissus pygmæus</i>	. . . . .	23 1
<i>Helophoridæ</i> .			
	<i>Helophorus fennicus</i>	. . . . .	16 2
<i>Hydrophilidæ</i> .			
	<i>Berosus apicalis</i>	. . . . .	5 1
<i>Sphaeridiidæ</i> .			
	<i>Cereyon quisquilius</i>	. . . . .	21 1
<i>Scarabidæ</i> .			
	<i>Copris lunaris</i>	. . . . .	7 2
<i>Aphodiidæ</i> .			
	<i>Aphodius luridus</i>	. . . . .	14 3
<i>Trogidæ</i> .			
	<i>Trox sabulosus</i>	. . . . .	7 3
<i>Geotrupidæ</i> .			
	<i>Bolbocerus testaceus</i>	. . . . .	11 2
<i>Melolonthidæ</i> .			
	<i>Melolontha vulgaris</i>	. . . . .	5 2
<i>Cetoniidæ</i> .			
	<i>Cetonia aurata</i>	. . . . .	6 1
<i>Lucanidæ</i> .			
	<i>Dorcus parallelipedus</i>	. . . . .	9 1
<i>Histeridæ</i> .			
	<i>Onthophilus sulcatus</i>	. . . . .	19 1
<i>Nitidulidæ</i> .			
	<i>Nitidula grisea</i>	. . . . .	17 0
	<i>Thymalus limbatus</i>	. . . . .	25 3
<i>Engidæ</i> .			
	<i>Ips quadripustulata</i>	. . . . .	11 1
<i>Tenebrionidæ</i> .			
	<i>Diaperis boleti</i>	. . . . .	17 4
<i>Anisotomidæ</i> .			
	<i>Leoides humeralis</i>	. . . . .	23 2

Fam. <i>Scaphididæ</i> .			
	<i>Scaphidium quadrimaculatum</i>	. . . . .	17 2
<i>Silphidæ</i> .			
	<i>Necrophorus Anglicus</i>	. . . . .	4 2
<i>Staphylinidæ</i> .			
	<i>Emus hirtus</i>	. . . . .	19 4
<i>Stenidæ</i> .			
	<i>Dianous cærulescens</i>	. . . . .	23 3
<i>Scydmenidæ</i> .			
	<i>Scydmenus tarsatus</i>	. . . . .	16 4
<i>Helopidæ</i> .			
	<i>Helops striatus</i>	. . . . .	20 2
<i>Blapsidæ</i> .			
	<i>Blaps obtusa</i>	. . . . .	20 1
<i>Mordellidæ</i> .			
	<i>Rhipiphorus paradoxus</i>	. . . . .	20 3
<i>Edemeridæ</i> .			
	<i>Edemera Podagraritæ</i>	. . . . .	9 3
<i>Cantharidæ</i> .			
	<i>Meloe variegatus</i>	. . . . .	21 4
<i>Notoxus</i> .			
	<i>Anthicus antherinus</i>	. . . . .	21 3
<i>Ptinidæ</i> .			
	<i>Ptinus imperialis</i>	. . . . .	6 2
	<i>Mezium sulcatum</i>	. . . . .	26 2
<i>Dermestidæ</i> .			
	<i>Dermestes murinus</i>	. . . . .	15 2
<i>Byrrhidæ</i> .			
	<i>Byrrhus pilula</i>	. . . . .	10 2
<i>Buprestidæ</i> .			
	<i>Melasis buprestoid s</i>	. . . . .	19 2
<i>Elateriæ</i> .			
	<i>Cleniocerus Aulicus</i>	. . . . .	3 2
<i>Cebrionidæ</i> .			
	<i>Atopa cervina</i>	. . . . .	22 2
<i>Cyphonidæ</i> .			
	<i>Elodes dorsalis</i>	. . . . .	22 2

Fam. <i>Lampyridæ</i> .			
	<i>Lycus minutus</i>	10	3
<i>Melyridæ</i> .			
	<i>Drilus flavescens</i>	18	1
<i>Telephoridæ</i> .			
	<i>Telephorus Alpinus</i>	22	3
<i>Tillidæ</i> .			
	<i>Thanasimus fornicarius</i>	11	3
<i>Bostricidæ</i> .			
	<i>Scolytus destructor</i>	21	2
<i>Curculionidæ</i> .			
	<i>Cleonus sulcirostris</i>	8	1
	<i>Lixus productus</i>	26	3
<i>Bruchidæ</i> .			
	<i>Bruchus Pisi</i>	18	2
<i>Salpingidæ</i> .			
	<i>Sphæriestes quadripustulatus</i>	15	3
<i>Cucujidæ</i> .			
	<i>Cucujus ater</i>	18	3
<i>Prionidæ</i> .			
	<i>Prionus coriarius</i>	8	2
<i>Cerambycidæ</i> .			
	<i>Callidium bajulum</i>	7	4
	<i>Molorchus minor</i>	13	1
<i>Lepturidæ</i> .			
	<i>Leptura scutellata</i>	8	3
<i>Melandryidæ</i> .			
	<i>Phloiotrya rufipes</i>	14	4
<i>Crioceridæ</i> .			
	<i>Zeugophora flavicollis</i>	9	2
<i>Cassidiidæ</i> .			
	<i>Cassida vittata</i>	16	3
<i>Galerucidæ</i> .			
	<i>Galeruca rustica</i>	13	2
<i>Chrysomelidæ</i>			
	<i>Cryptocephalus 6-punctatus</i>	10	4

Fam. *Coccinellidæ*.

Coccinella oblongo-guttata 18 4

Endomychidæ.

Lycoperdina bovistæ 19 4

Order DERMAPTERA.

Forficulidæ.

Forficula auricularia 1 2

Order DICTYOPTERA.

Blattidæ.

Blatta Germanica 1 3

Order ORTHOPTERA.

Achetidæ.

Gryllotalpa vulgaris 25 4

Acheta domestica 11 4

Gryllidæ.

Acrida viridissima 10 5

Locustidæ.

Gomphocerus rufus 3 3

Order HYMENOPTERA.

Tenthredinidæ

Cimbex annulata 2 2

Xiphydriidæ.

Xyphidra 12 1

Uroceridæ.

Oryssus coronatus 24 4

Evaniidæ.

Fœnus jaculator 24 5

Ichneumonidæ.

Peltastes necatorius 16 5

Chrysididæ.

Chrissis Stroudera 4 3

Formicidæ.

Formica fusca 23 5

Proctotrupidæ.

Psilus elegans 24 6

Fam. <i>Mutillidæ</i> .			
	Mutilla Europæa	13	3
<i>Scoliadæ</i> .			
	Tiphia femorata	19	5
<i>Sapygidæ</i> .			
	Sapyga punctata	14	5
<i>Pompilidæ</i> .			
	Pompilus viaticus	19	6
<i>Sphecidæ</i> .			
	Ammophila hirsuta		5
<i>Larridæ</i> .			
	Astata abdominalis	12	2
<i>Crabronidæ</i> .			
	Crabro cribrarius	8	5
<i>Vespidæ</i> .			
	Vespa vulgaris	23	6
<i>Andrenidæ</i> .			
	Andrena nigro-enea	5	3
<i>Apidæ</i> .			
	Nomada Goodeniana	4	4
<i>Libellulidæ</i> .			
	Gomphus vulgatissimus	3	4
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	Calepteryx ludoviciana	20	3
Order NEUROPTERA.			
<i>Ephemeridæ</i> .			
	Baëtis bioculata	24	1
<i>Panorpidæ</i> .			
	Panorpa Germanica	8	4
<i>Hemerobidæ</i> .			
	Chrysopa reticulata	2	1
<i>Psocidæ</i> .			
	Psocus bipunctatus	24	2
<i>Rhaphidiidæ</i> .			
	Rhaphidia Londinensis	22	4
<i>Perlidæ</i> .			
	Perla lutea	24	3

Order TRICHOPTERA.

Fam. *Leptoceridæ*

Leptocerus interruptus	23	4
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§ II. HAUSTELLATA.

Order LEPIDOPTERA.

Papilionidæ

Pieris Cratægi	5	} $\frac{4}{5}$
Gonepteryx Rhamni	25	

Nymphalidæ.

Hipparchia Galathea	1	} $\frac{4}{5}$
Limenitis Camilla	26	

Lycænidæ.

Polyommatus Artaxerxes	8	6
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Hesperidæ.

Thymele Alveolus		4
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Zygænidæ.

Anthrocera Filipendulæ	9	5
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Sesiidæ.

Sesia Bombyliformis	9	6
Macroglossa stellatarum	25	6

Sphingidæ.

Deilephila Tiliæ	3	5
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Ægeridæ.

Ægeria asiliformis	4	5
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Hepialidæ.

Zeuzera Æsculi	13	4
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Notodontidæ.

Peridæ tritophus	12	3
Saturnia Pevonia minor	26	5

Bombycidæ.

Gastropacha Quercifolia	7	6
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Arctiidæ.

Psilura Monacha	6	3
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Fam. <i>Lithosiidæ</i> .			
	Setina irrorella	15	4
<i>Noctuidæ</i> .			
	Brepha Parthenias	4	6
<i>Geometridæ</i> .			
	Biston prodromaria	10	6
<i>Platypteridæ</i> .			
	Cilex compressa	20	5
<i>Tortricidæ</i> .			
	Tortrix viridana	6	4
<i>Pyr alidæ</i> .			
	Asopia farinalis	16	6
<i>Yponomeutidæ</i> .			
	Æhopchora Linniella	5	6
<i>Tineidæ</i>			
	Tinea tapetzella	18	5
<i>Alucitidæ</i> .			
	Pterophorus galactodactylus	14	6

Order HOMOPTERA.

<i>Cercopidæ</i> .			
	Tettigonia spumaria	2	6
	Ledra aurita	26	6

Order HEMIPTERA:

<i>Notonectidæ</i> .			
	Notonecta glauca	15	6
<i>Nepidæ</i>			
	Ranatra linearis	1	6
<i>Hydrometridæ</i> .			
	Velia rivulorum	11	6
<i>Cimicidæ</i> .			
	Cimex lectularius	15	5
<i>Reduviidæ</i> .			
	Reduvius personatus	3	6
<i>Coreidæ</i> .			
	Corus denticulatus	22	6

Fam. *Pentatomidæ*.

Acanthosoma picta	2	5
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Order DIPTERA.

Tipulidæ.

Ctenophora atrata	12	4
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Xylophagidæ.

Beris clavipes	18	6
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Tabanidæ.

Tabanus pagurus	12	5
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Rhagionidæ.

Rhagio scolopaceus	21	5
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Mydasidæ.

hereva plebia	21	6
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Anthracidæ.

Anthrax ornata	17	6
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Bombylidæ.

Bombylius major	12	6
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Asilidæ.

Dioctria celandica	22	5
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Acroceridæ.

Acrocera globula	20	6
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Stratiomydæ.

Odontomyia argentata	13	5
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Syrphidæ.

Eristalix Tenax	2	3
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Dolichopidæ.

Dolichopus nigricornis	17	5
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Conopidæ.

Conops flavipes	13	6
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Stomoxydiæ.

Stomoxys irritans	6	5
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Cestridæ.

Cestris bovis	6	6
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Muscidæ.

nomyia grossa	11	5
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Order HOMALOPTERA.

Fam. *Hippoboscidae*.

Ornithomyia avicularia 2 4





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CICINDELA GERMANICA. *Linn.*

LINNE has with justice denominated the *Cicindelidæ* the tigers of insects. Though decorated with brilliant colours, they prey upon the whole insect race; their formidable jaws, which cross each other, are armed with fearful fangs, showing to what use they are applicable; and the extreme velocity with which they can either run or fly, renders hopeless any attempt to elude their pursuit. Their larvæ, which inhabit sand banks and dry and hot situations, are also equally tremendous with the perfect insect, having six single eyes, three on each side, seated on a lateral elevation of the head, which look like those of spiders, and besides their threatening jaws, armed with a strong internal tooth, being furnished with a pair of spines, resembling somewhat the sting of a scorpion, which stand erect upon the back of the abdomen, and give them a most ferocious aspect. This last apparatus, according to Clairville, serves the purpose of an anchor for retaining them at any height in their deep cells.

This elegant little insect, *C. Germanica*, which is the smallest of the British species, is of a splendid blue green and subject to great variation in colour: the head and thorax have a most beautiful silky appearance, and are, more or less, of a coppery tint; the

summit of the head is much flattened, and the large and prominent eyes give it at once an air of activity ; the legs and antennæ are coppery, and the thighs green ; the abdomen is also of a rich blue green and very highly polished ; the elytra or wing cases are of the same colour, but have rather a velvety appearance, and have three buff spots on each—one on the shoulder, another, somewhat larger, on the outer margin, a little below the middle, and a third a little beneath, which terminates in a lunar-formed streak. They are found in chalky places, and have occasionally been taken in a lane leading to Darenth Wood, Kent, in the months of May and June and, I believe, as late as July.

No insects are more remarkable for the sudden expansion of their wings than the Cicindelidæ, which, however, taking very short flights, are as easily marked down as a partridge, and afford as much amusement to the entomologist as the latter to the sportsman. I am indebted for my specimens of this species to the Rev. C. S. BIRD, of Burghfield, who has taken *C. Germanica* in his neighbourhood ; and to A. COOPER, Esq. R. A. who has received them from Blackgang-Chine, in the Isle of Wight, where it was found last summer in the greatest profusion. The sexes of the *Cicindela* may be distinguished by the dilated anterior tarsi of the male (♂) and the simple feet of the female.

I should recommend all Entomologists, when collecting insects of this genus, to put their specimens into separate pill boxes ; otherwise they will destroy each other, and every insect that may come in their way.



FORFICULA AURICULARIA. *Linn.**Common Earwig.* (♂) Male.

THIS curious insect—"so unjustly traduced by a vulgar prejudice, as if the Creator had willed that the insect world should combine within itself examples of all that is most remarkable in every other department of nature—still more nearly approaches the habits of the hen in the care of her family. She absolutely sits upon her eggs, as if to hatch them—a fact which Frisch appears first to have noticed—and guards them with the greatest care. De Geer, having found an earwig thus occupied, removed her into a box where there was some earth, and scattered the eggs in all directions: she soon however collected them one by one with her jaws into a heap, and assiduously sat upon them as before. The young ones, strange to say, are, as soon as born, larger than the eggs which contained them. Immediately upon being hatched, they creep, like a brood of chickens, under the belly of the mother, who very quietly suffers them to push between her feet, and will often, as De Geer found, sit over them in this posture for some hours! This remarkable fact I have often witnessed, having found an earwig under a stone, which I accidentally turned over, sitting upon a cluster of young ones just as this celebrated naturalist has described." *Earwigs* live, but in a dormant state, through the winter, buried in the earth; and,

in the months of March and April, may be observed, under stones and clumps of earth, sitting on their eggs, and generally the male and female together: they feed on flowers and are often very destructive to pinks and carnations. Both the larva and pupa are active, and resemble the perfect insect, except in wanting the wings. *Earwigs* are particularly fond of the corolla of the sun-flower, and may be seen in the autumn of the year (generally in pairs) on this noble plant. Few persons are aware that this insect can fly; but *earwigs*, their size considered, are furnished with very ample and curious wings, the principal nervures of which are so many radii, diverging from a common point near the anterior margin: between these are others which, proceeding from the opposite margin, terminate in the middle of the wing. These organs, when at rest, are more than once folded, both transverse and longitudinally. The insects of this ORDER fly at night: a lady has informed me that she was once sitting in her garden, on a summer's evening, when she observed an earwig expand its wings and, to her surprise, fly away.

In the *common earwig*, the two sexes differ considerably in the forceps which terminate the body; those of the male, figured with the wings expanded, are armed with minute internal teeth at the base and suddenly dilate in the form of a bow; in the female they are smaller and nearly straight, but cross each other in their termination, and are capable of giving an acute pinch that is, as sharp as the pierce of a needle. (See the forceps of the ♀ (female) on the right-hand side of the plate.) So far as I have ob-

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served of this species is, that the perfect insect of the spring brood makes its appearance in the autumn, and the havoc made upon them by birds, will leave a few to hybernate during the winter months and thus keep up the propagation of the species. This insect is too well known to require a description: the wings are a most desirable object for the microscope.

Mr. DAVIS informs me, that he once saw a paling, on which fruit-trees were trained, literally swarming with the common earwig—it was at night, and the approach of the candle was a signal for a general rout.





1.3

· BLATTA GERMANICA *Linn.*

THIS insect is of a livid colour and nearly uniform, with the exception of the thorax, which has two parallel black lines, and the legs are somewhat paler than the elytra ; the length six lines and a half, but, in size, they are subject to a little variation. It inhabits houses.

This species of *cock-roach* is by no means common, for I never met with but one living specimen, which I found in the house of a friend : and I possess two specimens, amongst a collection of insects left me by my much-regretted and respected friend, the late THOMAS CARPENTER, Esq. of Tottenham.

The insects of this order, with their larvæ, wander about by night, and secrete themselves by day ; they are fond of warmth, and haunt houses, devouring meal and whatever provisions they can get at, and will eat the dead of their own species. The females enclose their eggs in a cellular cocoon, which resembles a seed vessel, formed of a substance secreted by the animal.

Cock-roaches, the *black beetles* of our kitchens, are exceedingly troublesome in some houses, and their numbers may be lessened by the traps that are sold at most turners' shops, and the insects thus caught may be killed by throwing them into *boiling water*. The hedge-hog is fond of them as food ; but the unpleasant smell this animal emits renders it objectionable. Monkeys, it would appear, are also fond of

them, and might be used on ship-board for the purpose of destroying them. Mr. NELL, in the Magazine of Natural History, in his account of the habits of *Jacchus vulgàris*, says, "By chance we observed it devouring a large cockroach which it had caught, running along the deck of the vessel; and, from this time to nearly the end of the voyage, a space of four or five weeks, it fed almost exclusively on these insects, and contributed most effectually to rid the vessel of them. It frequently eat a score of the largest kind, which are 2 or $2\frac{1}{2}$ inches long, and a very great number of the smaller ones, three or four times in the course of the day. It was quite amusing to see it at its meal. When he had got hold of one of the largest cockroaches, he held it in his fore paws, and then invariably nipped the head off first; he then pulled out the viscera and cast them aside, and devoured the rest of the body, rejecting the dry elytra and wings, and also the legs of the insect, which are covered with short stiff bristles. The small cockroaches he eat without such fastidious nicety."









HIPPARCHIA GALATHEA. *Fabr.**Marbled White Butterfly.*

THIS chaste and elegant insect is found on grassy places in woods, in the month of July : its wings are slightly indented and variegated with black and sulphur yellow ; on the under side of the anterior wings it has a single ocellus, or eye-like marking ; and, on the posterior, five obsolete ones.

The Caterpillar is said to be sometimes green and sometimes yellow, with lines of a darker colour ; above the tail are two short red spines ; the back is set with very short hairs ; it feeds on grass.

As the microscope is, at this season of the year, a delightful and interesting source of amusement for young people, the scales that ornament and cover the wings of butterflies and moths will be found curious and interesting objects. The late Dr. WOLLASTON, on viewing the striated scale from a wing of the *large cabbage butterfly*, calculated that there were 10,000 lines in the space of an inch. Dr. SKRIMSHIRE says, “ The wings of this tribe, some of which display great beauty and variety of shade and colouring, have frequently been the subject of microscopical investigation. Some have described the fine powdery substance, that comes off with the slightest touch, and leaves the wing a plain, colourless, and transparent membrane, as so many minute feathers, or as down, regularly and artfully arranged. Others have compared it to scales of various colours, overlaying

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each other like the tiles on a house. Whichever is the case, it is an admirable instance of contrivance and skill in the Creator. What can the utmost ingenuity of man produce, to be compared with it? The painter may produce a something like it; a something, that to our dull organs of vision bears, perhaps, a strong resemblance; but will it bear examination with the microscope? Will it, then, discover any marks of ingenious arrangement, one particle nicely laid over another, of a different shade; whole rows, equal in size, evenly disposed, without jostling or intermixture? How rough and rugged a mass of plaister, then, would the best human imitation of a moth's wing appear to the all-searching eye of Nature's God, or even to the eye of the moth itself, for whose gratification, no doubt, this exquisite art and beauty have been displayed!

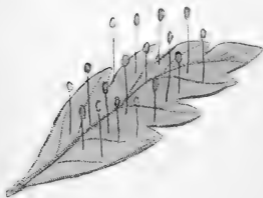




RANATRA LINEARIS. *Fabr.*

THIS curious and singularly-formed insect is of a linear shape, and the fore feet serve the purpose of hands, with a lateral spine by way of a thumb, which enables it to seize and hold fast other insects, on which it feeds. The larva and pupa have six feet; they are active, and resemble the perfect insect, which is of a clay colour; but they want the wings. Although they inhabit waters, they are bad swimmers, and I suspect that they walk at the bottom of ponds and bury themselves in the clay. I remember I was once collecting insects with my friend, Mr. DAVIS, on Wandsworth Common, when I captured a specimen of this insect, which I had, evidently by agitating the clay at the bottom, brought to the surface. Mr. BYDDER once met with many specimens of this species on Epping Forest; and I well remember his remark, "that the insect was not scarce, but collectors were not aware of the mode of seeking for them." I have no doubt but that they may be found throughout the year. To the young collector I would say, that ponds will afford, during the spring months, ample objects for his cabinet.

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CHRYSOPA RETICULATA. *Leach.*Hemerobius Chrysops. *Linn.**Reticulated Golden Eye.*

The wings of this interesting genus of insects are transparent, and on the surface, in different positions, reflect the most splendid play of colouring, in varied and blended changes of blue, yellow, green and pink. One species, the *C. alba*, is very common in May and June in most gardens; the economy of the insects of this genus is curious and highly interesting. "The eggs of these insects are oval, and each of them attached to a filiform pedicle not thicker than a hair, and seven or eight times as long as the egg. By this pedicle (which is supposed to be formed by a glutinous matter attached to one end, which the female draws out by abstracting her ovipositor with the egg partly in it from the leaf, to which she has previously applied it, to a proper length, when the gluten becoming sufficiently solid, she wholly quits the egg) the eggs are planted, in groups of ten or twelve, on the surface of leaves and twigs, from which they project like so many small fungi, to some of which they have a remarkable resemblance. (*See the leaf beneath the figure of the insect.*) When the included larva has made its way out of them, by forcing open the top, they look like little vases, and were actually once figured by a naturalist, as we learn from Reaumur, as singular parasitic flowers, growing upon the leaves

of the elder, for the origin of which he was extremely puzzled to account. The long footstalks of the eggs of these insects, there can be little doubt, are meant to place them out of the reach of the hosts of predaceous insects which would roam around them, from whose jaws, thus elevated on their slender shaft, they are as safe as the eggs of the tailor-bird in its twig-suspended nest from the attacks of snakes."

As the insect generally deposits its eggs in the autumn of the year, and the larvæ are found in profusion from the spring to the summer months, it is evident that the larvæ leave the eggs previous to the fall of the leaf and seek a place of refuge during the winter; we are further borne out in this opinion by the Rev. W. Kirby, who, in a note in the second volume of his Introduction, says, "I have reason to think that the larvæ of some species of *Hemerobius* thus protect themselves by a net-like case of silken threads; at least I found one to-day, (December 3rd, 1816) inclosed in a case of this description concealed under the bark of a tree: and it is not very likely that it could be a cocoon, both because the inhabitant was not a pupa, which state, according to Reaumur, is assumed soon after the cocoon is fabricated; and because the same author describes the cocoons of these insects as perfectly spherical and of a very close texture, while this was oblong, and the net-work with rather wide meshes.

"As Hercules, after he had slain the Nemean lion, made a doublet of its skin, so the larva of this insect covers itself with the skins of the luckless

Aphides that it has slain and devoured. From the head to the tail this pygmy destroyer of the helpless is defended by a thick coat, or rather mountain, composed of the skins, limbs and down of these creatures. Reaumur, in order to ascertain how far this covering was necessary, removed it, and put the animal into a glass, at one time with a silk cocoon, and at another with raspings of paper. In the first instance, in the space of an hour, it had clothed itself with particles of the silk : and in the second, being again laid bare, it found the paper so convenient a material, that it made of it a coat of unusual thickness."

It may be curious to observe, that we have never met with the eggs on an annual plant, but always fixed to the leaves of shrubs, fruit or forest trees, and the larvæ are ever beaten from these, or seeking the aphides on the trunks of trees, and from the colours of their bodies being of a greenish-brown, are not easily detected. The larvæ, towards the end of May, when the spring brood of the Aphides is nearly over, prepare for the important change into the pupa state ; and for this, the extremity of the body is furnished with a small fleshy retractile cylinder, from which proceeds the silken thread that forms the cocoon enclosing the pupa. Reaumur says the pupa is not so big as a small pea ; yet the body of the fly is nearly half an inch long, and covers, when its wings and antennæ are expanded, a surface of an inch square.

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CIMBEX ANNULATA. *Leach.*

♀ (Female.)

In the third volume of the Zoological Miscellany, published in 1817, Dr. Leach has given an excellent monograph on the species of this genus ; all of which are rare. At this period, he possessed but one specimen of this species, a female, taken near Windsor, by Mr. Griesbach. When the Doctor was last in England, he brought from Devonshire six males and four female specimens—they were found at one spot, we believe, near Ashburton, by a person who was in the habit of collecting specimens for him. With his usual liberality he presented to the British Museum five specimens—to myself four—and to Mr. Stevens one, a female. The Cimbices appear in the perfect state the latter end of April ; also in the months of May, June and July they are very sluggish, and, if beaten into the net, simulate death. They are generally found in open places, and on the skirts of woods. The caterpillars of the respective species feed on leaves, generally on those of shrubs and trees. Upon the branches of these the parent fly deposits her eggs in cells symmetrically arranged ; and the instrument with which she forms them is a *saw*, somewhat like ours, but far more ingenious and perfect, being toothed on each side, or rather consisting of two distinct saws, with their backs (the teeth or serratures of which are themselves often serrated, and the ex-

terior flat side scored and toothed) which play alternately; and while their vertical effect is that of a saw, act laterally as a rasp. When, by this alternate motion, the incision or cell is made, the two saws, receding from each other, conduct the egg between them into it: it is said, that the eggs increase in size every day till the larvæ burst from them. These are usually met with the latter end of August and beginning of September, and greatly resemble those of the *Lepidoptera*, except that they have twenty-two feet, and, when touched, roll themselves up spirally. The colour is generally a frosted green. When the larvæ are full grown, they form for themselves an oblong hard case, and this is in general attached to a twig or small branch of the tree they feed upon, within which they change to an incomplete pupa, that remains in this state through the winter.

It may be useful to hint to the Entomologist that, during the early spring months, before the shrubs have sent forth their leaves, the pupa of these desirable insects may occasionally be found, and this is perhaps the most successful mode of taking them. We hope, in a future number, to figure the male of this rare and elegant insect, and will then give the specific characters of each.





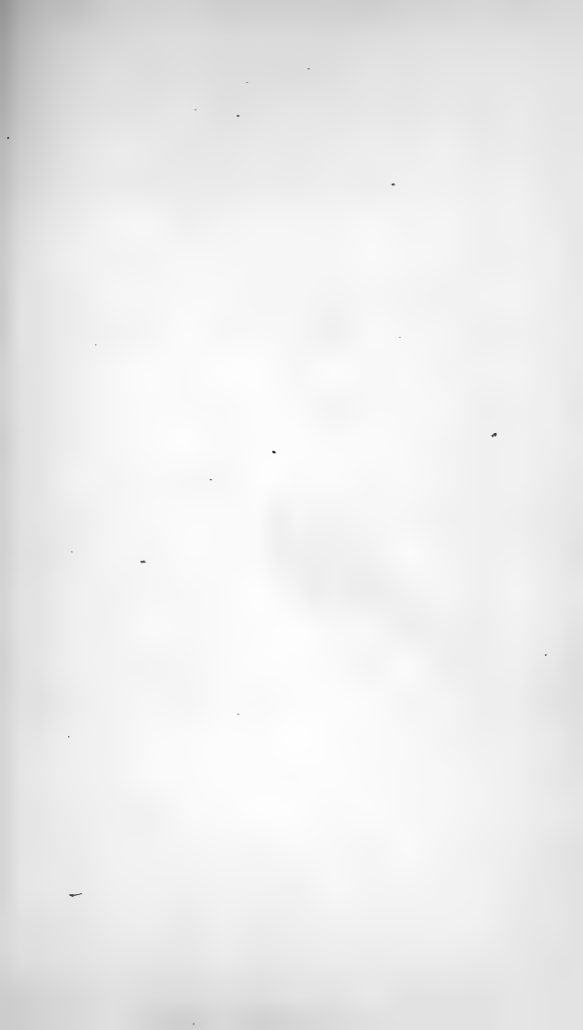
ERISTALIS TENAX. *Fabricius.*Musca tenax. *Linn.*

Dr. Shaw says of this insect, which is about the size of a Drone, and of a brown colour, with transparent wings, and the first and second segment of the body yellowish on each side—"It proceeds from a larva of a very singular appearance, being a long-tailed brown maggot, of rather slow motion, measuring about three quarters of an inch in length, exclusive of the tail, which is extensile, and consists of a double tube, the exterior annulated into numerous segments, and the interior slender, and terminated by a circle of hairs, surrounding a *spiraculum* or air-hole. This maggot is seen in muddy stagnant water, drains and other places of the dirtiest description; and notwithstanding its unpleasing appearance, exhibits, when accurately examined, many particulars well worthy of admiration: the feet in particular, which are seven in number on each side, are wonderfully calculated for enabling the animal to ascend walls or other perpendicular places, in order to seek some proper situation in which it may undergo its changes into chrysalis, being very broad, and beset, on their under surface, with numerous small hooked claws; giving it the power of clinging with security during its ascent.

"Of this larva a particularity is stated, on the authority of Linnæus, which, if true, may indeed well

be numbered among the *Miracula Insectorum*; (the title of the paper in the *Amœnitates Academicæ*, in which it is announced) viz. that being a frequent inhabitant of the turbid pulp used in the operation of paper-making, it is often exposed to the action of the wooden mallets used in the process, as well as squeezed in the strongest presses; and yet survives, uninjured, these seemingly destructive operations!!!

“The above larva commonly changes to a chrysalis about the end of August; the skin contracting, and drying round the body, and the tail continuing in a shrivelled state. After thus remaining about the space of a fortnight, it gives birth to the complete insect, which has so much the general appearance of a Drone that it is very frequently mistaken for such. It is extremely common during the month of September;” and we may say October. The sexes of this and many other dipterous insects are distinguished, the males (♂) by a very narrow line dividing the eyes, and the females (♀) by a broad one: the wings and eyes are fine objects for the microscope; the latter from the large and numerous hexagons of which they are composed. The three stemmata, or single eyes, are placed on a prominence, at the summit of the head, and are very brilliant. A figure of the exuvia, or cast skin, of the pupa is given beneath the insect.





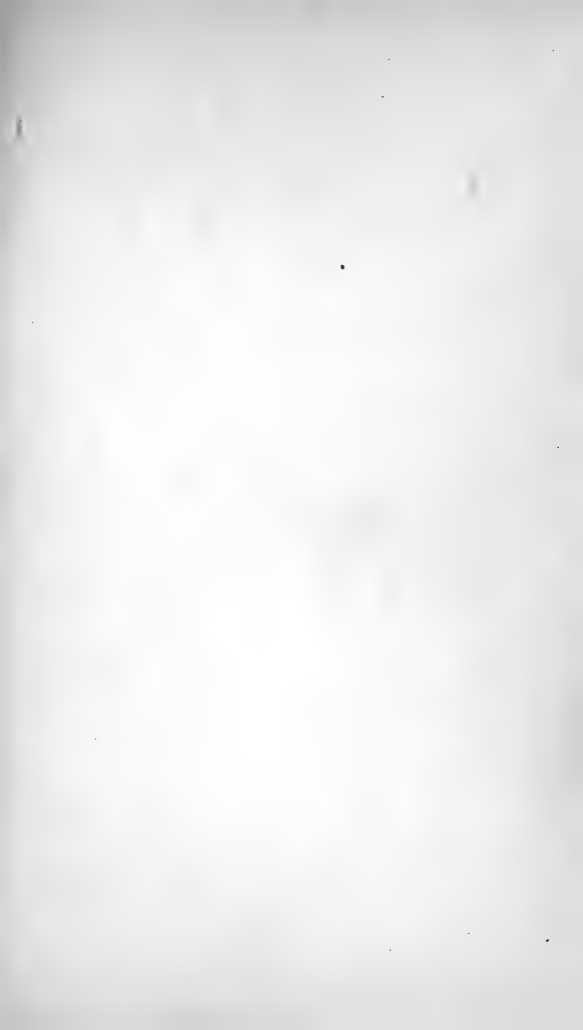
ORNITHOMYIA AVICULARIA. *Latr.**Bird Fly or Bird Tick.*

Man, quadrupeds, birds, and even the lower orders of creation, are subject to parasites. This singular insect, the *Ornithomyia avicularia*, is found on the swallow and several other species of birds. We once met with a single specimen from the pipet lark, (*Alauda sepiaria*) in Plaistow Marshes, some years since; and if the bird, when killed, had not have been carefully wrapt up in paper, there is no doubt that the insect would have escaped, since parasites of this kind leave their subject as soon as it is cold, and much sooner than the apterous species, as they have the facility of flight.

As yet, only two species have been detected in this country, the *viridis* and the present. The head is broad—the eyes set wide and prominent: a polished elevated suture runs up the front of the head close to the eyes, and joins at the summit, leaving a wide channel down the front of the head: the thorax is brown and highly polished and much larger than the body, which is very flat and of a dirty yellow colour, and furnished at its sides with long curved bristles; its extremity terminates in a deep notch: the wings are slightly tinged with a lightish brown: the legs are robust and strong, and the feet are furnished with powerful curved claws. They run fast, have been known to suck the blood of man, and are capa-

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ble of sustaining great pressure. We could wish that Ornithologists and collectors would pay more attention to the parasites of birds, for, as yet, we know but little about them.





ACANTHOSOMA PICTA. *Newman's MSS.*

This genus was first proposed by Mr. JOHN CURTIS, in the fifth number of his elegant and accurate "Illustrations of British Entomology," in his observations on the species of *Pentatoma*: and, the characters of this separate genus, with dissections of the parts, were given in plate 28 of the same volume.— "In Mr. VIGORS's cabinet is a species which belongs to this last division, (*Acanthosoma*) received from Dr. LEACH, with the name of *P. picta*. It agrees tolerably well with the description in Fabricius; but I believe that Dr. L. was not satisfied of its authenticity as a British species." It may appear strange that this species should exist in Mr. VIGORS's Cabinet, and not in that of Dr. LEACH; but this is easily explained: about twenty years ago, an exchange took place between Mr. WILKINS and Dr. L. and as each was anxious to complete certain groups of insects, it was agreed that they should give up to one another, the required desiderata, and Dr. L. presented Mr. WILKINS with the whole of his collection of the order Hemiptera. It is somewhat singular, that Mr. NEWMAN should have given the name of *picta* to this newly discovered insect, and without the knowledge of the above fact, as we believe it to be the same species; but we regret we have not had an opportunity of comparing them. The following is the specific character of the insect now figured.—Head and thorax of a dirty

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TETTIGONIA SPUMARIA. *Fabr.*

Cicada Spumaria. *Linn.*

Cuckoo Spit, or Black-headed Froghopper.

“ The larvæ or grubs of this insect are well known as discharging from their bodies, upon the branches and leaves of plants, a kind of frothy matter called by most people *Cuckoo-spit*. In the midst of this they constantly reside, probably for shelter against the rapacity of such stronger insects as would otherwise prey upon them. Nature seems to have afforded this kind of defence to the insects, as their naked and soft bodies might otherwise very easily be injured ; perhaps also the moisture of this foam may serve to screen them from the sultry beams of the sun. On removing the foam the grub is discovered underneath ; but it will not remain long uncovered. It soon emits fresh foam that again hides it from the eye of observation.

“ It is in the midst of its foam that the larva goes through its metamorphosis to a chrysalis and a winged insect. This may be observed by any person who is careful enough to watch when the froth begins a little to subside. At this time he must put the insect with its leaf under a glass. The froth, degenerating to a white film, fixes the creature to the leaf : soon after this the fly may be seen first putting out its head, and afterwards by degrees its body. As soon as the fore-part is out ; a small protuberance will be

perceived on each side, which, every moment growing larger, will soon appear to be the wings of the fly unfolding by degrees. In about a quarter of an hour the whole change is completed, the fly is liberated, its wings are extended over its body, and the fine silver-like case of the larva, with all its legs and other apparatus, will be seen left behind.

“ The perfect insect is of a brown colour, and has on the upper wings two lateral whitish spots. It is very common in gardens, meadows, and pastures, and is so agile that, when attempted to be caught, it will sometimes spring to the distance of two or three feet.”—*Bingley*.



CARABUS HORTENSIS. *Fabr.**Garden Carabus.*

Black, and generally apterous, or having only the rudiments of wings : the thorax black and convex, nearly of the breadth of the base of the elytra ; the margin purplish : the elytra are rough, with a triple row of bronzed excavated points. Length one inch.

This strong, powerful and voracious insect, is one of the commonest species of the genus *Carabus* ; it inhabits most gardens, and will often be met with on ground, recently turned up by the spade, during the early spring months. In April and May they are also frequently to be seen in the pathways of our gardens, in the evening, in pursuit of the larvæ of insects, slugs, snails and worms, which they greedily devour, and destroy great numbers. During the day they may be found in dark and retired places, beneath stones, dead leaves, and under the rubbish of gardens.

The male insects of this genus have the anterior tarsi broad—in the females they are simple. So far as we have been enabled to observe the natural history of this species, the females deposit their eggs in the places they retire to during the day, and in holes in the earth—the larvæ are equally voracious with the perfect insect, and will destroy all they can overcome : they are in the larva state during the summer and autumn, and appear to go deep into the

earth to pass into the pupa state. Late in the autumn they may occasionally be found in the perfect state, but remain dormant during the winter.

We would advise our young friends, when collecting these insects, to put them into separate pill boxes, or they will invariably eat one another: they are killed by being thrown into boiling water. This is a fine insect for the young student to make himself acquainted with the parts of the mouth, as they are large and prominent.



CLENIOCERUS AULICUS. *Leach, MSS. Stephens.*
Elater Aulicus. Panzer.

Head and thorax obscure brassy-green, deeply punctured and pubescent, the latter has a deep channel down the centre, the scutellum is nearly black, and very pubescent: elytra; testaceous deeply striated and the interstices punctate, and with a deep transverse impression at the base, extending across eight of the striæ, they terminate acutely: the under parts of the thorax and body of a darker brassy-green, deeply punctate and pubescent: the antennæ and legs are of the same colour: the palpi are black and shining. Length of the body 8 lines.

We are indebted to our much valued and respected friend, Dr. WILLIAM ELFORD LEACH, for our specimens of this rare insect, two specimens of which he brought to London with him, in 1826, and the last time he was in England; the other specimen, with many other novelties, he gave to be incorporated in the indigenous collection of the British Museum. We believe the specimens to have been taken in Devonshire, not by the Doctor, but by some of his friends. Many of the *Elaters* feed in the bodies of dead trees during their larva state, and will be found in the perfect state, very often, several inches from the surface, in decayed wood.

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GOMPHOCERUS RUFUS. *Leach, MSS. Samou.*
 Gomphoceros. *Thunb.*
 Gryllus Rufus. *Linn.*

This genus separated from that extensive group of insects the *Gryllus* of Linnè was first indicated by Thunberg; adopted by Dr. LEACH, and the characters laid down, in the “*Entomologist’s Useful Compendium*” in 1819, and at that period only two species had been detected in this country. GOMPHOCERUS is easily distinguished from other species of *Locustidæ* by the *antennæ* being capitate; and the club of the *antennæ* being spoon-shaped in both sexes. *G. Rufus*. Body rufus; wing cases pale brown, rather rufus on the inner margin; wings with a very slight tinge of pink and the hinder thighs and the tibia red; the latter furnished with a double row of spines, which are black at the tip. Length of the body $6\frac{1}{2}$ lines.

This very interesting species appears to be local, since we have never met with it but in one place in Battersea Fields, on the sloping bank above the Red House, in the month of August, where they are very plentiful.

The *Gryllidæ* and *Locustidæ* may be collected in wide-mouthed bottles, with pieces of hay and grass introduced for them to crawl upon; and, in some instances, perhaps it would be better to plunge them into bottles of spirits of wine; and when this plan is adopted we recommend the collector to take the

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earliest opportunity to pierce the insect, and abstract the spirit by blotting-paper ; and should its size require the inside to be removed, to do so while the insect is soft, in order to preserve the colour of the body, and supply its contents by a little cotton, as in preserving the larger species of *Neuroptera*. But little is yet known either of the history, or of the species, found in this country, except by our friend, J. C. DALE, Esq. of Dorset, who has paid much attention to the subject, and has added, we believe, more species to our list than any other Entomologist.



GOMPHUS VULGATISSIMUS. *Leach.*Libellula Vulgatissima. *Linn.**Common Dragon Fly.*

Head yellow, with three black transverse narrow streaks: thorax yellow, with three black streaks, one down the centre and one on each side: body yellow, with two black streaks down the back, gradually increasing in width and joining at the termination of the sixth joint: wings light and iridescent: legs black.

This beautiful and splendid insect is by no means so common as its specific name might imply; at least it is not so near London, or it must be confined to a very limited space: Linné in all probability gave it this name from its being common in Sweden. We have never met with but one living specimen of this species, which was taken in the copse, north of the hill from Robin-hood Lane, adjoining Coombe Wood, Surrey, about twenty years since, in the month of June; but in some parts of Epping Forest, from the observations of an old collector of insects, in certain seasons it is not uncommon. Insects of the Order NEUROPTERA will generally be local, not for want of powerful flight, but from situations congenial to the propagation of their species, and the attraction of water, their natural element in the infant state, and for the love of their offspring—a most beautiful provision of nature. No insects are more powerful on the

wing than the *Libellulæ*, and they will often frustrate the most wary and active movements of the entomologist when in pursuit of them. Leeuwenhoek reckons, in each eye of the *Libellula*, 12,544 lenses, or in both 25,088. The late Mr. CARPENTER used to exhibit to his friends a small portion of them between glass, when they were magnified to the size of a *sweet* pea, and on each eye would be reflected the flame of the lamp, and the slightest movement of the flame could be observed on each eye: these will be found most interesting objects for the microscope.

The larvæ have six feet, and move with great activity in the water; at the mouth they are furnished with an articulated forceps; they are very voracious, and are the Crocodiles of aquatic insects; The larva and pupa are not very different; the latter has the rudiments of wings; in a fine warm day in June, a person standing by a pond, may observe them approach the bank for the purpose of changing their element. Having crawled up upon a blade of grass, or bit of dry wood, the skin of the pupa grows parched, and splits at the upper part of the thorax. The insect issues forth gradually, throws off its slough, in a few minutes expands its wings, flutters, and then flies off.



Deilephila lineata Latr.

SMERINTHUS TILIÆ. *Latreille.*Sphinx Tiliæ. *Linn.**Lime Hawk Moth.*

Thorax ash-colour, with three olive-green bands, taking their origin from the head: body also ash-colour: the upper wings are of a pale brick red, but subject in different specimens to great variation; about the middle of the wing and near the upper margin is an irregularly formed olive-green blotch—beneath this and somewhat nearer the body is a triangular spot of the same colour, and in some specimens they join, in others the lower spot is wanting: the outer margin has a broad fascia clouded and of a less defined olive colour: the lower or inferior wings are a little darker than the upper, and have an undefined streak of a slight olive-green a little below the middle of the wing, and gradually decreasing in width to the inner angle: antennæ and feet ash colour.

The larva feeds on the lime-tree; it is rough, tailed, attenuated before, and green, with oblique lateral striæ of a red or yellow colour: the pupa is dark brown.

This insect is but seldom met with in the perfect state, and we would recommend the young entomologist, or those who do not possess specimens, to seek for the pupa at the roots of lime trees: these may be met with at about two or three inches below

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the surface, and, in this state, are far from uncommon—they may be obtained during the months of March and April, and should be placed in breeding cages, on the surface of earth, and covered with moss, which must be sprinkled with water from time to time, and in the month of May the perfect insect will make its appearance. The Rev. W. KIRBY has observed that they invariably emerge from the pupa state at the hour of noon.

All authors have described the caterpillars as *solitary*: we once met with a female of this species, a cripple, and the only specimen, and it was in all probability from this circumstance that it was captured. This specimen deposited in the collecting box a number of eggs; these were taken care of, and twenty-seven larvæ were hatched; they were placed in a breeding cage and supplied with lime leaves—they thrived well for some time, but their number gradually diminished: in about three weeks, as they grew in strength, one or more was always found dead in the bottom of the cage. This continued until a single specimen was left, and the solitary individual in all probability fell a sacrifice to the wounds he had received. Most caterpillars feed at night while there is dew on the leaves, and it is not impossible that, for the want of liquid, they may have glutted on each other; however, as they appear of a solitary nature in a natural state, they may be pugnacious in a confined one. The larvæ may be beaten from the lime-tree in August. The figure is of the natural size.



BEDUVIUS PERSONATUS. *Fabr.**Cimex Personatus. Linn.*

This insect is oblong, and its general colour is a sooty black : the antennæ are situated contiguous to the eyes : the basal joints are cylindrical and gradually increasing in thickness—the second joint is twice the length of the first, the third and fourth are as slender as a hair : the legs are of the same colour as the body and rather long. This insect is said to be “ a great enemy to the bed-bug, and might be employed in extirpating them. It is amongst the largest species of the British Cimicidæ. The larva is generally covered with dust and filth, but the moment it is touched it throws off its covering, as if it had worn it merely for concealment.” This insect is not uncommon in the county of Norfolk, if we can judge from the Norwich Collectors, for most of our specimens have been received from them. One living specimen only has come under our observation, which was taken about sixteen years since, as early as the month of March, on palings near Chigwell Row, Essex, by the late Mr. SHARP, a most industrious collector of insects : the day was excessively wet, and the insect was in a spider’s web, in the sheltered part from the rain. Length $8\frac{1}{2}$ lines.

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ENTOMOLOGICAL CABINET.

LAMPRIAS CYANOCEPHALUS. *Bonelli.*
Samouelle. Stephens.
Carabus Cyanocephalus. *Linn.*

Deep green, and verging to a blue green; first joint of the antennæ, thorax, breast and legs red: the head is widely and deeply punctured: elytra with the punctures in striæ or lines, which are scarcely observable without a magnifier. Length from two to three lines. Four species of Lamprias have been discovered in this country: they are found on the *Broom* in the months of May and June, and in some years are much more numerous than in others. They are by no means common, and appear very local being sometimes confined to a single tree. The usual method to obtain them is to hold the folding net beneath the *Broom* when in bloom, and with a light stick beat the blossoms into the net, into which these and many other curious coleopterous insects will be collected and are easily captured.

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NECROPHORUS ANGLICUS. *Leach. Stephens.*

Oblong and black, antennæ clavated, the club perfoliated and imbricated, consisting of small concave pieces, connected in the middle, the three last of which are red: the basal joints moniliform, the antennæ are inserted at the base of the clypæus, and from their form appear to be well adapted to catch the effluvia arising from dead animals. The head is broad, black and punctured; the thorax is considerably broader than the head, and the form exhibits great muscular power: the elytra are short and do not cover the last joints of the body, (which are capable of great extension) they are black and marked by two red transverse and undulated fascia: the body, and outward parts of the hinder thighs, are covered by long stiff hair of a brilliant yellow colour—the thorax round the margin is also clothed in a similar manner. This species approach in appearance the *Vespillo*, but may be distinguished by the comparative breadth of the thorax, which is considerably broader in *anglicus*. This is a rare insect, and the specimens we possess were captured in marsh meadows, in the months of August and September. To illustrate the history of those useful insects and “scavengers of nature,” we shall quote the following observations on *N. Vespillo* by M. Gleditsch.

“He begins by informing us that he had often remarked that dead moles when laid upon the ground,

especially upon loose earth, were almost sure to disappear in the course of two or three days, often in twelve hours. To ascertain the cause, he placed a mole upon one of the beds in his garden. It had vanished by the third morning; and on digging where it had been lain, he found it buried to the depth of three inches, and under it four beetles which seemed to have been the agents in this singular inhumation. Not perceiving any thing particular in the mole, he buried it again; and on examining it at the end of six days he found it swarming with maggots apparently the issue of the beetles, which M. Gleditsch now actually concluded had buried the carcass for the food of their future young. To determine these points more clearly, he put four of these insects into a glass vessel half filled with earth and properly secured, and upon the surface of the earth two frogs. In less than twelve hours one of the frogs was interred by two of the beetles: the other two ran about the whole day as if busied in measuring the dimensions of the remaining corpse, which on the third day was also found buried. He then introduced a dead linnet. A pair of the beetles were soon engaged upon the bird. They began their operations by pushing out the earth from under the body so as to form a cavity for its reception; and it was curious to see the efforts which the beetles made by dragging at the feathers of the bird from below to pull it into its grave. The male having driven the female away continued the work alone for five hours. He lifted up the bird, changed its place, turned it and arranged it in the grave, and from time to time

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came out of the hole, mounted upon it and trod it under foot, and then retired below and pulled it down. At length, apparently wearied with this uninterrupted labour, it came forth and leaned its head upon the earth beside the bird without the smallest motion as if to rest itself, for a full hour, when it again crept under the earth. The next day in the morning the bird was an inch and a half underground, and the trench remained open the whole day, the corpse seeming as if laid out upon a bier, surrounded with a rampart of mould. In the evening it had sunk half-an-inch lower, and in another day the work was completed and the bird covered.—M. Gleditsch continued to add other small dead animals, which were all sooner or later buried; and the result of his experiment was, that in fifty days four beetles had interred in the very small space of earth allotted to them, twelve carcasses: viz. four frogs, three small birds, two fishes, one mole, and two grasshoppers, besides the entrails of a fish, and two morsels of the lungs of an ox. In another experiment a single beetle buried a mole forty times its own bulk and weight in two days. It is plain that all this labour is incurred for the sake of placing in security the future young of these industrious insects along with a necessary provision of food. One mole would have sufficed a long time for the repast of the beetles themselves, and they could have more conveniently fed upon it above ground than below. But if they had left thus exposed the carcase in which their eggs were deposited, both would have been exposed to the imminent risk of being destroyed at a mouthful by the first fox or kite that chanced to espy them.”

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CHRYSIS STROUDERA. *Jurine.*

Ruby Tail or Golden Wasp.

Head, thorax, legs, antennæ and the first two joints of the body of an intense blue; the last two joints pink and shining. This species of *Chrysis* is very rare, for in all our excursions we have only met with two specimens, one of which was given to Dr. LEACH many years since, and is now in the indigenous collection of the British Museum. Our specimens were found in a sand-pit, at Bexley, Kent, in June or July. The *Chrysidæ* are the most splendid insects of the order *Hymenoptera*, and are usually found in the warmest and brightest weather, and the commonest species may frequently be observed in gardens entering the perforations made by bees in posts and rails; also in sandy banks and old brick walls with a Southern aspect; these, no doubt, are in quest of the larvæ of bees, as all authors believe, as far as observation has been made, that they are parasitic.

Both Mr. KIRBY and M. LATREILLE are of opinion, "that the brilliant colours in which many insects are arrayed, may decorate them with some other view than that of mere ornament: they may *dazzle* their enemies, as these animals lay their eggs in the nests of such *Hymenoptera*, wasps, bee-wasps (*Bembex* L.) and bees, as are redoubtable for their stings, and therefore have the utmost occasion for protection against these murderous weapons. Amongst other

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defences the golden wasps are adorned with the most brilliant colours, which, by their radiance, especially in the sunny situations frequented by these insects, may dazzle the eyes of their enemies, and enable them to effect the purpose for which they were created."



NOMADA GOODENIANA. *Kirby.*

Black, the tubercles on the thorax and at the base of the wings yellow : the body with alternate bands of black and yellow : wings pale red : antennæ and legs reddish yellow : the thighs black at the base.

This variable but not uncommon insect was dedicated by the illustrious author of "*Monographiæ Apum Angliæ*" to the late Doctor Goodenough, Bishop of Carlisle. The insects of this genus of bees are found in the months of April, May and June, in lanes and against sunny banks—they are numerous and well deserving observation : they are silent in flight and are supposed to be parasitic.



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ÆGERIA ASILIFORMIS. *Fabr*

MEMYTHRUS VESPIFORMIS. *Newman*:

Clear underwing. Haworth.

Bluish-black: head with a white spot before the eyes; the collar yellow: palpi with the base black, the apex yellow: antennæ bluish, beneath fulvous at the base: thorax with a spot at the base of the wings, and a line on each side yellow: abdomen glossy, with the second, fourth and sixth segments on their posterior part yellow: tuft of the tail black: thighs black, the hinder part yellow at the base: tibiæ yellow, with a black spot externally: feet fulvous: upper wings above brown, with two transparent streaks, the nervures and costa bluish; beneath pale tawny, with an indistinct central tawny lunule; lower wings transparent, with a lunular mark in the centre; the nervures and margin fuscous: fringe of all the wings ashy-brown. In the male the antennæ are strongly pectinated nearly to the apex.

This is a very rare insect; but has been occasionally taken on poplars near London, in June and the beginning of July.

The caterpillar feeds on the wood of the poplar tree and also on the willow.

The caterpillar of *Ægeria Tipuliformis* may, at this season, be observed in gardens, and its destructive operations seen by the cuttings from the currant trees lopped off by the gardener; and upon examination of these shrubs they will be found to have been perforated immediately through the centre of the

stem, and the caterpillars may be detected often in the shoots that are thrown aside. Mr. Kirby says, "Sir Joseph Banks lately showed me a branch of this shrub perforated down to the pith by the caterpillar of *Sesia tipuliformis*, F. : the diminished size of the fruit points out," he observes, "where the enemy has been at work. In Germany, where perhaps this insect is more numerous, it is said to destroy at times the larger bushes of the red currant."

We feel obliged to Mr. Newman for the loan of his specimen of the *S. Asiliformis* of Fabricius, from which our drawing has been made, and it has been the means of furnishing us with facts, by a comparison with the "*Sphinx Vespiformis* of Linné in the Linnæan Cabinet," that English Entomologists may yet entertain the hope, and we have little doubt that, by "industry and perseverance" the true *Vespiformis* will be discovered to be an inhabitant of our fertile isle. Our figure is a faithful representation, and we beg to observe, that the *S. Vespiformis* of LINNÉ will be found to have the last three segments of the body terminated by yellow rings and the superior wings semi-transparent : and is near to the *Hylæiformis* of Dr. Leach, preserved in the exotic collection of the British Museum, and from which it only differs by having four instead of three bands : of the locality of the specimen we are ignorant—it may possibly be the other sex of *vespiformis*. In *asiliformis* as described above, the second, fourth and sixth segment of the body bearing a yellow ring, will readily distinguish it, and is agreeable to the accurate characters as laid down by Fabricius.





BREPHA PARTHENIAS. *Hubner. Curtis. Stephens.*
Orange under wing.

Light brown ; upper wings brown, sprinkled with ash colour, with several very obscure whitish streaks, of which two towards the posterior margin are most distinct, and arise from two somewhat lunular whitish spots on the costa ; anterior to the first is a small bluish-ash stigmatiform spot with a dusky margin, between which and the base of the wing, on the costa, is a pale ashy spot : posterior wings pale orange, with the base and inner margin broadly black, with an angulated and sometimes interrupted narrow black fascia in the middle reaching to the costa, and an irregular fimbria of the same colour : cilia of the wings fuscus, slightly clouded with cinereous, female paler. The caterpillar feeds upon poplars and willows : it is yellowish-green, with a bluish-black line, and some black spots. The perfect insect appears towards the end of March and beginning of April, and may occasionally be found against the trunks of trees ; but the best method of taking this desirable insect is to search the sallows when in blossom, on which the insect feeds, and they will afford in fine weather, at this season of the year, good sport to the entomologist. This insect flies high—they mostly inhabit woods. We have occasionally seen them in Coombe Wood, Surrey ; they have also been taken at Colney Hatch Wood, near Finchley.

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BEROSUS APICALIS. *Rudds MSS.*

Oblong and of a dull ochreous colour above; head and thorax deeply punctured; the apex of the elytra deeply notched and spined: legs of the same colour as the elytra: palpi and antennæ of a pale yellow: under part of the body deep black. Length $2\frac{1}{2}$ lines.

We are indebted to our much friend respected the Rev. G. T. Rudd, F. L. S. for specimens of this very interesting species, who in a communication says, "My brother found the berosus, specimens of which I have had the pleasure of giving you, and which appear to be a new species, (having a strong character of distinction from the hitherto known indigenous species, in the spined apex of the elytra) in profusion in some deserted salt pans near Lymington, he tells me it occurred throughout the year."

Three species of this genus has been discovered since Mr. Marsham published his Entomologia Britannica in 1802. What we have been able to observe respecting their habits is, that they appear to be fond of such pools of water as are sometimes formed in woods after heavy rains, and so shallow as to do little more than cover the grass; we once met with *æriceps* in the greatest profusion at Dulwich in such a situation, and were obliged to break the ice which covered the surface, this was early in the year. We would wish to impress on the mind of the young collector that he may always collect

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insects and at all seasons of the year, certain weather, under peculiar circumstances is more favourable, but still insects may be found if diligent search be made.



MELOLONTHA VULGARIS. *Fabr.*

Scarabæus Melolontha. *Linn.*

Common Cockchafer.

Antennæ, elytra and legs testaceous or of a brick red: thorax and scutellum black and villous: the body black and covered with grey hairs.

The larvæ or grubs of this species of Beetle, so well known in England by the name of Cock-chafer, are more voracious, and more destructive to vegetation, than those of almost any of the insect tribes.

The eggs are deposited in the ground by the winged insect, whose fore-legs are very short, and well calculated for burrowing. From each of these proceeds, after a short time, a whitish worm with six legs, a red head, and strong claws, and about an inch and a half long, which is destined to live in the earth under that form for four years, and there undergo various changes of its skin, until it assumes its chrysalid form. It subsists, during its subterraneous abode, on the roots of trees and plants, committing ravages often of the most deplorable nature. These creatures, sometimes in immense numbers, work between the turf and the soil in the richest meadows, devouring the roots of the grass to that degree that the turf rises, and will roll up with almost as much ease as it it had been cut with a turfing-spade: and underneath the soil appears turned into a soft mould for about an inch in depth,

like the bed of a garden. In this the grubs lie in a curved position, on their backs, the head and tail uppermost, and the rest of the body buried in the mould. Mr. Arderon, of Norwich, mentions his having seen a whole field of fine flourishing grass, in the summer time, become in a few weeks withered, dry, and as brittle as hay, by these grubs devouring the roots, and gnawing away all those fibres that fastened it to the ground, and through which alone it could receive nourishment.

The larvæ, as I have said, continue four years in the ground; and when, at the end of this period, they are about to undergo their change, they dig deep into the earth, sometimes five or six feet, and there spin a smooth case, in which they change into a chrysalis. They remain under this form all winter till the month of February, when they become perfect beetles, but with their bodies quite soft and white. In May the parts are hardened, and they then come forth out of the earth. This accounts for our often finding the perfect insects in the ground.

Cock-chafers fly in the evening towards sunset, and particularly about places where there are trees. They eat the leaves of the sycamore, the lime, the beech, the willow, and those of all kinds of fruit-trees. In its winged state this insect exhibits not less voracity on the leaves of trees than it before did in its grub state in the earth; for, such is the avidity with which it devours its food, and so immense are sometimes the numbers, that, in particular districts, they have become an oppressive scourge,

which has produced much calamity among the people.

In the year 1688, the Cock-chafers appeared on the hedges and trees of the south-west coast of the county of Galway, in clusters of thousands, clinging to each others' backs in the manner of bees when they swarm. During the day they continued quiet, but towards sun-set the whole were in motion; and the humming noise of their wings sounded like distant drums. Their numbers were so great that, for the space of two or three square miles, they entirely darkened the air. Persons travelling on the roads, or who were abroad in the fields, found it difficult to make their way home, as the insects were continually beating against their faces, and caused great pain. In a very short time the leaves of all the trees for some miles round were destroyed, leaving the whole country, though it was near midsummer, as naked and desolate as it would have been in the middle of winter. The noise that these enormous swarms made in seizing and devouring the leaves, was so loud as to have been compared to the distant sawing of timber. Swine and poultry destroyed them in vast numbers. These waited under the trees for the clusters dropping, and devoured such swarms as to become fat from them alone. Even the native Irish, from the insects having eaten up the whole of the produce of the ground, adopted a mode of dressing them, and used them as food. Towards the end of summer they disappeared so suddenly that in a few days there was not a single one left.

About sixty years ago a farm near Norwich was so infested with Cock-chafers, that the farmer and his servants affirmed that they gathered eighty bushels of them; and the grubs had done so much injury that the court of that city, in compassion to the poor fellow's misfortune, allowed him 25l.

Mouffet informs us, that in the month of February 1574 there were such multitudes of them in the western parts of England, that those which fell into the river Severn completely cloged the water-wheels of the mill.

The rooks and gulls devour immense numbers of the grubs of this destructive insect, by which they render a most essential service to mankind, and great care ought to be taken to cherish and protect them. The sole employment of rooks, for nearly three months in the spring of the year, is to search for insects of this sort for food; and the havoc that a numerous flock makes among them must be very great.

A cautious observer, having found a nest of five young jays, remarked that each of these birds, while yet very young, consumed at least fifteen of these full-sized grubs in a day; and averaging their sizes, it may be said that each consumed twenty: this for the five makes a hundred: and if we suppose the parents to devour between them the same number, it appears that the whole family consumed about two hundred every day; this in three months amount to twenty thousand. But as the grub continues in the same state for four years, this single pair, with their family alone, without reckoning their descen-

dants of the first year, would destroy as many as eighty thousand grubs. Now, supposing that forty thousand of these may be females, and that each female lays, as is the case, about two hundred eggs, it will appear that no less than *eight millions* of grubs have been destroyed, or at least prevented from being hatched, by this single family of jays.

It is true that in these labours of the rooks, jays, and some other birds, they sometimes do mischief to man ; yet there can be little doubt that the damage they thus commit is amply repaid by the benefit that results from these their unceasing exertions.

Some farmers plough the ground in order to expose the grubs to the birds ; and others take the pains to dig deeper wherever the rooks point them out by their attempts to reach them.—When the insects are in their winged state, to shake the trees at noon, when they are all either asleep or in a state of inactive stupor, and gather or sweep them up from the ground, seems the most eligible method. One person has been known to kill in a day, by this method, above a thousand ; by which, though in so short a space of time, at a fair calculation, he prevented no fewer than a hundred thousand eggs from being laid.

The dead bodies of these insects afford a very acceptable food to ducks, turkies, and other poultry. Swine, as I have before observed, will likewise greedily devour them, particularly when bruised and mixed with their other food ; and cats catch and eat them with great avidity.

A person near Blois, in France, employed in the year 1785 a number of children and poor persons to

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destroy the Cock-chafers, at the rate of two liards a hundred. In a few days fourteen thousand were brought to him. Thus, for the moderate sum of about seven shillings and eight-pence sterling, he destroyed, according to his calculation, near a *million and a half* of the grubs; which, had they been allowed to be hatched, might, in the course of four years, have done damage to the amount of many thousand pounds.—*Bingley.*





ANDRENA NIGRO-ÆNEA. *Kirby.*

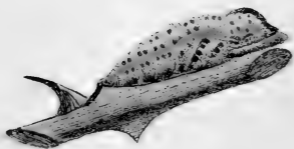
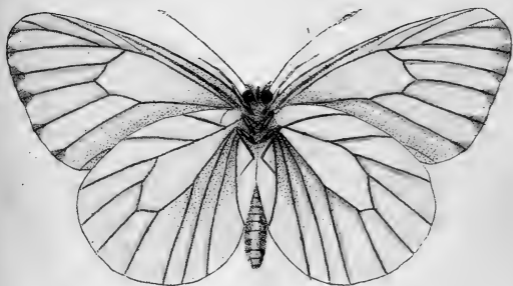
Body black and densely covered with fulvus hair : head, front covered with tawny hair, on the summit may be seen the ocelli placed in a triangle, the antennæ are black : thorax black and covered with rufus hair : wings transparent and slightly irredescent towards their extremities, the nervures testaceous : legs black and covered with brown hair ; the thighs and shanks of the hinder legs beneath covered with long white hair. This bee is not uncommon in April and May. We have figured it in order to remind the entomologist of the very curious parasite that is occasionally found on it, namely the *Stylops*. As so many species have been added since the discovery of the Rev. W. Kirby, we could wish for the credit of British entomologists that they will still persevere in the pursuit of this singular order of insects. Mr. Curtis, in his "GUIDE to an arrangement of BRITISH INSECTS," has enumerated six species of *Stylops*, and since the completion of his *Guide* has added not only another specie to the *order*, but a new *genus*. Our friends J. C. Dale, Esq. of Dorset, the Rev. G. T. Rudd, and those successful and indefatigable collectors of the minute hymenoptera, the Mr. Walkers, of Southgate, have been most fortunate in their researches, the result of which, we have great hopes, will soon be made public. It may not be amiss to state the method of detecting the *Stylops melittæ* and we cannot do better than quote from the Rev. author of "*Monographia Apum Angliæ.*"

“Upon this insect I discovered, last spring, a very singular animal, which seems appropriated to the present genus. I had previously more than once observed upon other species something that I took to be a kind of *Acarus*, which appeared to be immoveably fixed just at the inosculation of the dorsal segments of the abdomen: at length, finding three or four upon a specimen of *M. nigro-æneæ*, I determined not to lose that opportunity of taking one off to examine and describe; but what was my astonishment when upon my attempting to disengage it with a pin, I drew forth from the body of the *Melitta* a white, fleshy larva a quarter of an inch in length; the head of which I had mistaken for an *Acarus*.

“After I had examined one specimen I attempted to extract a second, and the reader may imagine how greatly my astonishment was increased, when after I had drawn it out a little way, I saw its skin burst, and a head as black as ink, with large staring eyes and antennæ consisting of two branches, break forth, and move itself briskly from side to side. It looked like a little imp of darkness just emerging from the infernal regions. My eagerness to set free from its confinement this extraordinary animal may be easily conjectured. Indeed I was impatient to become better acquainted with so singular a creature. When it was completely disengaged, and I had secured it from making its escape, I set myself to examine it as accurately as possible; and I found, after a careful inquiry, that I had not only got a non-descript, but also an insect of a new genus, whose very class seemed dubious.” *Kirby*.







PIERIS CRATÆGI. *Schrank. Steph. Kirby.*
Black-veined White Butterfly.

Wings rounded entire and white with the veins black: the under side resembles the upper, except that the black veins are somewhat stronger. The caterpillar of this species feeds on the white thorn but is not common. We have occasionally taken the pupæ attached to this plant as represented beneath the figure of the underside, (5-5) of this elegant species; and we have seen the perfect insect in some profusion near Brockenhurst, in the new forest in the month of June; and J. G. Children, Esq. has received a great number of specimens from Wittlesea mere. It appears that the caterpillar is occasionally found on other trees, as Mr. Kirby says "in 1791, in some parts of Germany, they stripped the fruit-trees in general of their foliage."

At this season most of the garden species of white butterflies make their appearance and the walks in our garden on a fine morning will enable us to "observe the motions of that common white butterfly which you see flying from herb to herb. You perceive that it is not food she is in pursuit of; for flowers have no attraction for her. Her object is the discovery of a plant that will supply the sustenance appropriated by Providence to her young, upon which to deposit her eggs. Her own food has been honey drawn from the nectary of a flower. This,

therefore, or its neighbourhood, we might expect would be the situation she would select for them. But no : as if aware that this food would be to them poison, she is in search of some plant of the cabbage tribe. But how is she to distinguish it from the surrounding vegetables ? She is taught of God ! Led by an instinct far more unerring than the practised eye of the botanist, she recognises the desired plant the moment she approaches it, and upon this she places her precious burthen ; yet not without the further precaution of ascertaining that it is not pre-occupied by the eggs of some other butterfly ! Having fulfilled this duty, from which no obstacle short of absolute impossibility, no danger however threatening, can divert her, the affectionate mother dies."



CECOPHORA LINNEELLA. *Latr. Leach.*

Sam. Steph.

Glyphpteryx Linneella. *Curtis.*

Phalæna Lineella. *Clerck.*

Head, thorax and body very glossy, dull violaceous : Antennæ black, white at the apex : upper wings bright orange, purple and metallic at the base and apex ; a line on the costal edge interrupted in the middle ; a small spot near the base and three raised silver spots forming a triangle in the middle of each wing : lower wings purple and slightly metallic, the fringe of all the wings very long and blackish. Length from tip to tip of the expanded wings from 5 to 6 lines.

We are indebted to our esteemed friend, Mr. Wm. Bentley for the loan of this splendid insect : he informed us that specimens were taken last July on willows in Battersea Fields. Clerck was the first who figured and named it after the celebrated Linné, and as it is exactly 100 years since this illustrious Swede began his Lapland Tour, a brief biographical notice may be acceptable to some of our young friends. "Charles Linnæus, the most eminent of modern naturalists, was born May 13th, old style, 1707. The family of Linnæus had been peasants ; but some of them, early in the 17th century, had followed literary pursuits. In the beginning of that century, regular and hereditary surnames were first adopted in Sweden. A remarkable Linden-tree,

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Tilia europæa, growing near the place of their residence, is reported to have given origin to the name of Linnæus. Of the taste which laid the foundation of his happiness as well as his celebrity, his worthy father was the primary cause. Residing in a delightful spot, on the banks of a fine lake, surrounded by hills and valleys, woods and cultivated ground, his garden and his fields yielded him both amusement and profit, and his infant son imbibed, under his auspices, that pure and ardent love of nature for its own sake, with that habitual exercise of the mind in observation and activity which, ever after, marked his character, and which were enhanced by a rectitude of principle, an elevation of devotional taste, a warmth of feeling, and an amiableness of manners, rarely united in those who so transcendently excel in any branch of philosophy or science.

We must pass briefly his more juvenile days, by stating that, in 1717, he was removed to the grammar school of Wexio, where his progress was slow. In 1722, he proved competent, nevertheless, to be admitted to a form. In 1724, being 17 years of age, he was removed to the superior seminary, and was destined to the church. His literary reputation however made so little progress, that, when his father paid a visit to Wexio, in 1726, his tutors, like the sapient instructors of Newton at Cambridge, gave him up as a hopeless dunce. Fortunately, the disappointed parent met with a better counsellor in Dr. Rothmann, who encouraged him to hope much from the inclination of his son to natural knowledge and practical observation, and recommended that he should be directed to the study of medicine.

In 1727, Linnæus was matriculated at the university of Lund. In 1728 he was induced to quit this university for Upsal, as a superior school of medicine and botany. But the slender support which his father could afford him—a capital of eight pounds sterling being totally inadequate, he was, in this new situation, reduced to the greatest necessity. Private pupils were not to be procured by a poor unknown student. He was obliged to trust to chance for a meal; and when he relates that he had no way of mending his shoes but by folded paper, he seems to have felt the want even of the cobbler's education which had been recommended to him. After struggling with various difficulties, in which he never relaxed from his studies, we find him, in 1732, with an appointment to travel through Lapland, under the Royal authority, and at the expence of the academy. "I set out alone from the city of Upsal, on Friday, May 12, 1732, old style, at eleven o'clock, being at that time within half a day of twenty-five years of age." He travelled on horseback, but slenderly provided with baggage; and, after visiting the Lapland Alps on foot, and descending to the coast of Norway, returned by Tornea, and the East side of the Bothnian Gulf, to Abo, and so to Upsal, which he reached on the 10th of October, having performed a journey of nearly 4000 English miles. Disappointed in his views of medical advancement, Linnæus turned his attention to mineralogy, and gave lectures on the art of assaying; and having scraped together about fifteen pounds, now entered on his travels. After a stay of eight days at Amsterdam, he proceeded to

Haderwyck, where, having offered himself as a candidate, and undergone the requisite examinations, he obtained his degree June 23, 1735.

In Holland, Linnæus became acquainted with Dr. Gronovius, who assisted him in publishing the first edition of the celebrated *Systema Naturæ*, consisting of eight large sheets, in the form of tables; which edition is now become a great biblical curiosity. He also procured access to the illustrious Boerhaave, who introduced him to Mr. George Clifford, an opulent banker, whose garden at Hastecamp was one of the richest in the world, and who thought himself happy in the opportunity of procuring such a man to study and superintend his collection, as well as to make known to the world any novelties it might contain. Linnæus was therefore removed to Hastecamp, where, he says, "he lived like a prince;" more glorious, no doubt, than an Asiatic despot, in the innumerable vegetable tribes which daily offered their homage at his feet. With an ample library, as well as garden, at his command, in both which he had unlimited powers to supply any defects that he might discover. He had now the means of cultivating his beloved science without restriction or impediment, and appears to have been truly sensible of the happiness of his lot. He now wrote and printed his admirable *Flora Laponica*. This work, one of the happiest literary compositions of its author, is strikingly characteristic of the state of his mind at the time it was written.

In 1736, after having written his *Musa Cliffortiana*, Linnæus was sent by Mr. Clifford to England, and

was introduced to the scientific, at Oxford and London more especially. Of his observations on the natural history of this country, nothing is preserved but a tradition, that the golden bloom of the furze on the commons near London, especially Putney Heath, delighted him so much, that he fell on his knees in a rapture at the sight.

In 1737, he returned to Holland, and remained at Leyden till the spring of 1738 when he left for France where he inspected the botanic gardens, the herbariums of Tournefort, Vaillant, &c. formed the acquaintance with Reaumur and other distinguished naturalists, and was admitted a corresponding member of the *Academie des Sciences*.

After leaving Paris, Linnæus took his passage at Rouen for Sweden, and ultimately settled at Stockholm. The death of professor Rudbeck in 1740, and resignation of Roberg at the same time—Rosen obtained the professorship of botany and Linnæus that of medicine, and by an amicable adjustment, which was confirmed by authority, the two new professors afterwards divided their official duties between them so as best to suit the talents of each.

About 1751 the queen of Sweden, Louisa Ulrica, sister to the great Frederick of Prussia, having a taste for natural history, which her royal consort, King Adolphus Frederick, also patronised, showed much favour to Linnæus. On the 27th of April, 1753, he received from the hand of his sovereign, the order of the Polar Star, an honour which had never before been conferred for literary merit. And in 1786 when he was raised to the rank of Swedish nobility, and took the name of Von Linné.

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The emoluments of Linné by his various publications were not great. He is reported to have sold the copy-right of most of them for a ducat, (about nine and sixpence,) a printed sheet. His different appointments, however, had raised him to a considerable degree of opulence. He purchased the estate of Hammarley and Söfja in 1758, for 80,000 dollars, about £2330. sterling.

As the habits of Linné were temperate and regular he retained his health and vigour in tolerable perfection, notwithstanding the immense labours of his mind, till beyond his 60th year.

After two severe attacks of apoplexy, one in 1774 and the other in 1776, he died from an internal complaint on the 10th of January 1778, in the 71st year of his age. His remains were deposited in a vault near the West end of the cathedral of Upsal, where a monument of Swedish porphyry was erected by his pupils. His obsequies were performed in the most respectful manner, by the whole university—the pall being supported by sixteen doctors of physic, all of whom had been his pupils. A general mourning took place on the occasion at Upsal. His sovereign Gustavus III, commanded a medal to be struck, expressive of the public loss.

The Linnæan society of London was founded ten years after his death, and this appellation was given as the museum of Linné had fallen into the hands of the late Sir J. E. Smith, the original projector of the society and of which he remained president until his decease: the whole of the collection is now in possession of the society, being purchased by them from

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the executor of the late Sir J. E. Smith. The anniversary of this society is held on the 24th of May, being in the new style the birth day of this once great and universal naturalist." *Smith.*





CETONIA AURATA. *Fabr.**Rose-chafer.*

There are scarcely any of the English Coleopterous insects more beautiful than this. The upper parts of this insect are of a splendid shining green colour, and varying from a blue green to a copper colour: the head and thorax are slightly punctured: the scutellum large: elytra sinuated at the sides and shorter than the body, with a flexuous band and spots of an ochre colour; the sculpture is curious, being conical markings, as if made by the nib of a dry pen: the under part is also of a burnished green or copper colour; the breast hairy as are also the legs; the body is terminated by yellow hair. This insect is not uncommon in the month of June, and may be found feeding on flowers, particularly those of the rose and peony.

The caterpillar of this insect feeds under ground, generally at the roots of trees, and seldom appears on the surface unless disturbed by digging, or some other accident. They are considered to be injurious to the gardener, from their devouring the roots of his plants and trees. The female deposits her eggs in the middle of June. For this purpose she burrows into soft light ground, hollowing out and forming for them a proper receptacle. When the operation is over she returns to the surface and flies off, but seldom lives more than a few weeks. The cater-

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pillars are produced in about fourteen days and immediately seek out for food, which the parent always takes care to have near the place where she lays her eggs. As soon as they have attained sufficient strength, the young grubs separate, each burrowing a different way in search of roots. They remain four years in this state, annually changing their skins till they become of full growth, when they are of a cream colour, with brown head and feet.

About the month of March of the fourth year, the caterpillar forms a case of earth about the size of a pigeon's egg, somewhere near the surface, within which it changes into a pupa. In this state it remains until the beginning of June, when the perfect insect is formed and then emerges from the earth to feed on flowers.



PTINUS IMPERIALIS. *Linné.*

Brown ; the thorax with an elevated ridge down the centre, and with the head covered with long and dense grey hair : the eyes are large and very prominent : the scutellum is white : the elytra are covered with long hair, and from the shoulder is a streak of grey hair that makes a curve and, running along the suture of the elytra about a third of the way, terminates in a large white spot—the apex is of the same colour : the legs and antennæ are of a light brown. This insect is not common : we have met with but two specimens, which were beaten from a white-thorn hedge some years since. The caterpillars inhabit hedge-stakes and feed on the wood, perforating them in every direction and greatly accelerating their decay. Linné gave the name of *Imperialis* to this species of *Ptinus*, from the markings on the elytra resembling the eagle of the imperial standard.

Mr. Kirby has alluded to this species in his introduction to Entomology, and says, “ In variegation insects certainly exceed every other class of animated beings. Nature, in her sportive mood, when painting them, sometimes imitates the clouds of heaven ; at others, the meandering course of the rivers, of the earth, or the undulations of their waters : many veined like beautiful marbles ; others have the semblance of a robe of the finest net-work thrown over

them ; some she blazons with heraldic insigna, giving them to bear in fields sable—azure—vert—gules—argent and or, fesses—bars—bends—crosses—crescents—stars, and even animals.”

From the very large and prominent hexagons of the eyes of this species, if we could reason by analogy, we should infer that this insect is not farsighted ; and indeed the motions of its antennæ, when in walking, are such that at every step the insect makes, the antennæ are alternately touching the ground or substance on which the insect is walking. In this instance perhaps the antennæ may be the organs of smell to catch the odour of wood in a certain state of decay, or in seeking the other sex.



PSILURA MONACHA. *Steph.*

Bombyx Monacha. *Linné.*

Black Arches Moth.

Wings white, with black undulations; the segments of the body of a lake red.

The caterpillar of this elegant insect is of a cinerous brown colour, with red tufts upon the back; the second segment has a black heart-shaped spot; it feeds on the bramble, willow, apple, oak, larch and pine trees; in the middle of June it spins a web and changes to the pupa state; in about a month afterwards the moth is produced, which is not common. It has been found at Coombe Wood, in Surrey, and Darenth and Birch Wood, Kent.

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TORTRIX VIRIDANA. *Linné.*

Pea-green Tortrix.

Wings of a rhomboid shape, the upper ones green and without spots, the lower wings of a dirty white colour. It inhabits the oak and is very common about the end of June.

The caterpillar is naked, green, with black dots ; the hinder feet yellow : it feeds spun up in the leaves of the oak. About the beginning of June it changes to a brown pupa, with a bifid stylus at the hinder part, within the oak leaves wrapped up and fastened by a web, and after remaining so for fourteen days, the moth appears.

In some years these caterpillars are so numerous as to completely devour the foliage of the oaks ; they feed at night, and at break of day they may be heard eating.

In capturing the smaller Lepidopterous insects, we have always found pill boxes to answer best, and not more than one specimen should be put in each box : as many insects may be taken in a short time, of course, the collector must take two or three dozens of boxes with him in his excursions. In killing the smaller moths, the lid of the pill boxes should be opened a little way and then placed beneath a bason or tumbler, and a lighted match, or a little sulphur on paper, placed under the bason will kill the

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specimens in a few minutes ; they should then be put on a piece of cork and a pin passed through the thorax and the specimen then displayed by means of braces.



ŒSTRUS BOVIS. *Linné.**Ox Bot or Gad-fly.*

This insect is represented in the plate of the natural size, and is of a pale yellowish brown colour, with the thorax marked by four longitudinal dusky streaks, and the body by a black bar across the middle, the tip being covered with tawny or orange-coloured hairs: the wings are pale brown and unspotted.

“ The female of this species, when ready to deposit eggs, fastens on the back of a heifer or cow, and piercing the skin with the tube situated at the tip of the abdomen, deposits an egg in the puncture: she then proceeds to another spot at some distance from the former, repeating the same operation at intervals on many parts of the animal’s back. This operation is not performed without severe pain to the animal on which it is practised; and it is for this reason that cattle are observed to be seized with such violent horror, when apprehensive of the approaches of the female Œstrus; flying with uncontrollable rapidity, and endeavouring to escape their tormentor by taking refuge in the nearest pond; it being observed that this insect rarely attacks cattle when standing in water.

In the punctures of the skin thus formed by the gad-fly the several eggs hatch, and the larvæ by their

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motion and suction cause so many small swellings or abscesses, beneath the skin, which growing gradually larger, become externally visible, exhibiting so many tubercles an inch or more in diameter, with an opening at the top of each, through which may be observed the larva, imbedded in a purulent fluid: its appearance is that of an oval maggot, of a yellowish white colour while young, but growing gradually darker as it advances in age, till at the time of its full growth it is entirely brown. It is chiefly in the months of August and September that the eggs are laid, and the larvæ remain through the ensuing winter and till the latter part of the next June before they are ready to undergo their change into chrysalis. At this period they force themselves out from their respective cells, and falling to the ground, each creeps beneath the first convenient shelter, and lying in an inert state becomes contracted in an oval form, but without casting the larva skin, which dries and hardens round it. When the included insect is ready for exclusion, it forces open the top of pupa or chrysalis coat, and emerges in its perfect form, having remained within the chrysalis somewhat more than a month." *Shaw.*





STOMOXYS IRRITANS. *Linné.*

Body cinerous, somewhat hairy, the back with black spots.

This insect sits on the back of cattle, who endeavour to sweep it off by their tail, which, for that purpose, is continually in motion; it bites severely at the approach of rain. It greatly resembles the common house-fly, but its black and projecting rostrum sufficiently points out the difference.

We once met with this species plentifully on palings near Wandsworth Common, Surrey, as late as the month of November.

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ACILIUS SCOTICUS. *Curtis.* (♂)

Blackish brown; mouth, antennæ and palpi ochraceous: head with a triangular mark in the front and four smaller lineated markings behind, of the same colour: thorax with a broad margin at the sides, narrower on the fore margin and very slight in the hinder, a central transverse band terminated by a lozenge-shaped mark directing its also ochraceous point to the posterior or hinder angle of the thorax: elytra very deep in colour, and under the microscope having the appearance of very dark tortoiseshell, the margins of the same colour with the thorax but with numerous fine black spots: body beneath black with the sides of the abdomen with nearly triangular ochraceous spots, the last four segments with the hinder margin of a reddish brown: the four anterior feet ochraceous, the hinder black with the coxæ, and the terminal part of the thighs of the former colour: cilia or fringe of the hinder feet fox colour. Length of the body $7\frac{1}{2}$ lines.

In the males of this genus the first three joints of the anterior tarsi are dilated, fringed with close and strong curved hair or bristles, and form a concave hemisphere, in which are situated one large and two considerably smaller excavations, with a radiated and raised summit, which is a most beautiful and highly interesting opaque object for the microscope: the claws are very long, curved and simple.

The females of this and of the other species of the genus have four wide and deep sulci or channels on each elytra, closely covered with long and very coarse hair.

We are indebted to Charles Lyall, esq. jun. for this interesting species, who has taken it in Kinnordy Park, Scotland: in the British Museum is a specimen taken many years since, we believe in the Isle of Arran, by our much-respected friend, Dr. William Elford Leach.

Mr. Kirby, in speaking of the means of defence of insects, observes, "Willoughby has remarked a curious circumstance with respect to a water-beetle. (*Dytiscus cinereus*. Marsh) which ought not to be overlooked. A transverse line of a pale colour is observable upon the elytra of the male; where this line terminates, certain oblong pores are visible, from which he affirms he has often seen a milky fluid exuding." We have searched in vain for these pores on the elytra with the deepest powers of our microscope, and must observe, that most of the Dyticide gives out this fluid; but, from what we have observed, generally from the incisions at the head and thorax. We have taken the *A. cinerus* in most of the ponds round London at all seasons of the year.



COPRIS LUNARIS. *Fabr.*Scarabæus lunaris. *Linné.*

Black and shining, head covered by a large clypæus on shield partly dividing the eyes, so that the insect can see both above and below, in the centre of this shield is a recurved horn, subject to vary in its length in different individuals and in the female frequently only a slight protuberance : thorax as in the one figured rising nearly to the height of the horn and in the centre with a deep excavated notch ; the sides so deeply impressed as to raise a protuberance on the margin of the thorax the appearance of an obtuse horn, the fore margin with a strong red fringe of hair : elytra striated and not covering the extremity of the body : beneath black and shining, the legs short and thick and well adapted for burrowing : antennæ and mouth red. Length of the body 10 lines.

This very interesting insect to the entomologist, inhabits the dung of horses and, we believe, also that of cattle. It is by no means a common insect, and the only species of *Copris* yet found in this country. We have met with it in sandy lanes near Welling and Plumstead Heath, and as near the metropolis as Charlton, Kent ; also in sandy situations at Coomb Wood, Surrey : we beg to remind the collector that they will be found generally about four inches beneath the surface of the earth. Fabricus was in

error in making a second species of this insect from a variety, and was followed by Mr. Marsham in his *Entomologia Britannica*, under the name of *emarginatus*; but this is a fault that many would fall into if they did not possess the intermediate varieties, and indeed so great is the disparity of *Copris Molossus* (a Chinese species) that to all appearance six species at least might be named were it not for intermediate specimens both as to size and form, also of the horns or tubercles on the head and thorax. We would therefore caution our friends upon a division of species from characters, the value of which is so little understood: it is not impossible that those stronger features may have arisen from the nourishment that the larvæ may have received, so as to have rendered it larger and stronger and the fuller development of such parts.

Our specimens were taken some years since, in the month of May and also early in June.



7-3

Stenocryptus sp. nov. coll. July 2, 1902

TROX SABULOSUS. *Fabr.*

Black and from its rugosity not shining: head comparatively small and inflected: thorax large, with several wide and deep indentations: elytra with three elevated lines: the sulci between with two series of rough excavated dots, giving the whole a very coarse appearance: legs and the under part black: antennæ with a series of hairs on the basal joint and the lamellated club rufus. Length 5 lines.

All the trogidæ, as far as we are acquainted with them, feed on disseminated animal remains, which exist in dry sandy situations, and either secrete themselves by a covering of dirt or sand, or take shelter beneath rags, leather, and the dried bones of animals. *Trox sabulosus* is not a common insect, and being the largest species of a genus, of which only three species have been found in this country renders it an acquisition to the collector. We have met with this insect in dried rams horns in sandy places at Coombe Wood, in Surrey; it has also been taken on Hampstead Heath, in the month of May and early in June.

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4

Cerambyx *longicornis* *Linnaeus*

CALLIDIUM BAJULUM. *Stephens.*Callidium Bajulus. *Fabr.*Cerambyx Bajulus. *Linné.*

Black and shining thorax, nearly round, depressed and punctured, with two raised smooth tubercles placed between the centre and the margins: elytra black; brown in some specimens, punctured with two almost indistinct elevated lines on each elytra; about the centre a broken undulated fascia, composed of a greyish hair; the head, thorax and elytra have partial hair of the same colour; the abdomen is of a chesnut brown; antennæ and legs black. Length from 7 to 10 lines.

This insect has in all probability been introduced into this country originally from America, as we have frequently received specimens from that country agreeing completely with those found in England; and we have further to observe that the insect is generally found in fir posts, palings, and oftentimes we have met with them in the streets of London. Some years since, when collecting in Battersea Fields with Dr. Leach, he pointed out a post which Sir Joseph Banks, when a young man, used to search for this insect and often found them. On a late visit to G. Carter, Esq. of Mottingham Lodge, Kent, he informed us that the rafters of the house were infested by an insect that eat through the leaden roof; on describing the insect it proved to be this species.

Mr. Kirby has given the following interesting note on this insect. "The *larva* of a *Cerambyx* (which Dr. Leach has discovered to be *C. Bajulus* L.) sometimes does injury to the wood-work of the houses in London, piercing in every direction the fir rafters, and, when arrived at its perfect state, making its way out even through sheets of lead one sixth of an inch thick, when they happen to have been nailed upon the rafter in which it has assumed its final metamorphosis. I am indebted to the kindness of Sir Joseph Banks for a specimen of such a sheet of lead, which, though only eight inches long and four broad, is thus pierced with twelve oval holes, of some of which the longest diameter is a quarter of an inch! Mr. Charles Miller first discovered lead in the stomach of this insect."

Varieties of this species with pale elytra are not uncommon: this curious circumstance may possibly arise from extreme labour in the insect, by which means it loses such juices as give colour and strength to the elytra which in such specimens are generally soft.

The insect may be met with in June.



7 15

Andrena (Andrena) ...

AMMOPHILA HIRSUTA. *Kirby.*

Sphex arenaria. Fabr.

Hairy Sand Wasp.

Head large, punctured and covered with black hair : mandibles longer than the head : thorax and breast black and hairy : wings the length of the body slightly tinged with brown and darker towards the apex ; veins of the wings ferruginous with the costal edge fuscus : petiole of the abdomen short and black ; abdomen with the second, third and the base of the fourth ring of a deep reddish orange, legs black. Length from $6\frac{1}{2}$ to 8 lines.

Inhabits hot sandy banks in June and July.

In 1797, the Rev. Wm. Kirby gave to the Linnæan society, which was published in the fourth volume of their transactions, a monograph on the genus *Ammophila* ; the one now figured is rare, for we never met with but one specimen, which was taken about fourteen years since, on a sandy bank, near Lymington, Hampshire, in the month of July.

Of the habits of the insects of this genus, the following remarkable account is given by Ray. “ On the 22nd of June,” says he, “ in the year 1667, I saw it dragging along a caterpillar three times larger than itself, which, after it had carried the length of fifteen feet and upwards, it deposited near the entrance of a hole which it had previously dug in the earth. It then removed a little ball of earth, with

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which the entrance was covered, and went in ; after a short stay it came out again, [and seizing the caterpillar drew it into the hole and left it there. Then taking some globules of earth, it shoved them one after another into [the hole, and now and then scraping with its feet as rabbits or terriers do, it threw the loose earth backwards into the hole, and continued to do so with the globules of earth and dust alternately till the hole was quite filled, descending at times, as I thought, for the purpose of pressing down and consolidating the earth, and once and again flying to a neighbouring fir tree, perhaps, to procure turpentine to conglutinate the work. When the hole was filled and the surface levelled, so that the entrance could no longer be discerned, it took two leaves of fir which were lying near, and placed them close to the entrance, as if to mark the spot. Who, says the pious observer, can contemplate such things without admiration and astonishment ; or attribute them to a mere machine !” In this caterpillar the eggs had previously been laid, and it was to serve for food to the young Spheges in their larva state.





6.

GASTROPACHA QUERCIFOLIA. *Ochsenheimer.**The Lappet Moth.*

Wings indented and of a ferruginous colour; the mouth and tibia blue black.

This species has its latin trivial name from the resemblance it bears, when at rest, to a withered oak leaf. The caterpillar is hairy, and of a ferruginous colour, with a projection like a tail; the segments at the neck are blue; it feeds on grasses, the sloe, the pear and the willow; the pupa is brown with red fasciæ; they enter into this state about the end of May, and in a month the moth appears.

The caterpillar has often been taken at Coombe Wood, Surrey, near the residence of Lord Liverpool; also in several parts of Kent; but in Cambridgeshire and the neighbourhood of Wittleseamere, it appears to be abundant, feeding on the round-leaved willows. We once possessed a female that deposited a quantity of eggs, and the caterpillars came out in the autumn; they fed freely; but as the winter increased they shrunk considerably. As the spring advanced we supplied them with various plants, and they fed on the bark of the younger shoots; but we were not successful in bringing them to perfection, as they died off gradually. It is however interesting to know that this species will remain in the caterpillar state through the winter.

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CLEONUS SULCIROSTRIS. *Schön.*

Black and covered more or less with ash coloured hair, the head has on each side before the eyes a whitish line extending to the extremity of the rostrum—the base of the head is of the same colour : thorax with the sides greyish, and defined by a lighter line in a direction from the eye, that curves as the thorax enlarges at its posterior part ; there is also a line of the same colour down the centre, and joins the scutellum which is somewhat brighter ; the elytra are covered with greyish hair, and studded with various sized patches that give under the glass a very irregular appearance, but as the larger spots predominate, to the naked eye they form three blackish bands, the first taking origin at the shoulder and meeting the opposite one at about a third part from the scutellum ; the second band a little below with the same inclination and the third a mere streak that terminates at the apex of the elytra ; such is the appearance in a perfect specimen of the most general kind, but they are subject to great variety from age and also from circumstances of the locality of the insect, as we sometimes find them clouded with reddish hair, but this will frequently fade : the under side is black as are also the legs, and covered more or less with greyish hair. Length from 6 to 7 lines.

This species of curculionidæ, which is amongst the

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largest of the family yet found in England, is by no means of common occurrence, and from the circumstance of always being found on the ground, and generally in such soils that resemble the covering of the insect, it is not easily detected except by the experienced collector, as it will frequently bury in a light soil and cover itself with particles of the earth. The insect is found in sand-pits and also on heaths in the months of May and June; we have met with it in Wiltshire, when collecting with our much respected friend the Rev. G. T. Rudd, now of Stockton upon Tees, also in a sand-pit at Charlton, Kent, under the leaves of the coltsfoot, (*Tussilago Farfara*) and also in the fields at Battersea.



PRIONUS CORIARIUS. *Fabr.*Cerambyx coriarius. *Linné.*

The whole upper part of this insect is of a deep chesnut brown inclining to blackish and slightly shining: the antennæ in the males are serrated, much longer and thicker than in the female, the one figured, and is of the same colour; the palpi and upper lip are red: the jaws are large and powerful: the head is punctured and has a deep indentation between the line at the base of the antennæ, which are inserted near the eye and gives to the latter a kidney form: the thorax is nearly twice the breadth of its length, and furnished on each side with three acute spines: the elytra are punctured with two indistinct elevated striæ and rounded at their extremities: the legs are more or less of a reddish chesnut colour. The breast is black and thickly covered with yellowish hair; the body is of a bright chesnut. Length of the male 1 inch 2 lines, of the female 1 inch 7 lines.

This highly interesting insect to the entomologist is rare. Like many of the *Cerambycidae* these insects emit a noise when alive by rubbing the thorax against the base of the elytra, and in Germany, from this circumstance, are called fiddlers. In the larvæ state this insect feeds on the wood of the oak, elm and aspen; but is seldom met with, and is supposed by many to have been the *Cossus* of Pliny, which he tells us the Roman epicures fattened with flour, and

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was accounted a very great delicacy, and indeed it might be abundant in this country some centuries back, when there was more forest land, and which will account for the few species found in this country of wood-feeding insects, to what are met with on the continent. The specimen now figured we found in the year 1808, on Finchley Common, and is the only specimen we ever saw alive. Mr. Chant has taken it in Dulwich Wood, but from what we have seen from the Norwich entomologists they are found not uncommon in Norfolk. They may be met with in September.





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LEPTURA SCUTELLATA. *Fabr.*

Black, except the scutellum, which is covered with yellow hair: the head, thorax and elytra are deeply punctured: the antennæ, palpi and legs are black: the under part of the body is covered with shining hair. Length from 7 to 9 lines.

This very interesting insect was first discovered in Italy by Dr. Allione, and described in 1792 by Fabricius in his *Entomologia Systematica*, and was not found in England until 1825 or 1826, when it was detected in an old tree in the new forest of Hampshire, and noticed by Mr. Ingpen in his "Instructions." Since that year it has been found in great profusion for several successive years, by an assiduous collector of the name of Bond, in, and on old Pollard Hornbeams in Heinhault Forest in the month of June, and specimens are to be seen in most of the collections in London. Many of the insects of this genus are so local, as is the case with the species above described, that it will be well for the collector to make particular notes on the species met with from time to time, and of the places where found. We may farther observe, that in our eager pursuit after the species, when we have dug them from their retreat in the wood of (generally) decayed trees; but these and all wood-feeding insects under such circumstances, have invariably given out such a

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profusion of fat or grease, together with an acid, that the pins which transfixed them have been destroyed by verdigrease formed by the combination. We could wish that some chemist would investigate this subject ; we could give many curious instances from a variety of other insects.



PANORPA GERMANICA. *Turton.*

Head black, the summit between the eyes and legs of a dirty yellowish brown, thorax and abdomen black, with two yellowish vesicles on the post thorax: wings faintly reticulated, with two faint spots on the upper pair towards their extremity, and two minute dots near the base: lower wings paler than the upper, and with the two larger spots corresponding in their size, form and situation with those on the upper wings, and only a minute dot at the base: chela of the male reddish brown. This insect is of rare occurrence, or is generally passed over by entomologist as the common species, which is numerous during most of the summer months, in hedges and the sides of woods. Length of the body 5 lines, expansion of the wings 11 lines.

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CRABRO CRIBRARIUS. *Leach.*

Head, thorax and body black, the latter with six yellow bands, the first very narrow, the second triangular at the sides, and meeting in the centre by its points, the remaining bands broader than the first: the antennæ short and black; the anterior feet in the male palmated, the tarsi very short; thighs of the four posterior feet black, the tibia and tarsi yellow. Length of the body $6\frac{1}{2}$ lines. Inhabit sandbanks in June, July and August.

This insect is remarkable for the sexual variations of the joint of the leg, which may be seen in the male of *crabro cribrarius* F and several other species of the same family, in which these tibiæ are dilated externally into a concavo-convex plate, or rather have one fixed to them and part of the thigh, of an irregular and somewhat angular shape, with numerous transparent dots, so as not badly to resemble a sieve: whence the trivial name of the species. Rolander, who first described it, fancied that this plate was really perforated, and that by means of it the animal actually sifted the pollen: but it is most probably for sexual purposes.

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POLYOMMATUS ARTAXERXES. *Lewin.*

Scotch Argus. *Haworth.*

Wings one inch to one sixth ; above brownish black ; on both sides of the first pair, a white spot on the disc, the second pair with reddish crescents ; underneath, a white margin with a row of orange spots. Male lighter than the female.

This singular and elegant insect is very local ; they are found at Arthur's Seat, Edinburgh, they have also been taken at Dumfries and near Durham, Dr. Leach once observed it in Devonshire.

They appear at the end of July. Expansion of the wings from 1 inch, to 1 inch 1 line.

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Lucanus

Lucanus cervus L.

DORCUS PARALLELIPEDUS. *Mac Leay.* (♂)

Dorcus tuberculatus. *Mac Leay.* (♀)

Lucanus parallelipedus. *Linné.*

Black : mandibles or jaws extended, and curved with a strong obtuse protuberance near the middle, on the upper part : head much broader than long : the eyes small, placed on the sides of the head, with an elevated ridge running nearly through to the hinder part, so that each eye appears nearly divided : antennæ clavated, the club pectinated or divided on the inner side like a comb, the basal joint curved and as long as all the others taken together : the palpi are short and black : thorax larger than the head, and nearly quadrate with the posterior part, rounded : the elytra elongate and covering the abdomen : the legs are black, the anterior tibia have numerous teeth or dents, the middle and posterior have a single tooth externally near the tarsi, the tarsi beneath are furnished with red hairs.

The males of this species are generally much larger than the females, and the jaws larger in proportion : the whole of the upper part of the head and thorax, to appearance, are smooth and somewhat silky, but with a powerful lens, they will be found to be minutely punctured with numerous larger punctures : the elytra are deeply and roughly

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punctured. The female of this species is black, shining; the head, thorax and elytra are covered with deep and coarse punctures, the head has two raised tubercles placed near each other on the front.

Length from 10 lines to 1 inch 2 lines.

Mr. W. Mac Leay established the genus *Dorcus*, the characters of which he gave in his valuable work the *Horæ Entomologicæ*: this book is now, unfortunately for the student, very rare and difficult to obtain, as nearly the whole impression was consumed by fire at his publisher's, soon after the appearance of the second part: in this work, Mr. Mac Leay considered the female as another species, and gave the name of *tuberculatus*, which he afterwards corrected.

Some years since, on digging into the stump of a decayed oak, in a lane at Charlton in Kent, in the month of June, we met with as many as seventy-six specimens, and nearly an equal proportion of each sex, which were just ready to emerge into active life. At the same time we took also a dead and an old specimen of the female, which it is possible was the parent of the whole brood.



I

ZEUGOPHORA FLAVICOLLIS. *Kunzé.**Auchenia Flavicollis. Marsham.*

Antennæ filiform, and somewhat thicker towards their extremities, the three basal joints yellow, the remainder black: head black and punctured, front and under part of the head reddish yellow: eyes large, prominent and black: thorax of the same colour and deeply punctured, with the sides from the head, increasing to about the middle, where it terminates in an obtuse spine; the posterior part is cylindrical: elytra bluish, black and deeply punctured: body black and shining, legs and breast reddish yellow.

Length $1\frac{3}{4}$ lines.

This pretty insect is very nearly allied to the *Z. subspinosa*, from which it differs by being nearly a third larger in size: the thorax has less punctures, and the black head will easily distinguish it: the species figured is very rare, and we believe that very few cabinets possess it. We have been fortunate in having taken two specimens, (one of which is now in the indigenous collection of the British Museum) at a period of some years between, and both on the same spot, the N.W. corner of Bexley Wood, Kent, in the month of June: the last specimen was taken, when in company with our friend Mr. Edward Allen. Mr. Marsham was the first who described this very local insect, Major Gyllenhall, in

the third volume of his *Insecta Suecica*, considers it merely a variety, or the female of his *Lema subspinosa*, an insect not uncommon on various shrubs round London; but the slightest comparison will soon convince the student of its being a good and a well-marked species.

Many rare and local insects have been taken from time to time, in the wood near Bexley; but we must caution the collector, who may be a stranger to this part of Kent, to be careful where he walks, as in this wood there are numerous pits, some of considerable depth, the mouths of which are small, and overgrown by brambles which soon give way, and render it somewhat dangerous collecting. *Kunzé*, in his *Entomologische Fragmente*, Halle, 1818, has separated the species of this genus from the *Crioceris* of Fabricius, and the *Auchenia* of Marsham. *Auchenia* has been established by Illiger, and adopted by most writers as a genus of quadrupeds of the lama kind, this name must therefore be rejected in entomology.

We may observe that the insects of this genus, when beaten into the net, simulate death, by lying on their backs, the antennæ falling on their breasts, and the drawing up of their legs.



ŒDEMERA PODAGRARIÆ. (♀)

Necydalis Podagrariæ. *Linné.*Necydalis simplex. *Marsham.* (♀)

Head yellow brown : eyes large, black and reniform, or kidney-shaped : palpi filiform : the jaws prominent : antennæ long and setaceous, or gradually decreasing in thickness : thorax a little longer than the head, nearly flat, rounded on the anterior part, and truncate behind, of the same colour with the head, with a large dark brown oval spot on the side and nearly meeting in the centre : elytra soft, nearly transparent and of a pale brown, with two elevated lines, one extending to within one-third of the length of the elytra, the other near the suture, reaching about half way and gradually disappearing ; these longitudinal lines are connected by an elevated transverse line at a short distance from the base of the elytra : breast yellow brown, the sides of a dirty brown : the first three joints of the body of the same colour, the last two of a yellowish brown : legs pale brown, the base of the thighs yellow brown, much thickened in the male and arcuate, in the female simple : the anterior tarsi of the male are dilated.

Inhabits umbelliferous plants in the month of June.

Length from 8 to 9 lines.

Mr. Marsham in his *Entomologia Britannica*, des-

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cribed the two sexes as species, the males with the thick thighs he considered as the *Podagrariæ*, and the female he has described under the name of *simplex*.

We have never seen this species alive, but we are indebted to the Rev. C. S. Bird, and our young friend Walter Burrell, Esq. for specimens of this scarce and local species; the latter gentleman informs us that they were invariably taken in out-houses at Burghfield.



THYMELE ALVEOLUS. *Stephens.*

Papilio Malvæ. Haworth.

The Grizzle Skipper Butterfly.

Wings blackish brown, and in the superior, with numerous square and oblong yellowish white spots; the inferior or lower with six spots on the margin, one on the outer edge, and one on the disk, or middle of the wing, the cilia or fringe of both wings are brown with whitish spots: *beneath*, the superior wings resemble the upper surface, but are somewhat paler; the lower or inferior wings are yellowish brown with whitish spots: head large: the palpi covered at the base with close dense scales, the front with long greyish hair: antennæ moderately long and clubbed, black, with beautiful narrow lines of yellow: the whole length of the under part yellowish white, the club curved, the front somewhat compressed, reddish and apparently without scales: the basal joint has a curious tuft of hair reaching nearly across the eyes: the eyes are prominent and the hexagons large.

Inhabits dry-banks the end of May.

Width from tip to tip of the wings 10 lines to 1 inch.

The scales of this pretty insect are of several kinds, some are of a great length and terminate by

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three teeth or spines, and a few may be observed with four teeth: the scales of the Lepidoptera deserve examination, they are curious objects for the microscope.



ANTHROCERA FILIPENDULÆ. *Stephens.*

Sphinx Filipendulæ. *Linné.*

Zygæna Filipendulæ. *Fabr.*

The Six-spotted Burnet Moth.

Superior wings, blue and blue-green, to a golden-green, with six crimson-red spots, the lower of the same red with a blue border, the under resembles the upper surface, except that the six spots are less defined: antennæ the length of the body and gradually thickened, the club curved, the whole length covered with steel-blue minute scales.

Inhabits chalk-pits in various parts of Kent, and appears early in the month of June.

Expansion of the wings from 1 to 1½ inch.

The insects of this genus are remarkably sluggish in their flight, and in the evening set in numbers together on grass, when they are easily captured, as they do not offer to fly away. Mr. Stephens has enumerated several species of the *Anthrocera*, in which he may be correct: but in a group of insects that are subject to vary in themselves, it requires a very intimate knowledge of the larvæ, and their economy, to decide on the species.

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SESIA BOMBYLIFORMIS. *Fabr.**Narrow-bordered Bee-Hawk Moth. Haworth.*

Thorax covered with long tawny-coloured hair : the upper part of the body somewhat brighter, with two bands of black ; below these is a bright reddish yellow, with the extremity terminated by a thick bunch of black hair on each side, and the centre tawny : the under part of the body is a pale yellow, with a broad belt of black at the base of the abdomen, the remainder is a pale yellow with a slight indication of the two black external tufts : antennæ prismatic and fringed with hair beneath : wings transparent, except the costal edge, the nervures and the margin, which is covered with coarse scales.

The insects of this genus are rare, but may be occasionally met with the end of May, in moist woods, flying and taking their food whilst on the wing from various flowers during the day.

Expansion of the wings 1 inch 10 lines.

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

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GYRINUS VILLOSUS. *Illiger.*Gyrinus Modeeri. *Marsham.**Scarce Water-flea.*

Upper part black and shining: head nearly triangular, projecting and slightly reflexed, with a deep notch before the eyes: eyes widely divided, giving the appearance of four eyes, two being above and two below: mouth dark tawny: antennæ short, cylindrical and stout: thorax the breadth of the elytra: the elytra very convex, punctured, shining and covered with fine tawny pile or hair, of a beautiful silky appearance. The under part of this is of a dark tawny, and shining: anterior feet long, the middle and posterior short, flat, and when extended scarcely reaching beyond the margin of the elytra.

Inhabits rivers and running streams, but has not been found near London.

Length from 3 to $3\frac{1}{4}$ lines.

The *Gyrindæ* frequent lakes and still waters, running swiftly in circles on the surface, and when they dive, carrying along with them a bubble of air, which appears like quicksilver. The female deposits her eggs in rows on the leaves of water grasses, which are hatched in three weeks; the larva is at first transparent, afterwards dark coloured with a light fascia. About August it creeps to the tops of aquatic plants, and weaves about itself a web like paper, in which it turns to the pupa.

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Mr. Kirby in his letter on the Societies of Insects, says, "The little beetles called whirlwigs (*Gyrinus*, L.),—which may be seen clustering in groups, under warm banks in every river and in every pool, wheeling round and round with great velocity, at your approach, dispersing and diving under water, but as soon as you retire resuming their accustomed movements—seem to be under the influence of the social principle, and to form their assemblies for no other purpose but to enjoy together, in the sun beam, the mazy dance." Most of the *Gyrinidæ* emit when taken a whitish fluid of a rancid smell, but Mr. Kirby has observed that this species is without it.

The specimens that we possess were obtained, some years since, from our much respected and valued friend Dr. Leach; who received them from Norwich, where we believe they are found in brackish waters.



11

BYRRHUS PILULA. *Linné.*

Pill, or Horse-bean Beetle.

Brown and covered with short shining tawny hair, each elytron, or wing case, with two or three black and interrupted longitudinal streaks, from hair of that colour: the under part is black, without hair, and shining: head nearly vertical: antennæ short and clavated, the club perfoliated: legs short, the thighs and tibia, or shanks, flattened for the purpose of lying close to the body.

Inhabits sandy situations, fields, foot-paths and the sides of roads.

Length $3\frac{1}{2}$ to 4 lines.

This curious insect is not uncommon in the months of April and May, in the above enumerated situations; and, in the spring excursions of the Entomologist, will occasionally engross his attention from its singular construction, in having excavations in the body for protecting and concealing the legs: the antennæ, and even the head are capable, to a certain degree, of being retracted within the thorax, which is singular in its form, as the sternum is produced like a neckcloth: when alarmed or handled, the head is bent down into the sternum, and the legs are drawn close to the body, so that it resembles a seed or horse-bean, more than an animal; besides this it is frequently covered with dust or dirt, and it is only

the experienced eye of the collector that would detect it.

This species is subject to variety in its markings, and from the circumstance of the hair being rubbed off, it will be found quite black and with the elytra striated.

The *Byrrhidæ* feed on skins and other animal matter in a state of decomposition. We are not acquainted with the larvæ, and it would be desirable to know if, as in the kindred genus *Anthrenus*, the hair has any peculiar termination; we may infer that it has, as belonging to the same family. The hair from the larvæ of *Anthrenus* is a most beautiful object for the microscope.

Mr. Kirby, who has made a curious observation on the means of defence of insects, says, "That little destructive beetle, *Anthrenus Museorum*, F., which so annoys the entomologist, if it get into his cabinet, when in the larva state, being covered with bunches of diverging hairs glides from between your fingers as if it were lubricated with oil. The two tufts of hairs near the tail of this are most curious in their structure, being jointed through their whole length, and terminating in a sharp halberd-shaped point."



ENTOMOLOGICAL CABINET.

LYCUS MINUTUS. *Gyllenhal.*

Lampyris pusillus. *Marsham.*

Black: covered with a fine pubescence: thorax subquadrate; black, with six deep excavations, giving it a very rugose appearance: elytra of a bright tile red, with four elevated lines on each, the interstices with a double series of punctures within, giving a beautiful reticulated appearance: antennæ moderately long, compressed and serrated on the internal edge, the last joint testaceous, head inclined and black: body oblong, depressed and dark brown: elytra very flexible, a little dilated behind: legs slightly compressed and robust.

Length 3 to 4 lines.

Inhabits the oak.

Lycus minutus is certainly a rare insect. In the course of our excursions we have met with but three specimens; the first we took from an oak, in the lane leading to Coomb Wood; the second we saw at Bexley, in August, but it fell amongst the grass and we lost it; the third occurred at Westerham, Kent, in September.

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I

CRYPTOCEPHALUS SEXPUNCTATUS. *Fabr.*

Chrysomela Sexpunctata. Linné.

Black : head with a yellowish spot between the antennæ, and a white spot on each side beneath the eyes, and two spots under the mouth : thorax, yellowish red, with two black spots and a black varying line at the base : elytra punctured and of the same colour with the thorax, the margins and suture black, with one small and two large black spots on each elytron : legs black with a white spot on the tip of the four hinder thighs : antennæ black with the basal joint yellowish : body black and shining.

Length $2\frac{1}{2}$ to $3\frac{1}{2}$ lines.

Inhabits the willow, hazel and birch.

This scarce and beautiful species we met with many years since in the wood, near Bexley, Kent, in the month of June. At that period it was not considered by Dr. Leach to be indigenous, although he possessed specimens, yet he had a doubt as to the authenticity of his being British specimens, as he had never taken the insect himself, or had seen a living specimen ; since then it has been taken repeatedly, but is by no means a common insect. The *Cryptocephali* are certainly very local insects and many of the species very rare : they inhabit shrubs and flowers in chalk-pits and are active on the wing during fine, hot and dry weather.

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ACRIDA VIRIDISSIMA. *Kirby.*

Conocephalus viridissimus. Leach. Samou.

Gryllus viridissimus. Linné.

Green : head somewhat acuminate and of a light green : eyes large and prominent : antennæ setaceous and as long as the body : thorax deflexed, convex and rounded behind : elytra green and in the male with a transparent membranaceous ocellus in the right elytron near the base, and an opaque one on the left : wings large and transparent : body green : legs, the anterior and middle of moderate length, the hinder twice the length of the body and adapted for leaping : the vertex of the head, the middle of the thorax and the suture of the elytra of a pale reddish brown.

Length of the body 1 inch 4 lines, expansion of the wings $2\frac{3}{4}$ inches.

Inhabits hedges in meadows and marshy places.

This insect is the largest species of the *Gryllidæ* that is found in this country—it is not uncommon, and fortunately not too common. It is an interesting insect from its form and beauty, and to the lover of fields and a retired life an amusing animal, from the loud chirping that it is capable of making, in the calm and quiet months of August and September.

We have often been diverted during our excursions in the marshes of Essex, when the swallows have been too high to hear their “twit twit,” and not a bush to give shelter to a sparrow, when slowly walking to be suddenly aroused by the loud chirping of this insect. It requires caution and gentle movement to watch their manœuvres. When we

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have observed two males with their clytra in rapid movement striving to charm and enamour the silent female, who was listening with evident anxiety to the loud music of the rivals. "Brunelli kept and fed several males of this species in a closet, which were very merry, and continued singing all the day; but a rap at the door would stop them instantly. By practice he learned to imitate their chirping; when he did this at the door at first, a few would answer him, in a low note and then the whole party would take up the tune and sing with all their might. He once shut up a male in his garden and gave the female her liberty, but as soon as she heard the male chirp she flew to him immediately."

"Jackson observes, that when he was in Barbary in 1799, dishes of locusts were generally served up at the principal tables and esteemed a great delicacy. They are preferred by the Moors to pigeons; and a person may eat a plateful of two or three hundred without feeling any ill effects. They usually boil them in water half an hour (having thrown away the head, wings and legs,) then sprinkle them with salt and pepper and fry them, adding a little vinegar." In a note Mr. Kirby observes "that the Rev. R. Sheppard caused some of *A viridissima* to be cooked in the way here recommended, only substituting butter for vinegar, and found them excellent."

Some years since we gave specimens of this insect to the late Sir H. Davey, to have artificial ones made for fly fishing, but never heard the result of the experiment. As the insect is found in sedges that grow by the sides of streams they may possibly be a favourite food and prove a good bait for some of the larger fishes.



BISTON PRODROMARIA. (♀) *Leach. Samou.*

Geometra Prodrumaria. Haworth.

Oak-beauty Moth.

Head white or ash-coloured: antennæ strongly pectinated in the males, in the females simple, black with white rings: thorax covered with coarse scales of ash colour with blackish brown dots: body speckled with black and white irregular minute dots: wings ash coloured, delicately sprinkled with blackish brown; two transverse flexuous, light brown bands edged with black, one near the base, the other near the hinder margin of the wing, the margin with dark triangular spots: lower wings pale at the base with a light undulating fascia in the middle; below this, darker with more or less of small black spots: legs black, annulated with white.

Expansion of the wings in the (♂) $1\frac{3}{4}$ inches, (♀) $2\frac{1}{4}$ inches.

Inhabits the trunks of oak trees in the early part of the month of March.

This insect may be considered a scarce species, as it is only to be met with early in the spring, we have generally met with it about the 6th of March, and after two o'clock in the afternoon, against the trunks of oaks in Richmond Park; it is also occasionally taken in the lane leading from the Robin Hood to Coomb Wood: it may also be obtained in the pupa

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state by digging at the roots of trees during the months of January and February. The pupa is of a shining chesnut brown and may be distinguished by the spine at the extremity being terminated by two diverging hooks at the end.





I

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Publ. Gen. 1794. San. 1802.

IPS QUADRIPUSTULATA. *Fabr.*

Black : head and thorax taken together nearly two thirds the whole length of the insect : head black, large and projecting, with widely dispersed, rude and coarse punctures, or excavated dots : the eyes flattened, with large hexagons : antennæ with the basal joint stout and black, the others to the club rufus : the club gradually increasing in the two first joints and nearly cup-shaped, the third or terminal one globose : thorax nearly square, the sides with a broad margin, the anterior and posterior parts have the margins very narrow, the disk or middle raised and shining : scutellum broad, triangular and black : elytra black, punctured, and shorter than the abdomen, with two reddish spots on each elytron, one near the middle of the base, the other towards the apex : the body beneath is black, shining, and with a deep lens, will be found to be punctured : the legs are short, the thighs stout, the tibia or shank dilated and compressed towards their extremity ; the tarsi with five joints, the fourth joint small, the fifth nearly the length of the first four.

Length from 2 to 2 $\frac{3}{4}$ lines.

Inhabits beneath the bark of decayed trees, particularly those of the pine and birch.

We have only once met with this species of *Ips*, which was taken from beneath the bark of a decayed tree, at Bexley, in Kent, about the month of Septem-

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ber. In their habits they greatly resemble the *Nitidula* by their depressed form, and being found under the bark of trees in a state of damp decay and where the bark is rather loose, it is possible that they also feed on the remains of dead insects, which are often found in these situations. They appear to be rare in this country ; but Mr. Wright informs us that they are not uncommon near York, under the bark of decayed pines. It may be useful to inform the young Entomologist that many rare and fine insects may be met with, during the winter months, under moss and the bark of decayed trees.



I

11-2

BOLBOCERUS MOBILICORNIS. *Kirby.*

Bolbocerus testaceus. *Fabr. Steph.*

Odontæus mobilicornis. *Megerle.*

Black or testaceous : head in the male furnished with a long horn inserted near the centre : antennæ short, the club large and globose : thorax nearly square, and in the larger and more perfect specimens with four dentiform horns, the intermediate pair being the shortest, and arranged in a transverse line on the anterior part ; but in the smaller specimens they are merely indicated by raised pustules, and resemble the females of the larger variety ; the middle of the thorax has a deep and wide channel : the elytra are nearly globose, striated and deeply punctured : scutellum large and punctured : body covered with long and fine hair : the thighs and tibia moderately long, the latter with strong teeth on the outer edge, the tarsi of five joints and very long ; the claws are also long and furnished with long and fine hair.

Length from 3 to $4\frac{1}{2}$ lines.

Inhabits heaths beneath the dung of cattle, and flies in the evening.

Little is known of the habits of this very rare British insect, but in general when they have been discovered were rather plentiful. Joseph Sparshall, Esq. of Norwich, once took several specimens in Norfolk, and supplied Dr. Leach with a fine series, which are preserved in the collection.

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The whole of the *Geotrupidæ* are subject to vary in size, which, in all probability, arises from the nourishment the insect receives when in the larvæ state, as they appear to be incapable of moving to any considerable distance in search of food; and this will be found to be the case with all the dung-feeding insects in every country, and will shew the little value to be attached as specific differences, to the horns on the head, thorax, &c.; in size and colour they are also subject to vary.

Bolbocerus is not an extensive genus of insects; and it is curious to observe, how wide a geographical range they take. The Baron Dejean, in his "*Catalogue de Coleopteres*," enumerates six species, three in Europe, two from South America, and one from North America; and we know of one from New Holland, and lately observed apparently two species in a collection received from India, by J. G. Children, Esq. and consigned to this gentleman by his immediate friend, Dr. Bell, now in India.



1.5

Stenobothrus vittatus (L.) 1855.

THANASIMUS FORMICARIUS. *Latr.**Attelabus fornicarius. Linné.*

Red and very hairy : head black and the breadth of the thorax, the eyes prominent, shining, and with large hexagons : the antennæ black, the basal joint nearly cylindrical and to the seventh gradually increasing, the eighth and ninth cup-shaped, the tenth or terminal ovate, large, obliquely acuminate, and forming with the two preceding a three-jointed club : thorax nearly heart-shaped, black at the anterior margin, with a transverse line and deep impression in the centre, the posterior part red : elytra with the base red, the remainder black, with two white hairy transverse bands, the first narrow and waved, the second broad and angulated : legs black, the tarsi pitchy red, with long white hairs : body and breast bright red.

Length from 3 to 5 lines.

We have never met with this rare insect in a living state ; our first specimen was obtained many years since from Dr. Leach ; but we have lately received specimens from Mr. Wright, of Oxford, with the following observations. “ The perfect insects were found by the Rev. J. D. Preston and my brother in the months of March and April, under the bark of decayed fir trees, on Stockton Common, near York. They were very abundant, and when put into a bottle together bit and fought with one another most fiercely.

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The specimens which were first taken hardly had a leg or antennæ left when brought home. I was once present when a specimen was taken in the month of December. The wood appeared to be a good deal bored, and we found several larvæ which in all probability belonged to the same species." We believe, like other species of *Tillidæ*, *C. formicarius* may be found on half-dried bones in horse-boilers' yards. Stewart says they prey on the *Ptinus pertinax*.





11-4

ACHETA DOMESTICUS. *Fabr.*Gryllus domesticus. *Linné.**House Cricket.*

Pale yellowish brown: head with a pale brown band reaching from eye to eye, and another at the junction of the thorax: antennæ setaceous, longer than the body and of a pale brown: thorax nearly square with darker brown irregular spots: elytra yellowish brown, transparent and shorter than the body: wings folded, and when at rest projecting nearly half the length of the oviduct: legs, the two fore of moderate length, the hinder with the thighs thick and formed for leaping, tibiæ armed with strong spines, the tarsi long and simple.

Length of the body 7 to 8 lines.

Inhabits new-built houses, kitchens and bakers' ovens.

We have often observed the house crickets, in the months of July and August, in the evenings, migrating in prodigious numbers, from the Circus in Blackfriars Road to the bridge, and from Westminster, on the Surrey side a considerable way down the Lambeth Road.

“Tender insects that live abroad (says Mr. White) either enjoy only the short period of one summer, or else doze away the cold uncomfortable months in profound slumbers; but these, residing as it were in a torrid zone, are always alert and merry; a good Christmas fire is to them what the heats of the dog-

days are to others.—Though they are frequently heard by day, yet their natural time of motion is only in the night. As soon as it becomes dusk, the chirping increases, and they come running forth, and are to be seen often in great numbers from the size of a flea to that of their full stature.

Around in sympathetic mirth
 Its tricks the kitten tries,
 The cricket chirrups in the hearth,
 The crackling faggot flies.

“As one would suppose from the burning atmosphere which they inhabit, they are a thirsty race, and show a great propensity for liquids, being found frequently drowned in pans of water, milk, broth, or the like. Whatever is moist they are fond of, and therefore often gnaw holes in wet woollen stockings and aprons that are hung to the fire. These crickets are not only very thirsty but very voracious; for they will eat the scummings of pots, yeast, salt, and crumbs of bread, and any kitchen offal or sweepings.

“In the summer they have been observed to fly, when it became dusk, out of the windows, and over the neighbouring roofs. This feat of activity accounts for the sudden manner in which they often leave their haunts, as it does also for the method by which they come to houses where they were not known before. It is remarkable that many sorts of insects seem never to use their wings but when they wish to shift their quarters and settle new colonies.—When in the air, they move in waves or curves, like wood-peckers, opening and shutting their wings at every stroke, and thus are always rising or sinking.”



ECHINOMYIA GROSSA. *Dumeril.*

Musca grossa. *Linné.*

Hairy and black: head dirty yellow: eyes moderately large and brown: thorax and body black and shining and closely covered with long and sharp spines: legs black and spinous: wings fulvous ferruginous at the base.

Length 8 lines, expansion of the wings $1\frac{1}{2}$ inch.

Inhabits open parts in woods and warrens in the Autumn. The larvæ is said to be bred in cow-dung. *E. grossa* is the largest species of the *Muscidæ* and is a scarce insect.

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VELIA RIVULORUM. *Latr.*

Black : sides of the thorax and margins of the abdomen red : thorax with two anterior punctures : each elytron with one small and three large spots of white ; interior sides of the body spotted with black.

Length 4 lines, expansion of wings 6 lines.

Inhabits running streams and is not uncommon ; but with the wings is certainly rare. We have met with this species in a running stream above Fulham Bridge, on the Surrey side, in the month of July.





XYPHYDRIA DROMEDARIUS.

Black: head large, deeply punctured in front, globular, but truncated behind: eyes moderately large, the hexagons very minute: stemmata three, placed in a triangle between the eyes: above the eyes the head is smooth, shining, with two white crescent-shaped markings: antennæ short and filiform: neck long and curved upwards, thorax elevated with coarse and deep punctures, and two minute white dots behind: body black, the third, fourth and fifth joints red, the eighth with a yellowish white oblong spot on each side: in the female the oviduct is exerted, the under part resembles in colour the upper, except the three joints, which are red above: beneath a chesnut brown; the legs are of a pale red: the tibia and tarsi at the base are of a pale yellow.

Length of the ♂, $4\frac{1}{2}$ to 5 lines, ♀, $5\frac{1}{2}$ to 9 lines.

Inhabit, in the larva state, the wood of the willow and poplar;—the perfect insect is found in June and July, on the trunks of trees.

The *Xiphydriidæ* and *Uroceridæ* are both in the larvæ state wood-feeders; and as we have before observed, with respect to such insects, are invariably subject to a vast difference in size, in the mature insect of the same species; as the state of decay or disease of the wood appears to have a great influence on the growth of the caterpillars, the hard dry and knotty parts are generally rejected by them, and we

have observed that a soft but dry state of decomposition is preferred, and in such wood we find the caterpillars fat and plump, for they appear to feed without difficulty, and their progress is not retarded by severe labour, which will no doubt in many instances strengthen and so far improve the incipient animal, that in its last and perfect state it will be increased in size and more fully developed in its form.

Mr. Christy of Clapham, lately shewed us a specimen of a *Sirex*, certainly new to the *British Faunæ*, upon examination we found it to be the *Sirex nigricornis* of Fabricius *Systema Piezatorum*, and on a farther reference to his *Entomologia Systematica*, the description so completely accorded with the specimen, that Mr. C. was perfectly satisfied as to the identity of the species. This insect, there is but little doubt, had been introduced to this country in the larva state in American pine, and possibly bred in some building, and in this state may have been for some years. That the caterpillar of an insect will remain in dried but not decomposed wood, for a period of twenty years, is a fact well established by the late Mr. Marsham; and of which an account will be found in the *Transactions of the Linnæan Society*, Vol. 10. And Mr. Kirby relates a similar anecdote of the *Sirex Gigas*, on the authority of Sir Joseph Banks, that were seen to come out of the floor of a nursery in a gentleman's house, to the no small alarm and discomfiture of both nurse and children.

The specimen of *S. nigricornis*, was found in the month of September last, on a Dahlia, in a garden, in Essex.





12-2

ASTATA ABDOMINALIS. *Latr.*

Black and shining: head large and equal in width to the thorax: eyes large, meeting behind in the males, and in the dead specimen now before us, with a play of a garnet colour: front of the head flattened and covered with silver hair: the antennæ of moderate length, filiform and inserted at the base of the clypeus, (i. e.) a little above the mouth: the stemmata three, placed between the eyes in the form of a triangle, the lower one very large: thorax large, black and shining, the hinder part punctured: body red, with the last four joints black: legs black and very spiny, the tarsi or feet pitchy brown: wings slightly iridescent, with a transverse dark band towards the apex.

Length 6 lines, expansion of the wings 10 lines.

We are indebted to the kindness of Mr. Shuckard, of Camden Town, for a pair of this rare insect, and the following information, "Taken at the commencement of July, on the sandy level above the vale of heath on Hampstead Heath."

Mr. Curtis in his beautiful work on "British Entomology," observes, 'on a fine day, the end of last July, whilst rambling about the undercliff at the back of the Isle of Wight, I observed two males on a pathway, leading through heath and rushes; a few days after, I found two more males, on sandy spots, near the same place; and on the 12th of August, a

young friend, who was my companion, took a female at the top of the cliff; and towards the latter end of the same month, on a gravelly walk at Ramsdown, surrounded by heath, rhododendrons and pine trees, I took four females, each of them carrying a pupa of *Pentatoma prasina*, of Linné, or of *P. dissimilis*, Fabr.; and as nothing was known of their œconomy, it was an interesting and remarkable fact; and there is scarcely a doubt but these pupæ were to be buried by the *Astata* to deposit her eggs in. The Honourable Charles Harris also took one or two, which I believe were females also.'

The anterior tarsi of the females are furnished with the same sort of appendages as the *Pompili*, perhaps to secure their prey, or to assist them in clearing away the sand in burrowing.



123

PERIDEA SERRATA. *Stephens.*

Bombyx serrata. *Thunberg.*

Bombyx tritopus. *Haworth.*

The Great Prominent.

Brownish grey: the upper wings with a dark brown irregular streak near the base, and the others indistinctly defined; the second and fourth reaching across the wing, and meeting a little beyond the prominent scales or dent, on the lower or inner margin of the wing; the interstices between the nervures of the wings in the two superior cells have a long narrow streak; in the lower cells towards the apices, a row of lunules or crescent-formed marks above the cilia or fringe of the same colour; the lower wings of a dingy silvery white, yellowish at the base with pale brown lunules near the margin: body brownish.

The caterpillar is light green, with two whitish lines down the back, and with red and yellow oblique stripes down the sides: the legs are red: it feeds on the oak and is found in the months of August and September.

Inhabits the oak, and has been taken from the trunks of those trees the end of June and beginning of July.

We have never met with but one specimen of this rare insect in all our excursions, and that was taken

from an oak tree beyond the warren at Coombe Wood, Surrey, in the lane leading to Kingston Hill.

Mr. Stephens has remarked that the larva and perfect insect, when touched, tremble as in fear, and from this he has taken the generic name of *Peridea*, from the greek of *Peridens*, fearful or timorous.



CTENOPHORA ATRATA. *Meigan.*

Tipula atrata. *Linné.*

Black Crane Fly.

Wings of a yellowish tinge, the nervures light brown with a black marginal spot: thorax and body black, first segment of the abdomen red, legs of the same colour.

Expansion of the wings 1 inch 7 lines, length of body 1 inch 2 lines.

Inhabits moist places in Epping Forest, in the months of July and August.

Our specimen of this rare insect was taken some years since by a collector of the name of Bond. The Tipulidæ are numerous in this country, and well deserve the attention of the entomologist, whom we should advise, when collecting, to secure them in pill boxes, and not to pierce them until killed by the fumes of sulphur, as by these means they are less liable to throw off their legs, which is one principle cause of the little attention that has hitherto been paid to them by the majority of collectors: it would appear that many of the species are very local, but from the quantity of eggs deposited by the females the perfect insect would not be uncommon, but we strongly suspect that they afford food to numerous insectivorous birds that remain with us through the winter, as we have often met with larvæ in prodigious

quantities at the roots of trees, and decomposing vegetables, late in the autumn; and to this delightful provision of nature Chateaubriand has observed, "It is undoubtedly very remarkable that the teal, the duck, the goose, the woodcock, the plover, the lapwing, which serve us for food, all arrive when the earth is bare; while, on the contrary, the foreign birds, by which we are visited in the season of fruits, administer only to our pleasures; they are musicians sent to heighten our banquets. Thus the birds of winter are the manna of the rude northern blasts, as the nightingales are the gift of the zephyrs: let the wind blow from whatever point of the horizon it will, it is sure to bring us a present from Providence."



TABANUS PAGURAS. *Fabr.*

Thorax ash colour, scutellum large, body brown, legs light brown, the femora and tarsi black : wings slightly coloured with a blackish tint.

Expansion of the wings 1 inch 7 lines, length of the body 10 lines.

Inhabits the New Forest in Hampshire, in the months of June and July.

The Tabani are remarkable for their large eyes, and when living are in general very beautifully coloured, which fade in the dead insect. In the males of this genus of insects the eyes meet or are divided by a very narrow line down the front ; but in the female the line is considerably wider, and by this the sexes are readily distinguished : the antennæ are placed low in the front of the head, the basal joints are short and cup-shaped ; the second portion is large and in the form of a sickle : the mouth has a prominent proboscis or moveable trunk, which protects the haustellum or suckers, admirably adapted to receive the blood liberated by the lancets, with which the mouth is furnished : thorax dark grey and covered with hair of the same colour : *scutellum* large : *body* brown, with a row of triangular whitish spots down the back and sides ; the margin of each segment with a pale brown undulating band reaching from side to side : wings transparent, the nervures light brown.

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The Tabani are exceedingly annoying to horses, during the summer months, by settling on various parts of the body where they wound and suck the blood: but in North America, according to the account of Bartram, they are all in a gore of blood from innumerable wounds made by the knives and lancets of the various Tabani, which assail him as he goes and allow him no respite. Vast clouds of different species—so abundant as to obscure every distant object, and so severe is their bite as to merit the appellation of burning flies—cover and torment the horses to such a degree as to excite compassion, even in the hearts of the packhorse-men. Some of them are nearly as big as humble bees; and, when they pierce the skin and veins of the unhappy beast, make so large an orifice, that, besides what they suck, the blood flows down its neck, sides and shoulders in large drops like tears: Mr. Kirby observes, “that once travelling through Cambridge-shire, with a brother entomologist, in a gig, our horse was in the condition here described from the attack of *Tabanus rusticus*, L.”



1200

Musca domestica L. var. *albipennis* L.

BOMBYLIUS MAJOR. *Linné.*

Wings with an opaque, dark, sinuated broad band on the upper margin: head, thorax and body covered with tawny, shining and very long hair; head small and very hairy: haustellum the length of the body, setaceous and exerted; legs long and tawny.

Expansion of the wings 1 inch 1 line, length of the body 6 lines.

Inhabits the skirts of woods, taking its food from various flowers while on the wing.

Mr. Stephens has introduced in his "Catalogue of British Insects," seven species of this genus. As yet we have met with but three of this interesting family, all of which were met with in the early spring months, when the business of creation seems resumed. "The vital spark rekindles in dormant existence; and all things live, and move, and have their being. The earth puts on her livery, to await the call of her lord; the air breathes gently on his cheeks, and conducts to his ear the warbling of the birds, the busy hum of insects, and the odours of new-born herbs and flowers; the great eye of the world 'sees and shines' with bright and gladdening glances; the waters teem with life; and man himself feels the revivifying and all-pervading influence of nature."

SAMUEL'S



13-1

MOLORCHUS MINOR. *Curtis.*

Molorchus dimidiatus. Fabr.

Necydalis minor. Linné.

Black : head inclined or but slightly projecting : thorax cylindrical, with tubercles on the upper part, which are smooth and shining, with very long and widely dispersed hair ; the interstices or cavities between deeply punctured : eyes prominent and of a kidney shaped form, having the antennæ inserted immediately before them in a canthus, or excavation : the antennæ are setaceous, of a reddish-brown colour, and in their length exceed that of the body : elytra, or wing cases, half the length of the body, of a reddish-brown, with a long and narrow streak of yellow near the apex : the wings, when at rest, extend to the length, and protect the body : the legs long, the thighs thickened near their junction with the tibia or shank which are arched or incurved : the whole of the tassi are four-jointed.

Length of the body $3\frac{1}{2}$ lines.

Inhabits the flowers of umbelliferous plants, and in the larvæ state, most probable, decayed or dead wood.

Our specimen was taken from a park paling on Putney Common in the month of May, when seeking shelter from the rain, and is the only one we have ever met with of this pretty and rare insect.

On examining this species, the form is so curious,

SAMOUELLE'S

that the mind must ask for what purpose its singular legs are constructed—certainly not for leaping, for they are the reverse of such insects as are capable of this action, may they not possibly assist the animal in accelerating the expansion of the wings, in its sudden and rapid flight? The metamorphosis, and the larvæ have not yet been described.



I

13-2

GALLERUCA RUSTICA. *Fabr.*

Black : thorax and elytra of a yellowish brown : antennæ black, filiform and not so long as the body ; the head and the whole of the under part is black : the thorax shining and coarsely punctured : elytra large, and in the males covering the body ; punctures numerous and deep.

Length $3\frac{1}{2}$ lines.

Inhabits plants in marshes in the month of June.

This species was first discovered to be an inhabitant of this country by Mr. B. Standish, who met with it in the neighbourhood of Wittlesea Mere, some years since, with many other rare and interesting novelties which this fertile place produces, both in birds and insects ; the former, no doubt, being attracted by the vast quantities of aquatic insects, which are to be found in the ditches and fens contiguous to the Mere.

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23-13

Published by G. Samsuette, Jun 1, 1943.

MUTILLA EUROPÆA. *Linné.*

Male and Female.

Black : head of a moderate size, the eyes small : antennæ filiform, short and slightly curved : scutellum and thorax red : on the upper side, of a brick-red ; wings in the male of a smoky colour : body of a bluish tinge, deeply punctured and covered with long black hair, and with bands of short yellow hair on the margins of the first three segments : legs black : the females in colour resemble the males, but want the wings and ocelli.

Length of the male 6, of the female 7 lines.

Inhabit chalky and sandy places in June and July.

Mr. Curtis has observed, “ Although the *Mutillidæ* bear considerable resemblance to the *Formicadæ* their economy is totally different—the latter living in societies exhibiting males, females and neuters, which last only are apterous ; the former being solitary, having no neuters, the males only being furnished with wings.” It is unnecessary to go any further into the differences of the two families. The female *Mutillæ* want the stemmata or little eyes upon the crown of the head, as well as the wings with which the males are furnished, and the eyes and thorax are very differently formed. Jurine has justly observed, “ What is the object of Nature in establishing such disparities, and where is the utility of it? These are problems that we cannot resolve, because of our

ignorance of the history of these insects, but which well deserve the attention of naturalists." It is well known that they inhabit sandy districts, and it is probable the females form their nests and deposit their eggs in such situations, which employment would render wings and ocelli of little use ; whereas the males, which may be less numerous than the other sex, are supplied with wings to enable them to go in search of the females, as is frequently the case amongst the Lepidoptera and other orders."

Mr. Kirby, on the means of the defence of insects, in a note, observes, "the females of *Mutilla coccinea* L. are most plentiful in Maryland, in the months of July and August, but are never very numerous. They are very active, and have been observed to take flies by surprise. A person stung by one of them lost his senses in five minutes, and was so ill for several days that his life was despaired of."





13-4

Published by E. Samouelle, Jan^y 1, 1833.

ZEUZERA ÆSCULI. *Latr.* ♀

Wood Leopard Moth. Female.

White : the wings with numerous bluish-black spots, six or eight on the thorax : antennæ short, very plumose from the base to the middle, end in a fine point ; in the female white and very downy at the base and terminating gradually in a point.

Expansion of the wings in the female, 2 inches 7 lines.

Inhabits the lime tree the end of June and beginning of July.

The caterpillar is yellow with black dots, with a black horny head, and is very injurious to fruit trees ; it feeds on the wood of the oak, apple, pear and horse-chesnut ; it makes a case of the dust of the wood, which it gnaws and cements together. The moth makes its appearance late in June or early in July, and is generally considered a rare insect. About four years ago, however, Mr. Marshall found, early in the morning in the month of July, about the trees in St. James's Park, as many as sixty specimens, but all of them more or less injured by birds.

Our figure exhibits the female with its long ovipositor, admirably adapted to deposit its eggs in the deep interstices of fissures in the trunk or bark of trees.

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13-5

Published by G. Samouelle, Jan 1, 1833.

ODONTOMYIA ARGENTATA. *Meigan.*

Stratiomys argentata. *Panzer.*

Black: head large, the front covered with long glossy yellow hair: eyes with the hexagons moderately large, with three stemmata: antennæ long, inserted immediately below the eyes, the basal joints contiguous and long, the second short and bell-shaped, the third long and terminated by a hook: thorax black and covered with tawny hair, scutellum furnished with two spines: body black and covered with silver hair, the segments at the sides yellow: wings transparent, the nervures yellowish: thighs black, as is also the tarsi, the tibia yellow with a black spot.

Length of the body $4\frac{1}{2}$ lines, expansion of the wings 10 lines.

Inhabits the sides of ponds and ditches in May.

The insects of this family, the *Stratiomydæ*, inhabit, in the larvæ state, waters, and are very local. We are indebted for our specimens of this rare and beautiful species, to the Rev. C. S. Bird and Walter Burrell, esq. who took them near Burghfield, in Berkshire.

SAMOUELLE'S





13-6

CONOPS FLAVIPES. *Linné.*

Black : head larger and wider than the thorax : the antennæ long, black and clavated, the club acuminate below their insertion, between, and beneath the eyes covered with long hair of a bright golden colour : thorax black with a large yellow tubercle on each shoulder, poisers or balancers large and of the shape of a battledore : body black, with the margins of the segments yellow : wings slightly tinged with black : legs yellow.

Length of the body 5 lines, expansion of the wings $7\frac{1}{2}$ lines.

Inhabits lanes in and near woods, in June, July and August.

The Conopidæ are as troublesome to man as other animals, dropping suddenly on such parts as are exposed or the least covered, and without a movement of their feet, to give notice, immediately plunge their jointed and lengthened rostrum into the skin, and unperceived sucking the blood, not causing that burning pain at the instant which is common to many of the dipterous insects : fortunately we have not many species in this country, and these are generally found in retired places in woods and lanes, and occasionally by the road side.

SAMOUELLE'S





171

PLATE I. 171.

TACHYPUS ANDREÆ. *Stephens.*Carabus Andreæ. *Fabr.*

Shining, greenish-copper: head rather deeply punctate, especially on the sides: thorax with the disc smooth, faintly channelled, the base transversely impressed and punctate: elytra short, broad oval, somewhat convex, regularly punctate striated, the striæ diminishing before the tip, the interstices very smooth; entirely of a pale whitish ochraceous, glossed with greenish round the scutellum, and a little behind the middle a waved, dentate, transverse fascia, common to both elytra, glossed with greenish in certain positions, and not touching either margins; in the middle of each elytron it inclines towards the thorax: legs and antennæ entirely pale testaceous.

Length $2\frac{1}{4}$ to $2\frac{1}{2}$ lines.

We are indebted to N. A. Vigors, Esq. M. P. &c. for specimens of this pretty and very local insect, we believe, they were found near Dublin; they have also been taken in England, on the Norfolk Coast.

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11-2

Amara (Amara) aenea (Linn.) 1801

BLETHISA MULTIPUNCTATA. *Bonelli.*

Helobium multipunctatum. *Leach.*

Black and bronzed : head longer than broad : eyes large and prominent : antennæ of moderate length and filiform : thorax rounded on the anterior part, truncate behind, with an impressed line down the centre : elytra bronzed striated, and with large and deep impressions in lines : legs black.

Length 5 lines.

Inhabits damp places at the roots of grass.

This elegant insect we have occasionally met with in Battersea Fields, in the months of April and May. It also occurs at Wittlesea Mere, but is by no means a common insect. All the *Elaphridæ* appear fond of running on the mud during sun-shine.



11-3

APHODIUS LURIDUS. *Fabr.*

Black : head without tubercles and punctured : thorax punctured : elytra yellowish brown striated, the interstices with black streaks or square spots : legs vary from a pitchy to a dark black.

Length 4 lines.

Inhabits the dung of horses and cattle in the spring months, and is subject to great variety.

Mr. Kirby observes of this species, that "colour alone, especially in insects inhabiting the same district, only indicates a casual variety. Thus *Aphodius luridus* F. has sometimes pale elytra with the striæ black (*Scarabæus nigro-sulcatus* E. B.) : at others it has black spots between the striæ, as in the type : in a third variety, the elytra are black at the base and pale at the apex (*Sc. varius* E. B.) : and lastly, in a fourth they are entirely black (*Sc. gagates* E. B.) ;— yet all these in every other respect precisely correspond. But the converse of this will scarcely hold good ; for doubtless minor differences of structure are sometimes produced by a different food and climate : which may probably account for some variations observable in the individuals apparently of the same species obtained from different countries."

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11 1

PHLOIOTRYA RUFIPES. *Stephens.*

Lymexylon lævigatum. *Panzer.*

Pitchy-brown, slightly pubescent: head thickly punctured: mouth and palpi rufo-testaceous: thorax with the anterior margin rusty-testaceous, the middle rugose punctate, and an obsolete impressed line on each side at the base: elytra finely punctured, and generally of a deep chesnut brown: body beneath reddish brown: legs and antennæ of the same colour.

Length $6\frac{1}{2}$ lines.

Inhabits the wood of decayed oak trees.

Our specimens were taken in the New Forest, in the year 1817, when in company, on an entomological excursion, with Mr. John Chant; we were fortunate enough to capture four specimens, two of which were given to Dr. Leach. I also met with one specimen of the larva, which is described by Mr. W. Mac Leay, and of which we here give a figure beneath the perfect insect which is very rare.

“Larva whitish, elongate, scaly, with few hairs except about the last segment of the abdomen: body thickest at the middle and tail, upper side rather convex, under concave: head semiglobular, with vestiges of eyes: antennæ triarticulate, short, with the first joints greatest: mandibles short, strong and sharp: maxillary palpi acute at point, and labial

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excessively minute : second segment of the body large, subthoraciform and composed apparently of two segments : anterior feet large, compressed, hooked, extending nearly to the top of the head ; the two posterior pairs of the same shape, but so short as scarcely to reach beyond the coxa of the first pair, besides being in some measure hid in the concavity of the body : the third segment of the body is shortest, and the others lengthen gradually to the twelfth which is convex, and marked with strongly impressed points : but the singular part of the body is the tail or thirteenth segment, at the end of which is an anal aperture ; this segment is slightly convex above and flattish below, but armed at the extremity with two sharp horny appendages, curved upwards ; in colour and appearance this forked process resembles the caudal appendage of certain *Forficulæ*." *Horæ Entomologicæ, Page 464, Note.*





14-5

SAPYGA PUNCTATA. *Klug.*

Sapyga sexpunctata. Leach.

Black : head large and as wide as the thorax and punctured : eyes large and kidney shaped : ocelli three, placed in a triangle : head and thorax black and punctured : antennæ black and gradually increasing towards their extremity : wings irridescent, with one marginal and four submarginal cells : body black, the second and third segments of a dirty red colour, the fourth and fifth with a yellow spot on each side, and with one on the last segment : legs moderately long and black.

Length $5\frac{1}{2}$ lines.

Inhabits flowers and nidificates in dry wood.

This is not a plentiful or common insect. We have occasionally met with it near barns and other out-houses, settling on the wood and generally on the sunny side : they are usually found in the month of July.

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14-6

PTEROPHORUS GALATODACTYLUS. *Steph.*

The Spotted White Plume. Haworth.

Wings white; upper pair cleft and spotted with brown: lower pair with three divisions with long silvery fringe: antennæ, body and legs white.

Expansion of the wings 11 lines.

This beautiful species of Plume Moth is very local and appears rare near London. We are indebted for specimens, and the following curious fact, to the Rev. G. T. Rudd, M.A. F.L.S. "Towards the latter end of May, the larvæ occur on the under side of the leaves of the burdock, in woods, in chalky situations, in Hampshire; it is white, downy and oniciform. The pupæ differ but little from the larvæ: the perfect insects appear in June." Mr. R. observes, that although the larvæ abounded in the woods near Kimpton he was not able to discover a single specimen of the insect, or even a vestige of one notwithstanding the most diligent search. Mr. R.'s attention was first directed to the larvæ by Messrs. Curtis and Dale, who had previously detected them elsewhere.

SAMOUELLE'S





15-1

PTEROSTICUS BRUNNIPES. *Samouelle. Stephens.*

Black and shining : the head is large, smooth, and longer than broad; the thorax is nearly heart-shaped, wide in the front and narrowed considerably at its junction with the elytra; it has a deep channel down the centre and nearly a straight line on each side; at the base or posterior part it has two nearly triangular impressions : elytra striated, the striæ without punctures, but with three impressions on the third from the suture, and an irregular series near the margin, the colour metallic and of nearly a steel blue : legs black, the tarsi brown : antennæ with the first three joints black, the remainder reddish brown and hairy.

Length 7 lines.

Inhabits — ?

This species was first discovered to be indigenous by Dr. Leach, who in 1826, delivered to our care for the Museum Cabinets, with several other species of the same genus, and other novelties : Mr. Curtis, when he published his guide, introduced our species with an italic letter, signifying doubtful as British, since then, Mr. Wailes, of Newcastle, has found it not uncommon; and it is to his liberality, we are indebted for the specimen figured.

SAMOUELLE'S



15-2

DERMESTES MURINUS. *Linné.*

Black, oblong and hairy: thorax very convex, deeply punctured, the sides covered with coarse and long hair, scutellum nearly triangular, with yellow shining hair: elytra punctured and covered with light brown hair; legs strong, the claws very large but simple; the under part of the body and thorax covered with silvery hair: antennæ with the basal joints of a reddish brown; the club consists of three joints.

Length 4 lines.

Inhabits the dried skins of moles and other animals.

The *Dermestidæ*, although a pest to museums, in the œconomy of nature, are of vast importance, as they appear to feed on those dead and dry animal substances which the *Silphiadæ* would reject as unsuitable for the food of its larvæ; neglected skins and specimens in museums, without proper precaution, are invariably destroyed by those insects. We may observe, that the skins of Mammalia are more often subject to their attacks than those of birds; in fact, it would appear, that they chiefly feed on the more oily and fat substances contained in the skin. Commerce has most certainly tended to distribute them to all habitable parts of the globe, since the covering of trunks or boxes with leather, the importation of hides, and the exportation of bacon

and other fat meats, all of which are subject to be infested by the larvæ of the insects of this family. We suspect that the ovæ, or eggs, may remain for some months dormant, and that the larvæ, or caterpillars, can sustain both excessive heat and cold, possibly buried in a substance that repels damp and cold.



1

15-3

SPHÆRIESTES QUADRIPUSTULATUS. *Kirby.*
Stephens.

Dark pitchy brown, sometimes of a chesnut brown : head and thorax ferruginous, the latter thickly punctured ; with the lateral margins finely crenulated in the middle ; elytra black, striated with two ferruginous spots, one placed at the base, the other towards the apex, a little behind the middle : abdomen black : antennæ dusky at the apex : legs ferruginous.

Length $1\frac{1}{2}$ line.

Inhabits old palings.

Our specimens of this pretty insect we obtained many years since from wood palings in Camberwell Grove, and it was then considered a rare insect. We have never found it since.

SAMOUELLE'S



15-4

SETINA IRRORELLA. *Stephens.*

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: caterpillar black, with yellow dorsal lines and lateral stripes; it feeds on the common lichen and changes to a red brown pupa: the perfect insect appears in June.

Many species of the Lithosiidæ in certain years appear common, but local: the pretty species figured was taken last summer, in the greatest profusion, near Leith Hill, by our esteemed friend, John Walton, Esq. who most liberally supplied us with specimens.

SAMOUËLIE'S



I

10-6

CIMEX LECTULARIUS. *Linné.*

Common Bed Bug.

Of a red brown colour and without wings : antennæ composed of four joints, the basal joint very short, the second thick and three times the length of the first, the third and fourth very long and setacious.

Length 3 to 3½ lines.

Inhabits the houses in London and secretes itself behind the paper of bedrooms, furniture, beds and books.

We have taken the liberty to quote from Mr. Kirby the following curious anecdotes.

“Though now too common and well known, in this country it was formerly a rare insect. Had it not, two noble ladies, mentioned by Mouffet, would scarcely have been thrown into such an alarm by the appearance of bug-bites upon them ; which, until their fears were dispelled by their physician, who happened also to be a naturalist, they considered as nothing less than symptoms of the plague. Being shown the living cause of their fright, their fears gave place to mirth and laughter. Commerce, with many good things, has also introduced amongst us many great evils, of which noxious insects form no small part ; and one of her worst presents were doubtless the disgusting animals now before us. They seem, indeed, as the above fact proves, to have been productive of greater alarm at first than mis-

chief, at least if we may judge from the change of name which took place upon their becoming common. Their original English name was *Chinche* or *Wall-louse*; and the term *Bug*, which is a Celtic word, signifying a ghost or goblin, (and for the information we are indebted to that learned antiquary, F. Douce, Esq. in his *Illustrations of Shakspeare*) was applied to them after Ray's time, most probably because they were considered as 'terrors by night.' But however horrible bugs may have been in the estimation of some, or nauseating in that of others, many of the good people of London seem to regard them with the greatest apathy, and take very little pains to get rid of them; not generally, however, it is to be hoped, to such an extent as the predecessor to a correspondent in *Nicholson's Journal*, who found his house so dreadfully infested by them, that it resembled the Banian hospital at Surat, all his endeavours to destroy them being at first in vain. And no wonder; for, as he learned from a neighbour, his predecessor would never suffer them to be disturbed or his beds to be removed, till, in the end, they swarmed to an incredible degree, crawling up even the walls of his drawing-room; and after his death millions were found in his bed and chamber furniture.'



15-6

NOTONECTA GLAUCA. *Linné.**Boat Fly.*

Head and eyes large : thorax at the junction of the head rather narrow, but gradually increases in width and is of a half yellowish brown : scutellum triangular, large and of a glaucous or blue green colour, the clytræ are more or less of a pale ochre colour : feet formed for swimming ; body beneath flat and of a tawny brown.

Length 7 lines.

Inhabits ponds and may be found at nearly all seasons of the year.

The *Notonectidæ* are not numerous in the varieties of its species, they inhabit waters feeding on aquatic animalcula ; the larvæ and pupæ have each six feet and resemble the perfect insect, the former want wings, the latter has the rudiments of them.

This insect swims on its back, (which is completely boat shaped) and in that situation with its legs spread like oars, will dart with great velocity on water insects, which are its food, and like the other species of *Hemiptera* live by suction ; it would also appear, that they are capable of instilling a secretion of a peculiar nature, and, as we have experienced the pain, resembles the puncture of a hot needle, which however goes off in a short time. It is amusing to observe these insects floating on the surface of ponds, and the rapidity with which they move when dis-

turbed, or in pursuit of their prey : the propelling of a boat was no doubt derived from the action of this insect. It is said they drop their eggs in the water, which are so heavy, that they fall to the bottom and remain till the larvæ appear.



15-1

HETEROCERUS LÆVIGATUS. *Fabr.*

Fuscus, glossy, finely punctured and slightly hairy : head and thorax without spots : elytra with the margin and several large, subquadrate, pale reddish spots, disposed in three irregular bands : these spots are very variable in form and size ; they are sometimes nearly confluent, at others distinct, and are usually placed two longitudinally towards the scutellum, two others behind these, near the suture, and a third pair towards the apex of each elytron ; the pale outer margin of the latter is indented opposite the intermediate space : the body is frequently red beneath, and the legs pale testaceous, with the tibia sometimes dusky.

Length 2 lines.

Inhabits the muddy banks of ponds.

Mr. Stephens has enumerated five species of Heteroceris which are found in this country ; they are by no means common, but may occasionally be found during the spring months on the mud of ponds and rivers, and may be obtained by trampling on the ground, when these insects, aroused by the sudden shock, make their appearance on the surface, but soon again retire beneath the mud, or hide themselves in the crevices formed by the drying of the latter. One of our specimens was found near a pond on the Southgate Road, and another on Wandsworth Com-

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mon—the first in April and the second in May. We believe that hitherto the larvæ of the insects of this genus are unknown ; but Mr. Kirby has classed them with the aquatic and pedate or walking ones.



I

15-2

HELOPHORUS FENNICUS.

Dusky ferruginous: head with the forehead obsoletely impressed: thorax broad, rather convex, broadest anteriorly, the lateral margins sinuated, the disk rugose, punctated with five sulci, the central one straight, the rest more or less flexuous: elytra somewhat convex, griseus, punctate-striated, the alternate interstices elevated and smooth; a little beyond the middle are some oblong elevated dusky or black spots on the carinæ; and near the scutellum is an abbreviated punctate stiola: body beneath pitchy-brown; the abdomen pale ferruginous; legs, palpi and antennæ pale testaceous; the tip of the latter rather obscure.

Length $2\frac{3}{4}$ lines.

Inhabits ponds during the spring months.

The insects of this genus are amongst the first Coleoptera that offer themselves to the collector. Many of the species are common and may be found walking on the grass under water, in cart ruts and the shallowest pools; they appear rather to walk or paddle through the water, for their action is not swimming as in the *Hydrophili* and *Dyticidæ*; in fact, they are incapable of giving that stroke by the hinder feet so well displayed by the regular diving and swimming insects. The species are not numerous, but many of the allied genera are beautifully sculptured

SAMOUELLE'S

and are interesting objects for the microscope. We have met with this species covered with clay and mud for concealment, amongst the regectamenta left by the retiring of the waters, in the fields of Battersea, also in the Hackney Marshes, early in the year.



1

CASSIDA VITTATA. *Fabr.*

Black, above red : thorax with four black spots, one minute over the head, behind which is a large one at the base and two others on the posterior angles : elytra obsoletely rugulose transversly, with the suture and an interrupted black streak on each, and a spot of similar hue at the base : antennæ with the base ferruginous.

Length $3\frac{1}{2}$ lines.

This species is rare near London. We are indebted to Walter Burrell, Esq. and the Rev. C. S. Bird for a series of this pretty insect, which is found on the Ragwort at Burgfield.

The Cassidæ, or tortoise beetles are usually found in the months of May and June. Several species feed on the nettle, whitethorn, mint, and thistles, on which the larvæ may be found. They are broad, oval and depressed, with spines on the sides and a forked tail ; their legs are short, each furnished with a scaly hook ; they feed on the leaves of plants and void their excrement upon their furcate tail, upon which they, in the course of time, form a complete covering to the body by this singular process, and when the mass becomes too large, or gets removed by accident, it is reproduced. The larva often changes its skin, the fragments of which are sometimes found

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in the above-mentioned mass. The pupa is broad, flat and almost oval, surrounded by a number of fringe-like appendages. It is said that in about fifteen days the perfect insect appears.



†

1897

SCYDMÆNUS TARSATUS. *Kunze.**Denny's Monographia.* Plate xi. fig. 1.

“ Head pitch-coloured, shining, and finely pubescent ; the anterior part a little attenuated and truncated : antennæ testaceous, pubescent, and rather thick ; the first joint long and cylindrical, having a long excavation on the internal side, proceeding from the insertion of the second joint ; the last three joints the largest ; the fifth from the base a little elongated ; the eleventh ovate, with its base truncated : palpi obscure testaceous [and thickly pubescent ; the third joint large and pyriform ; the fourth short and thick, and scarcely perceptible : eyes black, prominent and finely granulated : thorax pitch-coloured, shining, and finely pubescent, about twice the length of the head, and nearly ovate ; the base abruptly truncated, with four foveolæ transversely situated : elytra pitch-coloured, but lighter than the thorax, shining and finely pubescent ; elongate-oval, with two deep depressions at the base ; apex rounded : abdomen shining and ovate : legs pale testaceous and thickly pubescent ; thighs long and abruptly elevated ; tibiæ and tarsi thickish ; the anterior tarsi much dilated.

“ Length rather more than one line and a quarter.

“ Habitat, moss at the roots of trees in moist places and under stones.

“ *Scydmænus Hellwigii* is the type of this genus, and has been described as a British species by most authors. I have never seen a British specimen of it, although I have examined all the principal cabinets

in London and Norfolk: the specimens which are there named *Hellwigii* are the true *Tarsatus* of Kunze, which have been described as *Hellwigii* by Latreille and Gyllenhal. One species, however, is clearly distinguished from the other, not only by the four foveolæ at the base of the thorax, and the dilated tarsi, but by the general form—*Hellwigii* being a much narrower insect about the thorax, and the base of the elytra, than *Tarsatus*.

“This insect is also standing in many cabinets under the name of *Piceus*, in consequence of Marsham having described it as *Lytta Picea*. This appears to be the only species of *Scydmanus* known by him. For a figure of this species I am indebted to Mr. J. Sparshall, who very liberally granted me free access to his cabinet on all occasions: it is also in the cabinets of the Rev. W. Kirby, J. F. Stephens, Esq. A. H. Haworth, Esq. and in the British Museum. It has been taken in London and Bristol by Dr. Leach.”

We are indebted to our worthy and ingenious friend, Mr. Henry Denny, the author of the *Monographia Pselaphidarum et Scydmanidarum Britannicæ*, for the original sketch of this species, and from his valuable and now scarce work we have extracted its character and his observations on the species. We believe that but little or no additions have been added to those families since 1825, when the Monograph was published, which is one proof of the great research and care of its author. The work, as a specimen of typography, does great credit to the press of Norwich and is a fair specimen of the chaste taste of our much-respected friend Mr. S. Wilkin.



PELTASTES NECATORIUS. *Fabr. Curtis.*

Ichneumon Vespoides. *Panz.*

Black : body with the extremity of the first, third, fourth and fifth segments yellow : antennæ longer than the thorax, and black ; legs also black, but the tibia and tarsi yellow : the superior wings fuliginous or of a smoky colour, the upper and lower wings on the upper surface are slightly irredescent.

Length of body 7 lines, expansion of wings 1 inch.

This rare and interesting insect we found, many years since, on an umbelliferous plant in Plaistow Marshes, in the month of August. We quote from the valuable work of Mr. Curtis the following observations on the family of the Ichneumonidæ.

“ The insects of this genus, like those of the whole family, are parasitic, depositing their eggs in the larvæ of Lepidoptera, which as soon as they hatch begin to feed upon the muscles of their victim, until the whole internal substance of the caterpillar, with the exception of the alimentary canal, is consumed. In this diseased state it changes to a chrysalis, frequently assuming the natural form, although the colour is sometimes altered ; and the lepidopterist is often disappointed in his hopes, when instead of a valuable moth or butterfly, one of these singular insects is the reward of all his care and attention.

“ The Ichneumonidæ, however, are eminently useful, employed as they are to keep within bounds a

tribe of caterpillars which otherwise in all probability would swarm to a degree that would deprive vegetation of its beauty and utility :—An extraordinary instance occurred in the year 1782 ; for a further account of which I must refer the reader to ‘ A short History of the Brown-tail Moth,’ by W. Curtis.

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

No work has hitherto been published in this country for accuracy in delineation, and in the beauty of its execution, to equal the British Entomology by Mr. Curtis : indeed we may say, that no continental work to our knowledge has exceeded it.



16-6

ASOPIA FARINALIS. *Curtis.*

Pyralis farinalis. *Hubn.*

Meal Moth. *Haworth.*

Wings dusky brown, with a very broad wavy sea-green band in the middle, margined on both sides with white ; second pair with two wavy white streaks in the middle, having a darker-coloured space between them ; on the hinder margin oftentimes an incomplete row of black spots, larger towards the posterior angle.

Expansion of the wings 1 inch 3 lines.

The perfect insect appears in August, and is generally in and near stables.

The caterpillar is said to feed on grain, pollard and all farinaceous substances.



15-1

CLIVINA FOSSOR. *Leach.*

Tenebrio fossor. *Linné.*

Carabus distans. *Marsham.*

Black : head moderately large and nearly triangular, with a deep puncture in the centre; from the eyes to the clypæus is a broad expanded margin, the latter is transverse and with a slight curve : the jaws are large prominent and curved : palpi reddish brown : antennæ of the same colour, the first three joints are nearly cylindrical, the remainder thicker, round, and forming almost a moniliform club : thorax much longer than broad, marginated, and with an impressed line down the centre : elytra twice the length of the thorax and covering the body, marginated striated and the striæ punctured ; the margin is of a reddish brown ; under part of the body black ; legs pitchy red, the fore ones dilated and adapted for digging.

Length 3 lines.

Inhabits the roots of grass during the spring months.

This pretty insect is by no means scarce, but at the same time is far from common, from the circumstance that but few specimens are to be found at one place : this observation, so far as we can remember, will hold good with respect to the *Scaratidæ* in general, for we have had many boxes of insects from

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India, the Cape of Good Hope and New Holland, the Brazils and other parts of South America, yet the insects of this family have always been of rare occurrence. They are known to inhabit most parts of the world. They bury themselves, and seek their food immediately beneath the surface of the earth, which may possibly account for their rare appearance in collections.



I

17-2

SCAPHIDIUM QUADRIMACULATUM. *Oliv.*

Black and shining: head punctured: eyes moderately large: antennæ as long as the head and thorax, with an abrupt club composed of five somewhat hemispheric joints: thorax gradually increasing from the head to the elytra, shining and deeply punctured: elytra convex and broadest about the middle, truncate behind and shorter than the abdomen, which is pointed; each elytra has a somewhat lunate or irregular red spot at the base and apex, the punctures are deep and are in lines: the legs are of a pitchy brown.

Length of the body $2\frac{1}{2}$ lines.

Inhabits fungi and wet rotten wood.

We have seen this rare insect taken from the stumps of trees at Coombe Wood, Surrey, in the spring of the year; our specimen we captured many years since, in the stump of an oak rotted by damp, in the New Forest, Hants, and at least eighteen inches from the surface of the earth. The Rev. G. T. Rudd informs us that *Scaphidium quadrimaculatum* is by no means uncommon near York, and is generally found when the weather is extremely wet, a fact we believe hitherto unnoticed: to our friends in the north we may say that this insect is very rare near London.

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17-3

NITIDULA GRISEA. *Marsham.*

Reddish yellow: head small and exerted, jaws projecting and curved: eyes moderate, but the hemispheres very large: antennæ reddish yellow, the basal joint large, globular, and in size equalling the club, which is composed of three joints, two deep cup-shaped, and the third nearly globular: thorax convex, broader than long, with a wide margin, a large brownish black spot in the centre, and an angulated line between the middle and the margin which increases in width and reaches the posterior margin, it then turns and terminates in a large spot near the central one: elytra twice the length of the thorax, slightly convex; margined with three interrupted lines of black, and elevated striæ: legs and the whole of the under part reddish yellow.

Length of the body 2 to $2\frac{1}{2}$ lines.

The *Nitidulidæ* follow in a most natural manner the *Silphidæ*, both in their appearance and œconomy; the latter feed on carrion, and the former on the more muscular and dried parts that may adhere to bones when left by the *Silphidæ* and other carnivorous feeders. *Nitidula grisea* is found beneath the bark of the willow, poplar and birch trees, generally in the early spring months, and the wood of those trees it is said they eat; it is however certain that those places are their hibernating quarters,

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as we have frequently found them in the above situations and also under moss during the winter months. They are not rare, many of the species may be taken in gardens in the month of May, on bones, if placed under a garden pot, as the scent will attract them.



174

Exochus (Exochus) lineatus (L.)

DIAPERIS BOLETI. *Fabricius.*

Black and nearly hemispherical and very convex above : head inclined, punctured with a deep transverse impression from eye to eye : antennæ gradually enlarging towards their extremities, from the fourth joint perfoliated : thorax convex, marginated and deeply punctured, sinuated on the hinder margin and produced near the scutellum : elytra very convex, with an orange-coloured fascia at the base, one across the middle and a dot at the apex, of the same colour : legs and the whole of the under part black.

Length of the body $3\frac{1}{2}$ lines.

Inhabits the boleti of trees.

We have never had the pleasure of seeing this insect alive, and the only specimen that enriches our cabinet we obtained many years ago from our friend Dr. Leach; we believe he received it from the late Mr. Millard, of Bristol, the author of "Outlines of British Entomology, in Prose and Verse."



27-6

Published by G. Samsuelo, May 1, 1833.

DOLICHOPUS NIGRICORNIS. *Meigan.*

Shining brassy green : head small : antennæ patelliform and black, half the length of the head ; the third joint trigonal, and bearing a seta or hair on its hinder part : eyes brown, widely divided in the females, and with three stemmata or little eyes placed on the summit of the head : thorax convex, brassy green, with numerous long and recurved black and strong hairs : wings iridescent, tawny at their base, the nervures black : body brassy green to blue and copper colour, the sides when held in a certain light of a silver grey : legs tawny, the tarsi black.

Length of the body $3\frac{1}{2}$ lines, expansion of the wings 6 lines.

Inhabits ponds and pools of water, in woods and on commons, during the summer months.

The *Dolichopidæ* are as interesting to the entomologist as they are desirable to those who collect objects for the microscope. And we beg to observe that they may be found in those small pools left by rains or formed by springs, and where long grass and rushes grow : they do not fly far but merely skim the surface, for about a foot in height, and are fond of alighting suddenly on the surface of the water. Being in general small they easily elude pursuit ; they are evidently very local, but well deserving attention. They are best collected by the forceps and pinned at once. The species approach very near each other.

SAMUELLE'S



17 0

ANTHRAX ORNATA. *Hoffmansegg.*

Black shining: head covered with black hair between the eyes, silvery behind, clypæus and under side of the head with golden hair: thorax with ochre-coloured hair before, nearly naked in the centre: scutellum brownish: body beneath covered with short golden hair, the sides surrounded with alternate fasciculi of fine white and black hair, the third and fourth segments with white fascia interrupted in the middle, sixth with a white spot in the centre, last joint very white with hair: wings transparent, many-nerved, with a brownish cloud extending two thirds the length, sinuated at the posterior margin, with a transverse transparent spot near the base, a larger one in the centre and two others near the margin at the union of the nerves: legs black, femurs and tibiæ covered with close yellow hairs: halteres or balancers yellow.

Length of the body 5 lines, expansion of the wings 11 lines.

Mr. Curtis says *A. ornata* was first discovered by J. C. Dale, Esq. at Pasley Heath, on the borders of Dorset and Hants, in July, 1821, and afterwards in September, 1823. It was found settling upon heath, banks, and on the ground where the turf had been pared off; it has also been captured by Mr. Bentley in the same neighbourhood. Mr. Curtis further observes that the *Anthraxes* fly in the sunshine and subsist upon the juices of flowers.

SAMOUELLE'S



18-1

DRILUS FLAVESCENS. *Olivier.*

Cantharis serraticornis. *Marsh.*

Black: head small: antennæ serrated and placed in front, immediately beneath the eyes: thorax nearly square and covered with tawny-coloured hair: elytra tawny and soft: thighs black, the tibiæ and tarsi fulvous.

Length $2\frac{1}{2}$ lines.

Inhabits grassy places and hedges, in the months of May and June.

This little, but, interesting and scarce insect, is the only species of the genus yet found in this country; and the only specimens we have ever seen were captured in a lane near Darenth Wood, Kent. It is said the female is apterous and resembles a larva, and that they feed on the snail and slug.

SAMUELLE'S



I

BRUCHUS PISI. *Linné.*

Black, head nearly triangular, the jaws prominent : eyes large, kidney-shaped and deeply notched for the insertion of the antennæ : antennæ with the first four joints small and red, the others gradually increasing in size, and black : thorax black, punctured and covered, more or less, with short yellow hair : elytra black and variegated with spots of yellowish grey hair : the abdomen is inflexed, covered with greyish hair, with two blackish spots : anterior pair of legs redish brown, the second and hinder black, the thighs of the latter very large.

Length $2\frac{1}{4}$ lines.

Inhabits pea fields.

Mr. Kirby says, " In a late stage of growth, great havoc is often made in peas by the grub of this insect, which will sometimes lay an egg in every pea of a pod, and thus destroy it. In this country, however, the mischief caused by the *Bruchus* is seldom very serious ; but in North America is most alarmingly destructive, its ravages being at one time so universal as to put an end in some places to the cultivation of that favorite pulse. No wonder then that Kalm should have been thrown into such a trepidation upon discovering some of these pestilent insects just disclosed in a parcel of peas he had brought from that country, lest he should be the instrument of introducing so fatal an evil into his

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beloved Sweden. In the year 1780, an alarm was spread, in some parts of France, that people had been poisoned by eating worm-eaten peas, and they were forbidden by authority to be exposed for sale in the market; but the fears of the public were soon removed by the examination of some scientific men, who found the cause of the injury to be this insect."



1

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CUNCUJUS ATER. *Olivier.*

Deep brown to black: the head flattened in front, jaws exerted: antennæ liliiform and longer than the head and thorax taken together: thorax nearly quadrate, shining and deeply punctured: elytra punctate, hairy, and each with a wide sulci near the margin, legs short and somewhat paler than the upper part of the insect.

Length $\frac{3}{4}$ of a line

Inhabits beneath the bark of trees.

We are indebted to the Rev. G. T. Rudd, M. A. and F. L. S. for the specimen from which our drawing has been made, the insect was captured in the Month of April, at Coomb Wood, Surrey, the discovery was first made of the insect by Mr. Stephens, and who directed the attention of our friend, during an entomological excursion to this celebrated spot, which has been a favourite resort for collectors of insects for the last half century.



18 7

COCCINELLA OBLONGO-GUTTATA. *Linné.*

Black : head yellowish red, with a triangular blackish mark in the centre : thorax redish brown, the sides with a wide and pale margin : elytra pale red, with lines and dots (subject to great variety) the suture and margins yellow.

Length $3\frac{1}{4}$ lines.

Inhabits pine trees, but is far from common.

The Coccinellidæ *Lady Birds* and *Lady Cows* feed both in the larvæ and perfect state on the Aphides, or *plant-lice*, and appear universally distributed. Of their vast importance in the economy of nature, we can have no idea ; but, the following account by *Rusticus*, in the Entomological Magazine for April, will give room for reflection on those minute objects of creation in the affairs of man.

“ In the year 1802, on the 14th of May, the old hop duty was laid at 100,000*l.* ; the fly, however, appearing pretty plentifully towards the end of the month, it sunk to 80,000*l.* ; the fly increased ; and, by the end of June, the duty had gone down to 60,000*l.* ; by the end of July, to 30,000*l.* ; by the end of August, to 22,000*l.* ; and by the end of December to 14,000*l.* ; the duty actually paid this year was 15,463*l.* 10*s.* 5*d.* In 1825, the duty commenced at 130,000*l.*, but, owing to the excessive increase of the fly, had in July fallen to 16,000*l.* ; at the beginning of September it rose to 29,000*l.*, but towards

the end fell again to 22,000*l.*; the amount paid was 24,317*l.* 0*s.* 11*d.* In the following year, the summer was remarkably dry and hot; we could hardly sleep of nights with the sheets on; the thermometer for several nights continued above 70° all the night through: the crop of hops was immense, scarcely a fly was to be found, and the betted duty, which began in May at 120,000*l.*, rose to 265,000.; the old duty actually paid was 269,331*l.* 0*s.* 9*d.*; the gross duty, 468,401*l.* 16*s.* 1*d.*, being the largest amount ever known. From this it will appear that, in duty alone, a little insignificant looking fly has a control over 450,000*l.* annual income to the British Treasury; and supposing the hop-grounds of England capable of paying this duty annually, which they certainly are, it is very manifest, that in 1825, these creatures were the means of robbing the Treasury of 426,000*l.* This seems a large sum, but it is not one-twentieth part of the sums gained and lost by dealers during the two years in question."



18-5

Published by G. Samouelle, June 1, 1833.

TINEA TAPETZELLA. *Linné.*

Black-cloaked Woollen Moth. Haworth.

Wings hoary, blackish brown at the base, with numerous irregular markings on the upper wings of the same colour, lower wings of a pale lead colour and shining: thorax black: head large and of a snow-white: the scales that cover the wings very large: antennæ setaceous: legs of a moderate length.

Expansion of the wings $10\frac{1}{2}$ lines.

Inhabits the skins of quadrupeds.

This is a fatal and destructive insect to furs, tip-pets, muffs and other articles of dress made from the skins of quadrupeds. We have found that camphor readily destroys the perfect insect; but the boxes should be secured, or the camphor soon escapes; tallow will also keep these insects off. We should therefore advise, when such articles of dress are put by for the season, to introduce a tallow candle, which may be wrapped in paper to prevent its soiling, and also several lumps of camphor, which should be replenished from time to time. Clothes Moths will make their appearance in February, and indeed throughout the year.

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18 -6

BERIS CLAVIPES. *Latreille.*

Head of a moderate size : antennæ very long and inserted in the front, thorax black, abdomen redish yellow much depressed : legs of the same colour, the tarsi black : wings of a dark soot colour.

Expansion of the wings $5\frac{1}{2}$ lines.

Inhabits palings during the spring months.

All the species that we have yet met with, have been taken from the above situations. There are several species, and are well deserving the attention of entomologists.

SAMOUELLE'S



I

1852

1852

ONTHOPHILUS SULCATUS. *Leach.**Hister sulcatus. Fabr.*

Dull black : head punctured, considerably narrower than the thorax, in which it is partly retractile : mouth of a ferruginous colour, the mandibles or jaws strong and exerted : the antennæ of the same colour, with the basal joint black : thorax punctured, as broad as the elytra, with five longitudinal elevated lines, the three intermediate not reaching the whole length : elytra with the suture and three elevated lines on each, the interstices with fine striated lines and a series of minute punctures on each side of the elevated lines : the body beneath black and finely punctured : legs pitchy black, the femurs or thighs somewhat compressed and grooved beneath for the reception of the tibia or shank which is very broad, flat, slightly curved and toothed externally ; internally furnished with very fine spines ; the tarsi or toes short and very slender.

Length of the body $1\frac{1}{4}$ to $1\frac{1}{2}$ lines.

Inhabits beneath the dung of cattle and horses during the spring months.

Dr. Leach was the first who established the genus *Dendrophilus* from the Histeridæ or *Hister* of Linné, the characters of which were published in the third volume of the *Zoological Miscellany*, and was followed by us in the *Entomologists' Useful Compen-*

dium. Of this genus only two species have yet been found in this country, the one now figured and a smaller species, not uncommon, the *H. striatus* of Fabricius. *Dendrophilus sulcatus* must be considered a scarce insect and very local. Our specimens we received many years since from our friend, Dr. Leach, who met with them in Devonshire. Mr. Millard found them also near Bristol; they have been taken at Coombe Wood by Mr. Ingpen, and in Nottingham by Dr. Howitt. *D. striatus* is common some years under dung in Battersea Fields, and also in Epping Forest. The whole of the *Histeridæ*, like the *Byrrhidæ*, when alarmed, retract the antennæ and legs close to the body: of this species Mr. Kirby remarks, "that it appears like the seed of an umbelliferous plant."



111-2

Colletes cunicularius

MELASIS BUPRESTOIDES. *Curtis. Stephens.*

Elater Buprestoides. *Linné.*

Melasis Flabellicornis. *Fabr.*

Obscure black, varying to castaneous, glossy in proportion to the darkness of colour and the maturity of the insect, more especially in the elytra: antennæ, palpi and legs rufous: head pubescent and punctured: thorax gradually narrowing towards the elytra, with minute scaly tubercles and a deep impressed line down the middle, and in some specimens with only a simple puncture at the junction with the scutellum: elytra shining, with a play of colour from the irregular transverse impressions on the superficies, caused by the deep impressed striae that appear to vary in number; the margin partially inclining to the breast and gradually narrowing towards the apex.

Length of the body $2\frac{1}{2}$ to 4 lines

Inhabits — ?

Of the habitat of this insect we are ignorant. In its perfect and liberated state, it may possibly feed on the nectar of flowers: hitherto it has only been detected in the wood of decayed trees, and that at a depth and in channels that would infer it was merely retreating from the place of its nativity to the open day. We have before observed the deficiency of colour in wood-feeding insects, more especially as

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the atmosphere has evidently a very great influence in that perfection.

Mr. Curtis has observed, "The specific name which our insect bears in both the works of Linnæus has been restored, as well from respect as in justice to that great man; and it is to be regretted that the praise due to Fabricius for having established the genus, should have been diminished by the unnecessary confusion he has created, in changing the Linnæan specific name, and afterwards describing another insect under the name of *Elater buprestoides*."

"In the year 1811 I found a perfect specimen dead in the decayed arm of a tree, in a wood in the neighbourhood of Halesworth, Suffolk. Dr. Herschel, however, is said to have first observed it at Windsor: it has since been taken in some abundance in a decayed tree in the New Forest, by Mr. Samouelle and Mr. Chant: the males are frequently smaller than the females. It is common in Sweden and Germany, but rare about Paris and in Britain. Latrille says it walks badly, and if it fly, it cannot apply the vigour and activity which so strongly mark the family to which it belongs."

"It inhabits dead decaying trees, which it perforates like the *Anobia*; it has been detected in the beech, sawallow, alder, and birch."



19 2

Illustrated by J. M. S. J. J. J. J.

EMUS HISTUS. *Leach. Sam. Steph.*

Staphylinus histus. Linné.

Black : head large and nearly triangular, covered with an erect golden-coloured hair, mandibles long, curved and black, eyes large and shining, antennæ as long as the head, black and hairy : thorax anteriorly truncate, posteriorly rounded, and covered with hair as on the head : elytra black at the base, covered with black hair, the suture red : and a fascia two thirds the length, covered with a beautiful silver pile or fine hair : abdomen above black and covered with black hair, the last three segments with a golden yellow pile, as on the head and thorax : the breast black and hairy, abdomen of a steel blue, the latter covered with hair as on the upper part : legs black and hairy, the tibiæ with golden hair.

Length 9 to 12 lines.

Inhabits the carcasses of dead birds and rabbits, on open plains.

We have never had the pleasure of capturing this rare and interesting species of *Staphylinidæ* ; our drawing has been made from a German specimen, given us by Dr. Leach many years since : the species has been found in Devon by Dr. L. and on Parley Heath, Dorset, by the successful and indefatigable Mr. Dale.

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1

10-4

LYCOPERDINA BOVISTÆ. *Latr. Leach Sam. Curtis.*
Endomychus Bovistæ. Payk. Fabr.

Chesnut brown; smooth and shining: head rather rugose, eyes moderate, with large and prominent hexagons: antennæ placed in the front of the head near the upper part of the eye, moniliform or bead-shaped, and gradually increasing towards their extremities: thorax very convex in the middle and a deep channel on each side, the margin much dilated, slightly elevated, and terminated acutely behind: elytra very convex in the middle, much depressed at the base, and ending acutely at the apex: body beneath and legs pitchy brown.

Length $1\frac{3}{4}$ to $2\frac{1}{2}$ lines.

Inhabits the Lycoperdion, or puff ball.

This interesting and uncommon, or, at least, local insect is the only species of the genus yet found in England. In our excursions we have invariably examined every puff ball that we came to in our way, for the sake of capturing this insect; and it was not until on a visit to Wiltshire, to our friend the Rev. G. T. Rudd, that we had the pleasure of seeing it alive. In a fir plantation near Kimpton, where the puff ball was abundant, we met with it: it may be useful to mention that it is necessary to introduce the finger into the ball and feel gradually for the in-

sect, which will appear to the touch like a small pellet or shot, and many of the puff balls may be examined without detecting a single specimen—the most we ever found in one ball were three specimens: they are subject to great variety, both in size and colour. They are to be met with in the month of September. Mr. Bydder has taken it at Norwood; Mr. Newman at Birch Wood.



1-2

TIPHIA FEMORATA. *Fabr.*

Black and hairy: head large, round and compressed, of the width of the thorax: eyes large, of an elongate oval: antennæ moniliform, curved and inserted at the base of the clypeus: thorax black, shining and punctured, the scutellum very large: wings slightly tinged, with a little iridescence on the lower pair: abdomen black, shining and hairy towards the extremity: legs short, the thighs angulated, tibiæ very short; the anterior pair black, the four hinder red, all the tarsi are black.

Length of the body $3\frac{1}{2}$ to 4 lines.

Expansion of the wings $6\frac{1}{2}$ lines.

Inhabits sandy places.

Tiphia is the only genus of the *Scoliadæ* found in England. Three species are generally enumerated in the lists of British Insects, but we have the pleasure of stating that to the labours of a young, but very superior entomologist, we are indebted for specimens, and a knowledge of a fourth species—the *Tiphia minuta* of Van-der-Linden. Our friend Mr. Shuckard (who is now paying much attention to the Hymenoptera) has furnished us with the following locality and observations on this new species: “Taken on Hampstead Heath, at the beginning of June: the females very rare, and the males varying in size from 1 to 3 lines; some individuals having but one submarginal cell.”

JAMUELLE'S



POMPILUS VIATICUS. *Fabr.*

Sphex viatica. *Linné.*

Black and hairy : head broad : eyes large, the hexagons moderate : stemmata three, placed in a triangle near the summit of the head : clypeus or shield of the mouth large : the antennæ inserted near its base, in the females the antennæ are generally curled, filiform ; and in the males straight : thorax and breast black : body with the first three segments red, and black on the posterior margin, the remainder black and hairy towards the extremity : wings blackish brown, with a darker band at the extremity : legs and the whole of the under side black, femur and tibiæ short : tarsi long and hairy.

Length of the body $5\frac{1}{2}$ to 6 lines.

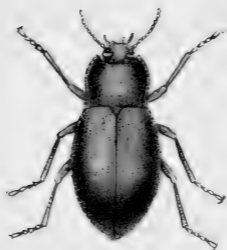
Expansion of the wings 10 lines.

Inhabits umbelliferous plants and holes in sandy banks, in which it retires with caterpillars for the nourishment of its larvæ.

Mr. Stephens has enumerated thirty-two species of the insects of the *Pompilidæ* in his *Systematic Catalogue*. From the little attention that has been paid to the insects of the order Hymenoptera, (with the exception of Mr. Kirby's work on the bees) we may say that much is yet to be done, but it will require a steady perseverance. The insects of this family, as before observed, nidificate in sandy banks, more

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especially those of road rides and lanes. The early part of the morning is by far the best time to meet with them, the females have an acute concealed sting. The male insects are very rare, they are longer and much slenderer in the body, and the antennæ are in general straight and of the length of the body.



201

Carabus 1837.

BLAPS OBTUSA. *Fabr.*Blaps lethifera. *Marsh.*

Black and shining: head thickly and minutely punctured: eyes placed far back on the head, small, transversely elongate, the hexagons large but not numerous, the greater portion placed beneath: antennæ but little longer than the head, the basal joint nearly pear-shaped, the second short and cup-shaped, the third four times the length of the second, the others moniliform or bead shaped, with the last four much compressed: jaws and upper lip exerted beyond the clypeus and slightly furnished with reddish hair: thorax finely and thickly punctured, the anterior angles rounded, posteriorly transverse and of the breadth of the base of the elytra, with a slight margin and less shining than the latter: elytra very broad, convex, acuminate at the apex, thickly but coarsely punctured: the legs and whole of the under part black and shining.

Inhabits houses, cellars and dark damp places.

Length of the body 11 lines.

Blaps obtusa is by no means a common species, but may be found occasionally in houses and cellars. The *B. mortisaga* is smaller, narrower and is a common species, and often does much mischief in wine cellars. A gentleman once applied to us with specimens of the larvæ of the latter species, which

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had committed much havoc to his wine by eating the corks of the bottles, by which a great quantity was lost, and appeared to be eagerly sought after by these insects. It has a very fœtid scent, and has been regarded by the superstitious as an omen of misfortune. It is most tenacious of life, one having lived upwards of three years with Mr. Baker without food and revived after having been kept in spirits of wine a whole night.

Latreille informs us that *Blaps sulcata* is employed by the Turks to alleviate pain of the ear, and to cure the sting of the scorpion. The women of Turkey also cook this insect in butter to fatten themselves.



20-2

HELOPS STRIATUS. *Olivier.*

Blaps spartii. Marsham.

Brown, head projecting finely and deeply punctured: antennæ filiform and longer than the thorax: eyes nearly kidney-shaped, and rather a lighter brown than the head, the hexagons large: thorax large, nearly quadrate with the sides, rounded, deeply and thickly punctured. Elytra striated punctured, with numerous fine punctures between the interstices, nearly elliptical at the base, of the same breadth as the thorax, the apex acuminate: the whole of the upper part brown, with a somewhat brassy appearance: beneath brown and shining, the legs also brown; in the male the four anterior tarsi are dilated.

Length of the body $5\frac{1}{2}$ lines.

Inhabits beneath the bark of trees during the winter months: hedges and oak trees in spring and summer.

The late Mr. Marsham appears to have been the first British Entomologist who described this species, and it appears rather singular that his then friend Mr. Olivier, who was in correspondence with Mr. M. and had seen his collection, should not have pointed out to him this insect as having been described under the name we have adopted above.

This pretty but very common insect is frequently met with congregating together in great numbers beneath the loose bark of trees, and under moss

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during the greater part of the winter months and in various situations, not being confined to trees in woods but generally dispersed ; but when the trees are in leaf we frequently beat them out of oaks, white thorns, &c.



20-3

collected by G. Samouelle, Aug. 21, 1833

RHIPIPHORUS PARADOXUS. *Fabr.*Mordella paradoxus. *Linné.*

Black : head small, inflexed and scarcely observed from above, shining and punctured : eyes small and projecting : antennæ inserted immediately beneath the eyes at the base of the clypæus, bipectinate in the males ; in the females flabellate or like the sticks of a fan. Thorax black, arched of the breadth of the head, in front deeply channelled down the centre, the sides gradually increasing, and with three lobes behind, the centre lobe produced in the place of a scutellum, the two outer lobes red. Elytra black, elongated, shorter than the body, gaping and acuminate at the apex ; in the females the colour is often testaceous : breast and legs black, abdomen pale orange, the last joint black.

Length of the body 5 lines.

Inhabits umbelliferous plants, but is rarely found. The only specimens we possess we obtained some years since from the Rev. F. W. Hope.

We select from our friend, Mr. J. Curtis, the following observations. " This beautiful and interesting insect, which is the only species that inhabits Britain, was considered, a few years back, one of our most valuable acquisitions, being only met with accidentally, from our ignorance of its habits and economy ; but having been discovered in its natural habitation by my friends, Dr. Leach and W. S. Mac

Leay, Esq., the attention of naturalists was called to the subject, and it has since been taken in profusion in Shropshire, by the Rev. F. W. Hope; and at Southgate, not uncommonly, by Mr. Edwin Walker, in August and September, 1823; and this gentleman observed, that the individuals taken in August were smaller than those that were captured later in the autumn. I have seen this insect alive in Norfolk: it has also been taken in Somersetshire; and my friend, Mr. Dale, found one in his orchard in Dorsetshire, which induced us to search for a wasps' nest, which we found in the neighbourhood; and having destroyed and dug it up at night, it was conveyed home in a vessel closely covered, and upon examination the next morning, I had the gratification of releasing a male from one of the cells, the external figure of which was sexagonal, but the operculum was circular; and the same structure is exhibited in one that Mr. Stephens received from Mr. Hope.

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



26-7

CALEPTERYX LUDOVICIANA. *Leach.*Libellula Virgo. *Linné.*

Blue to a silky green : head large, broader than long, with the stemmata placed in the form of a triangle near the summit of the head : the mouth is large and furnished with strong and powerful jaws : the eyes are placed far distant from each other, large and hemispherical, in the dead specimens of a dingy brown ; the hexagons are very numerous, amounting to many thousands, and form a most delightful object for the microscope : antennæ short, placed between the eyes, the basal joints stout and terminating in a hair : thorax broad at the base, much elevated behind, but narrower and a deep line down the centre : wings of a deep blue, brownish towards the apex : body cylindrical, with the first six segments nearly of equal length, the seventh, eighth and ninth gradually shortening ; above of a rich silky-green, beneath bluish-black : legs blue-black and furnished with fine and long spines.

Length of the body 2 inches, expansion of the wings $2\frac{3}{4}$ inches.

Inhabits the banks of rivers and running streams in June.

This very beautiful species of *Dragon-fly* is by no means uncommon on the banks of the Lea and other Rivers.

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20-3

Published by G. Samouelle, Aug^r 1. 1855.

CILEX COMPRESSA. *Leach.*

Bombyx compressus. Fabr.

Goose-egg Moth. Harris.

Chinese Character. Haworth.

Wings white, the upper pair near the middle with a yellowish oval spot joining to a brownish band that widens as it reaches the inner edge of the wing near the body: in this band are various minute silvery markings; the outer edge of the wings has a series of pale lunules, surrounded by silvery white arches, surmounted by lead-coloured lunules; the under wings are white and dark tinge from the body to the middle of the wing, and on the outer margin five large dots of the same colour.

Expansion of the wings 11 to 13 lines.

Inhabits hedges near London, and is not uncommon the end of May and beginning of August.

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20-6

Published by G. Samouelle, Aug. 51, 1833.

ACROCERA GLOBULA. *Meigan.*

Acrocera gibbosa. *Sam.*

Pale yellow: head small, eyes large, forming nearly the whole of the head: antennæ with four or five joints, the first nearly globose, second, third and fourth filiform and terminated by a seta of twice the length of the basal joints. Thorax nearly globular, downy on the back: scutellum large and yellow: the scales at the base of the wings beneath large and inflated like bladders: abdomen globose, convex with the last joint pointed, the base black and lobated: legs yellow.

This rare and curious insect was taken many years since by our late and much-respected friend, Thomas Carpenter, Esq. of Tottenham; we believe he took it in the lanes near his residence. Our specimen has unfortunately lost the antennæ; but we have described it from a figure given by Meigan.

SAMOUELLE'S



I

21-1

CERCYON QUISQUILIUM. *Stephens.*Scarabæus quisquilius. *Linné.*Dermestes quisquilius. *Marsham.*

Nearly oval: head black, convex and closely punctured: antennæ clavated, the club solid and black, the basal joints are reddish yellow: thorax black, punctured, and with the side margins of a reddish yellow, broader in the female than in the male: elytra of a reddish yellow, the suture and nearly a diamond-shaped spot, beyond the middle, black, which in size is subject to a little variation; the elytra are striated, the striæ punctured and the interstices are finely punctured: beneath the breast or sternum is black, the abdomen reddish brown: thighs and tibiæ broad and flat, the latter are furnished with numerous fine spines on the outer edge, the tarsi are short and nearly black.

Length of the body $1\frac{1}{2}$ lines.

Inhabits the dung of horses and cattle.

The males of this species are in general smaller and narrower than the females, and are very common during the spring months about London, on heaths, roads, pathways and meadows, and may often be observed on the wing after mid-day in sunny weather. Of this genus Mr. Curtis has enumerated 54 species in his "Guide;" they are for the most part minute. Mr. Kirby says some are found

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also on the sea-shore under *Zostera* and *Fuci*. The genus was first established by Dr. Leach, and has been adopted by all later entomologists. Mr. Stephens observes "that they are unquestionably very closely allied to the *Hydrobii*."



SCOLYTUS DESTRUCTOR. *Leach. Curtis. Stephens.*

Ips scolytus. *Marsham.* (♂)

Ips inermis. *Marsham.* (♀)

Black and shining : head hairy in front, with a deep channel : antennæ red and clavated, inserted close to the interior margin of the eyes : thorax large, very finely punctured : elytra shining, and from a red to a pitchy black, striated and the striæ punctured, the interstices irregularly punctured : abdomen beneath of a pitchy black, with the first segment very convex : legs and antennæ chesnut red.

Length of the body 2 to 2½ lines.

Inhabits elm trees in St. James's and Hyde Parks, and round the metropolis.

“ The devastation (says Mr. W. S. Mac Leay) committed by these animals, is at times so great, that it is clearly worth while to make experiments to obviate it ; although it is difficult to conceive how such experiments can ever be made philosophically by persons who do not, in the first instance, make themselves acquainted with the natural history of that particular species of destructive insect which may have occasioned the mischief.” Mr. M. recommends that “ trees should be inspected twice a year ; in summer when the perfect insect is on the wing, and afterwards in winter, when infected trees ought to be cut down and burned, or subjected to such

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heat or fumigation as may destroy the larvæ; or to cover over with a mixture of tar and train oil in March, to a certain height from the ground, all such trees as it may be thought proper to save."

We have some doubt if this insect ever attacks the elm but when in a dead state. We have often collected insects in the neighbourhood of Camberwell, when the grove existed, and could never find this species of insect but in one tree, and that was a dead one on the summit of the hill; but after the trees were killed by the escape of the gas from the pipes, that were badly laid, the trees threw off the bark, which was blistered by the poison, to a distance sometimes of an inch from the tree—such was the appearance in the month of February; the trees however came into leaf, but were evidently in a very weak and sickly state, but at this time not a single specimen of *Scolytus* could be found, but the next spring a great many of the trees were infested by them, and it was by our advice that the trees were cut down in order to preserve the timber.



1

21-3

ANTHICUS ANTHERINUS. *Fabr.*

Black : head as large as the thorax, inflexed and connected by a slender neck, black and punctured : antennæ filiform and inserted beneath the eyes and near the mouth, slightly increasing towards their extremities : eyes moderate in size but very prominent and the hexagons large : thorax nearly oval, black, punctured, covered with a fine pubescence and with a margin on the posterior part : elytra black, punctured, covered with a fine yellowish hair like the thorax, with two oblique ferruginous fasciæ or bands, one from the shoulder to the suture, and the second behind the middle, broadest at the suture, but in this respect is subject to considerable variation, as in some specimens the apex of the elytra has only a minute black spot at the suture.

Length of the body $1\frac{1}{2}$ line.

Inhabits banks and hedges.

This species is only occasionally met with, in the months of June and July, on grassy banks and flowery hedges. Several of the species are also found near stables, when the sun is in full power. They are very active on the wing, and run with great velocity : the singular attachment of the head to the thorax by extended muscles give the form of a neck to the singular circular head, as in

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the *Cantharis*. Mr. Stephens has constituted the *Notoxus* and the present genus under the family name of *Notoxidæ*.





27-4

Illustrated by J. Hammond, Oct 1883

MELOE VARIEGATUS. *Leach.*

Meloe scrobosus. *Stephens' Catalogue.*

Head coppery black—the sides tinted with purple-violet with more or less confluent punctures: thorax transverse, brassy or coppery black, punctured, the punctures frequently confluent, the margins elevated and violaceous: elytra brassy black, with elevated confluent shining points, the interstices obscure: abdomen of the male entirely scabrous, with the dorsal segments anteriorly golden-green and posteriorly violaceous red copper, beneath variegated with purple and gold; of the female black, with a large scabrous patch on each segment, anteriorly golden-green, posteriorly rufous-violet, beneath variegated with purple, gold and green: legs black, obscurely violaceous, femora shining purple-violet: antennæ dull brassy-violet.

Abundant in the Isle of Thanet in the spring, especially in the vicinity of Ramsgate and Broadstairs, where it was taken in profusion some years since by G. Milne, Esq.

There appears to be either some strange misconception amongst entomologists of note respecting the larvæ of these insects, or otherwise their economy is very anomalous. They seem to be produced from a mass of clear yellowish eggs, and almost immediately to attach themselves to bees, flies, &c. but others doubt the fact: the Imago feeds upon chickweed,

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ranunculi and other herbaceous plants. The insects of this genus are found in spring, particularly in open sandy fields, feeding on the different species of ranunculus, &c. ; its ovæ are said to have an agreeable smell ; when touched, there issues from it a very limpid yellowish oil, which is exceedingly diuretic, and when mixed with honey or oil has been recommended in cases of hydrophobia. It will be necessary to inform the young entomologist that the insects of this genus require to have the abdomen opened, and the contents removed and replaced by cotton, or the body shrinks and the colours soon fade.



21-5

Published by G. Sarnovitz, Oct 1, 1931.

RHAGIO SCOLOPACEUS. *Leach. Sam.*Musca Scolopacea. *Linné.*

Ash coloured : head comparatively small : eyes elliptical, large, the hexagons very numerous and minute, when dead of a golden colour : as in most dipterous insects the sexes are easily determined by the distance of the eyes from each other, they are for the most part separated by a very narrow line in the males, and in the females by a broad one : antennæ moniliform, terminated by seta : proboscis or trunk exerted when at rest and terminated by two large lips : thorax ash coloured, with three blue black lines ; scutellum large, inflated and with the thorax furnished with strong black setæ : wings with strong and powerful nervures, with spots and maculæ varying in size and colour : body long, yellow and spotted with black : legs a dirty yellow, tarsi black.

Length of the body $\frac{1}{2}$ an inch, expansion of the wings 1 inch.

Inhabits the trunks of trees and palings, in June and July.

The insects of this well-marked genus will soon become familiar to the entomologist, by their sudden, rapid and powerful flight, and their equal and instantaneous settlement on the trunks of trees and palings, generally with the head downwards ; for this mode of attachment their tarsi and claws seem most

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admirably adapted, as the cushions in the last joint with the short and curved claws must have a mechanical power, much beyond the conception of man and his yet applying means. Much may yet be learnt from the structure of insects, they possess powers of which we have no conception, their vision is no doubt according to their nature beyond all calculation, and we have no hesitation in saying that in some insects, the organs of scent exceeds that of all other animals.



21-6

Published by G. Sarnaud & Co., Oct. 1, 1833.

THEREVA PLEBIA. *Leach. Sam. Stephens.*

Musca plebia. , *Linné.*

Ash coloured and very hairy : head large, as broad as the thorax : eyes large, widely set in the female, on the summit of the head are three stemmata, arranged in a triangle : antennæ longer than the head, the last joint ovoid-conic, with a distinct style terminated by a seta : thorax a dark ash colour, with lighter lines and very hairy : body dark ash colour, with the margins of the rings lighter, gradually decreasing towards the apex : wings very irredescent and with strong nervures : legs pale brown, with long spines.

Length of the body $5\frac{1}{2}$ lines, expansion of wings 8 lines.

Inhabits the trunks of trees in woods and lanes during the months of May, June and July.

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22 -1

Illustrated by G. S. Davis

ATOPA CERVINA. *Paykul.*

Dascillus Cervina. *Latr.*

Crioceris Cinerea. *Marsh.*

Antennæ inserted on each side the nasus before the eyes, longer than the thorax, filiform, pubescent, composed of cylindric articulations: *head* rather small: *eyes* small and globular: *thorax* considerably broader than the head, dark fuscous; narrowed before, the hinder angles acute, the posterior margin slightly sinuated and covered with a soft down: *elytra* varying from a pale black to yellow, faintly striated, punctured, and covered also with down: *body* black and downy, the last two segments and all the legs of a reddish brown.

Length of the body 5 lines.

Inhabits hedges and is found in June.

This interesting species is occasionally met with in Kent, and in some seasons appears rather plentiful, it is the only species yet found in this country and subject to vary from nearly a black to a bright yellow. Mr. Curtis says, "Mr. A. Mathews, A. L. S. has informed me, that while he was collecting Orchideæ in Kent, on the 29th of May, 1825, he found three specimens of this insect at the roots of the *Orchis ustulata*, about four inches beneath the surface of the ground, which induced him to suspect

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that the larvæ might feed upon the roots of that plant. The Dwarf Orchis was in flower upon the spot where I met with two or three specimens ascending Arthur's Seat."



1

22-2

ELODES DORSALIS. *Latr.*

Cyphon dorsalis. *Stephens.*

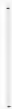
Antennæ filiform and slender, above half the length of the body, black with the exception of the third and fourth joints which are yellow, inserted immediately beneath the eyes: *eyes* large globose: *head* small: thorax nearly square, black with the margins yellow: elytra elongate, yellow with the margins and suture nearly black and covered with a fine down: body soft villose and black with a broad triangular band, yellowish at the basal segments: thighs large, brown, the tibia and tarsi yellow.

Length of the body 2 lines.

Inhabits the alder in May and June: and according to the List of Insects found at Swansea by Lewis W. Dillwyn, Esq. has been taken by Mr. Jeffreys on Crwnlyn Sand Hills.

Mr. Stephens has enumerated fifteen species of this genus. They are found in hedges, and many in the blossoms of the white thorn; they are also found on umbelliferous plants in marshes and meadows during the early spring months: we believe the larvæ are yet unknown.

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22-3

TELEPHORUS ALPINUS. *Gyllenhal.*

Testaceous : head lengthened and narrowed behind, the front testaceous but black from between the eyes to the hinder part : eyes large, black and very globose : *antennæ* filiform, testaceous with the end of each joint from the fifth with a ring of black : thorax nearly quadrate, margined, testaceous with the margins paler : elytra long, soft and somewhat paler than the thorax : legs pale testaceous, abdomen black, with posterior part of each segment pale testaceous.

Length of the body 6 lines.

Inhabits the oak in Darenth and Coombe Woods, in May and June.

The insects of this genus are very numerous and many of the species common : *alpinus* is comparatively rare. The Telephoridæ are for the most part carnivorous, and will even devour their own species ; we would recommend that when collecting them to put each specimen loose in a separate pill-box, for if pinned and put into the general collecting box, from the softness of their elytra they are liable to injury. The larvæ are elongate, somewhat flattened below, composed of twelve rings, and a flat scaly head furnished with two stout mandibles, two small antennæ and four palpi ; the body is soft ; the three first joints have each a pair of long, scaly, three-jointed legs,

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terminated by a slightly curved hook, and in the last segment a fleshy tubercle answering the purpose of a seventh leg : they reside in damp earth, and are carnivorous according to the observation of De Geer.



RAPHIDIA LONDONENSIS. *Leach. Stephens.*
Curtis.

Black, shining : head nearly triangular, slightly punctured with a deep impression above the eyes : antennæ long filiform : clypæus and jaws yellow : thorax long, narrow and cylindrical : wings transparent and without a stigma : legs and under part of the body of a dirty yellow.

Length of the body $3\frac{1}{2}$ lines, expansion of the wings 7 lines.

Inhabits hedges near London, but is very rare.

The larvæ are described by Latrielle as very nimble and voracious, living upon smaller insects and concealing themselves in the crevices in the bark of trees ; the pupæ like the rest of the order have the power of locomotion. The perfect insect also feeds on small insects, its long moveable thorax enabling it to seize its prey in any direction with great facility ; and it is able to bite with considerable force with its acute mandibles which are capable of great expansion. Mr. Curtis has remarked that “the ovispositor of the female is exceedingly dissimilar to those of any other insects : by Latrielle’s description and my own observations, it appears to be formed of two canals, united with a space between, being composed of transverse rings, which enable the insect to propel

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the eggs to the apex, where they are received and deposited by the two appendages in clusters like fly-blows."

The insects of this genus are certainly rare, the species that we have met with have always been found in June, and generally in the neighbourhood of streams of water.



10-13

DIOCTRIA CELANDICA. *Meigan Leach*

Asilus CELANDICA. *Linné.*

Sylvicolæ lugubris. *Harris.*

Black and shining; front of the head between the eyes of a golden yellow, eyes large; the hemispheres very numerous but minute: antennæ between the eyes and composed of four joints, the basal ones globose, the second long and cylindrical and upright, the last two diverging. Thorax broader than the head, black and shining: wings black at the base and clouded throughout, but darker near the costal edge, halteres and legs yellowish, the tarsi black.

Length of the body 8 lines, expansion of the wings 15 lines.

Inhabits lanes and the skirts of woods in May and June.

This insect is the largest of the genus as respects the indigenous species, and is by no means uncommon both in the woods of Kent and Surrey; they are strong, powerful and voracious; many of the species are very rare, and have their eyes when in a living state banded by the most beautiful colours, but these soon fade after death.

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22-6

COREUS DENTICULATUS. *Scop.*

Coreus hirticornis. Fabr. Panz.

Yellowish brown: head longer than broad: eyes small, globose and very prominent: antennæ very robust and covered with long and coarse hair. Thorax a little broader than the head. and covered with yellowish hair: scutellum large and of the colour of the thorax, elytra pale brown at the base, transparent towards the apex, the nervures slightly but prettily spotted, under wings transparent; legs of the colour of the body.

Length of the body $4\frac{1}{2}$ lines.

Expansion of the elytra $6\frac{1}{2}$ lines.

Inhabits sandy places.

We have never met with but one specimen of this pretty insect, indeed all the species are rare except *marginatus*, which is very abundant in the lane leading from the Robin Hood to Coombe Wood, in June and July. Our specimen of *denticulatus* was found in a large sand pit, near Bexley, many years since.

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1

1857

GEORISSUS PYGMÆUS. *Stephens.*

Black and minute: head inflexed, with the front unequally rugose: palpi short and unequal: antennæ nine jointed, terminated by a nearly solid or slightly perfoliated club: eyes large and globose: thorax shining, narrow before and dilated on the sides beyond the middle, the base slightly sinuated, the middle or disc smooth with a transverse impression beyond the middle, and towards the sides somewhat rugose: elytra more brilliant than the thorax and very convex, with the shoulders prominent, striated with large and deep impressions, the interstices smooth: body rather short and globose and black beneath, finely punctured: legs moderate, tibiæ slender, tarsi elongate and filiform.

Length of the body $\frac{3}{4}$ line.

Inhabits moist places; rare near London, more abundant in Norfolk and Suffolk.

This little insect is seldom met with from the circumstance of its inhabiting the muddy banks of ponds and covering itself over with sand or dirt, most probably to evade the numerous *Carabidæ* which feed on other insects and are common in the above places.

They are found during the spring months, and possibly amongst sedges (at the roots) during the winter.

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I

LEOIDES HUMERALIS. *Sam. Curtis. Stephens.*

Black, oval and convex : head inflected, black, the front with a broad irregular streak of red, reaching to the clypæus which is of the same colour : palpi and basal joints of the antennæ red, the club fuscus or of a light sooty black : eyes large and white : thorax nearly globular, black shining and finely punctured : elytra convex with a red humeral spot, punctured and shining : body beneath and legs red.

Length of the body $1\frac{1}{4}$ lines.

Inhabits boleti or fungi attached to trees.

Our specimens of this interesting insect we captured in June, in a sand-pit, at Bexley in Kent.

Mr. Curtis has observed, when describing *Leoides cennamomea*, that "In 1807, M. Sturm published in the 2nd vol. of his *Deutschland's Fauna* the following series of genera which he considered allied to each other : namely, Sphæridium, including Cercyon ; Anisotoma, comprising Leoides, followed by Agathidium and Phalacrus ; if therefore any credit be due for the discovery of this arrangement, which has lately been adopted in another work, it is due to the entomologist of Neuremburg. No good system, however, ought to be disturbed without solid reasons ; and I am convinced that nothing can be proved without accurate figures of the trophi, antennæ and other organs."

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I

23-3

DIANOUS CÆRULESCENS. *Curtis.*

Blue, punctured and hairy : head blue and irregularly punctured, with two deep channels in front of the head between the eyes : eyes large and very prominent, elongate oval : antennæ black, inserted above the clypæus : thorax elongate oval and cylindrical, narrowed at the head and base, blue and coarsely punctured : elytra covering nearly half of the body, coarsely punctured, blue, with a large reddish spot beyond the middle of each elytra or wing case : abdomen blue and punctured ; legs black, with greyish hair.

Inhabits moist places in Coombe Wood.

Length of the body $2\frac{1}{2}$ lines.

This pretty and rare insect we captured many years since, as far as we can recollect, in moist ground to the left of the hill leading to Coombe Wood, and which is an excellent place for some of the rarer *staphylinidæ*, many of which may also be found under moss and at the roots of trees and grass during the winter months. Few countries produce a greater number of species of this extensive tribe of insects than England ;—does it arise from the humidity and slow decomposition of animal and vegetable remains ; where the presence of these insects may be required to assist nature in her great operations, in the reduction to the parent earth of de-

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parted life? for it would appear as far as our observations have gone, that but few and only the larger species are truly carnivorous.





23-4

LEPTOCERUS INTERRUPTUS. *Leach.*Phryganea interruptu. *Fabr.*

Brown : anterior or upper wings brown and covered with golden hair, interrupted by tranverse broken bands or spots of white : lower wings semi-transparent and slightly iridescent, with a deep fringe of long hair : head very hairy : eyes large and prominent : antennæ much longer than the body and annulated with brown and white, the base with a thickened club : body, in perfect specimens, covered with hair ; legs long and furnished with strong spurs.

Inhabits the banks of rivers and running streams.

Expansion of the wings $10\frac{1}{2}$ lines, length of the body $3\frac{1}{2}$ lines.

No order of insects are more interesting in their œconomy than the *Trichoptera*. As the name implies, the wings are covered with hair. This order was established by the Father of Entomology, in England, the Rev. William Kirby, and has been adopted by most of the continental writers on this branch of science.

As yet but little is known of the habits and manners of the larvæ and pupæ, which is much to be regretted, as they are numerous and very easily obtained, being found in almost every pond and many in running streams, constructing a curious and very beautiful cave, according to the species, of sand, shells, grass,

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wood and other materials, which is lined within with silk, and forms a complete covering for the larvæ, into which it retreats in times of danger.

We take the liberty to suggest to such ladies as are fond of Natural History, and observing the manners of insects, that the mode of keeping the aquatic larvæ is easily done in wide-mouthed bottles, and, supplied from time to time with fresh water from ponds, would afford a sufficient quantity of either animalculæ, or decomposing vegetables for their support.



25 - 1

FORMICA FUSCA. *Linné.**Common Ant.*

Blackish brown: head large, nearly oval, of a dark brown, with a deep excavation behind near the neck: eyes remarkably small and black; stemmata or little eyes three, placed in a triangle and distant: antennæ reddish brown, the basal joint minute, the second very long, as long as the succeeding eleven joints: mandibles red: thorax dark brown, and with the body covered by a silvery pile, which changes its hue as exposed to the light: legs reddish: wings fuscus at the base, but transparent and irredescent from the middle to the apex.

Expansion of the wings 1 inch, length of the body $3\frac{1}{2}$ lines.

Inhabits gardens, and swarms in July and August.

All the species of this genus are of three sorts—males, females and neuters. The neuters alone labour: they form the ant-hill, bring in the provisions, feed the young, bring them to the air during the day, carry them back at night, defend them against attacks, &c. The females are retained merely for laying eggs, and, as soon as that is accomplished, they are discarded. The males and females perish with the first cold; the neuters remain torpid in their nest.

We copy from Mr. Kirby the following interesting account of which we were a witness on the 24th of last July.

“In the warm days that occur from the end of July to the beginning of September, and sometimes later, the habitations of the various species of ants may be seen to swarm with winged insects, which are the males and females, preparing to quit for ever the scene of their nativity and education. Every thing is in motion; and the silver wings contrasted with the jet bodies which compose the animated mass, add a degree of splendour to the interesting scene. The bustle increases, till at length the males rise, as it were by a general impulse, into the air, and the females accompany them. The whole swarm alternately rises and falls, with a slow movement, to the height of about ten feet; the males flying obliquely with a rapid zigzag motion, and the females, though they follow the general movement of the column, appearing suspended in the air, like balloons, seemingly with no individual motion, and having their heads turned towards the wind.

“Sometimes the swarms of a whole district unite their infinite myriads, and, seen at a distance, produce an effect resembling the flashing of an aurora borealis. Rising with incredible velocity in distinct columns, they soar above the clouds. Each column looks like a kind of slender net-work, and has a tremulous undulating motion, which has been observed to be produced by the regular alternate rising and falling just alluded to. The noise emitted by myriads and myriads of these creatures does not

exceed the hum of a single wasp. The slightest zephyr disperses them; and if in their progress they chance to be over your head, if you walk slowly on, they will accompany you and regulate their motion by yours. The females continue sailing majestically in the centre of these numberless males, who are all candidates for their favour, each till some fortunate lover darts upon her, and, as the Roman youth did by the Sabine virgins, drags his bride from the sportive crowd, and the nuptials are consummated in mid-air; though sometimes the union takes place on the summit of plants, but rarely in the nests."

Of the astonishing numbers that occasionally swarm, the following extract from a letter of Dr. Bromley to Mr. Mac Leay will be interesting.

"In September 1814, being on the deck of the hulk to the *Clorinde*, my attention was drawn to the water by the first Lieutenant (now Captain Haverfield) observing there was something black floating down with the tide. On looking with a glass, I discovered they were insects. The boat was sent, and brought a bucket full of them on board;—they proved to be a large species of ant, and extended from the upper part of Saltpan Reach out towards the Great Nore, a distance of five or six miles. The column appeared to be in breadth eight or ten feet and in height about six inches, which I suppose must have been from their resting one upon another."

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VESPA VULGARIS. *Authors.*

Common wasp.

Black: head black, front between the eyes yellow: clypæus and jaws of the same colour: antennæ black: eyes large brown and kidney-shaped; stemmata three: thorax black, with two yellow streaks from the neck to the wings: wings yellow: body yellow, with the base of each ring black, and with two black spots on each yellow band: legs yellow.

Length of the body 8 lines, expansion of the wings 15 lines.

Inhabits trees, and sometimes builds in the earth, especially in chalky places.

“The economy of a nest of *wasps* differs from that of bees, in that the eggs are laid not by a single mother or queen, but by several; and that these mothers take the same care as the workers in feeding the young grubs: indeed those first hatched are fed entirely by the female which produced them, the solitary founder of the colony. The sole survivor probably of a last year’s swarm of many thousands, this female, as soon as revived by the warmth of spring, proceeds to construct a few cells, and deposits in them the eggs of working wasps. The eggs are covered with a gluten, which fixes them so strongly against the sides of the cells, that it is not easy to separate them unbroken. These eggs seem to require care from the time they are laid, for the wasps many times in a day put their heads into the

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cells which contain them. When they are hatched, it is amusing to witness the activity with which the female runs from cell to cell, putting her head into those in which the grubs are very young, while those which are more advanced in age thrust their heads out of their cells, and by little movements seem to be asking for their food. As soon as they receive their portion, they draw them back and remain quiet. These she feeds until they become pupæ; and within twelve hours after being excluded in their perfect state, they eagerly set to work in constructing fresh cells, and in lightening the burthen of their parent by assisting her in feeding the grubs of other workers and females which are by this time born. In a few weeks the society will have received an accession of several hundred workers and many females, which without distinction apply themselves to provide food for the growing grubs, now become exceedingly numerous. With this object in view, as they collect little or no honey from flowers, they are constantly engaged in predatory expeditions. One party will attack a hive of bees, a grocer's sugar hogshead, or other saccharine repository; or, if these fail, the juice of a ripe peach or pear. You will be less indignant than formerly at these audacious robbers now you know that self is little considered in their attacks, and that your ravaged fruit has supplied an exquisite banquet to the most tender grubs of the nest, into whose extended mouths the successful marauders, running with astonishing agility from one cell to another, disgorge successively a small portion of their booty in the same way that

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a bird supplies her young. Another party is charged with providing more substantial aliment for the grubs of maturer growth. These wage war upon bees, flies, and even the meat of a butcher's stall, and joyfully return to the nest laden with the well-filled bodies of the former, or pieces of the latter as large as they can carry. This solid food they distribute in like manner to the larger grubs, which may be seen eagerly protruding their heads out of the cells to receive the welcome meal. As wasps lay up no store of food, these exertions are the task of every day during the summer, fresh broods of grubs constantly succeeding to those which have become pupæ or perfect insects; and in autumn, when the colony is augmented to 20 or 30,000, and the grubs in proportion, the scene of bustle which it presents may be readily conceived.

“ Though such is the love of wasps for their young, that if their nest be broken almost entirely in pieces they will not abandon it, yet when the cold weather approaches, a melancholy change ensues, followed by a cruel catastrophe, which at first you will be apt to regard as ill comporting with this affectionate character. As soon as the first sharp frost of October has been felt, the exterior of a wasp's nest becomes a perfect scene of horror. The old wasps drag out of the cells all the grubs and unrelentingly destroy them, strewing their dead carcasses around the door of their now desolate habitation. ‘ What monsters of cruelty!’ I hear you exclaim, ‘ What detestable barbarians!’ But be not too hasty. When you have coolly considered the

circumstances of the case, you will view this seemingly cruel sacrifice in a different light. The old wasps have no stock of provisions: the benumbing hand of winter is about to incapacitate them from exertion; while the season itself affords them no supply. What resource then is left? Their young must linger on a short period, suffering all the agonies of hunger, and at length expire. They have it in their power at least to shorten the term of this misery—to cut off its bitterest moments. A sudden death by their own hands is comparatively a merciful stroke. This is the only alternative; and thus, in fact, this apparent ferocity is the last effort of tender affection, active even to the end of life. I do not mean to say that this train of reasoning actually passes through the mind of the wasps. It is more correct to regard it as having actuated the benevolent Author of the instinct so singularly, and without doubt so wisely, excited. Were a nest of wasps to survive the winter they would increase so rapidly, that not only would all the bees, flies, and other animals on which they prey, be extirpated, but man himself find them a grievous pest. It is necessary, therefore, that the great mass should annually perish; but that they may suffer as little as possible, the Creator, mindful of the happiness of the smallest of his creatures, has endowed a part of the society, at the destined time, with the wonderful instinct which, previously to their own death, makes them the executioners of the rest.”



27 1

BAËTIS BIOCULATA. *Samouelle. Stephens.*
Ephemera bioculata. Linné.

Wings very fine, transparent and irredescent; nervures reddish yellow: *antennæ* short and slender: *eyes* moderate: body reddish yellow, terminated by two yellow filaments longer than the body, with brown dots.

Expansion of the wings 8 lines.

Inhabits the banks of ponds and running streams.

The *Ephemeridæ* derive their name, says Stewart, in his *Elements of Natural History*,—"from the shortness of their life after they become perfect, for they have previously lived one, two, or three years in the water as larvæ and pupæ. Some species live only a day, and others, as it is said, only a few hours. The larvæ have six feet, and six plumated fins on the sides of the abdomen, by which they swim: the pupa differs little, except in having at the thorax the cases which inclose the future wings. When about to undergo the last change, which happens generally about the end of May or beginning of June, the pupa approaches the land, and settles on a dry place; the skin bursts at the head and thorax, and the fly immediately appears with its wings extended, and takes flight. But what distinguishes the *Ephemera* from all other insects is, that it has still another skin to get rid of. For this

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purpose it settles on a near object, a wall, or a tree, and this second operation lasts longer than the first; sometimes it requires several hours, but in some small species only a few minutes, to disengage the insects from this last covering. A person standing by a pond or brook, in a close evening, in the beginning of June, will soon have his cloaths covered with these exuvia. The creature being now the perfect insect, hastes away to perform the remaining function of its nature. The males fill the air for a few hours after sun-set, and the females hover upon the surface of the water to drop their eggs. In this period of their existence, they take no nourishment, and therefore soon die."

Our much-esteemed and valuable friend, J. S. Bowerbank, Esq. has made the following observation in the third number of the Entomological Mag. which we copy, as they may be useful to the lover of the microscope.

"These larvæ may be found in considerable numbers in small pools of water in boggy or marshy places; mine were procured from similar situations on Hampstead Heath. They may be preserved for many months in glass jars, or other vessels, with a little duck-weed floating upon the surface of the water. In selecting them for the purpose of exhibiting the circulation of the blood, care should be taken to choose such as have not yet attained a greater length of body than about one-eighth of an inch, as the whole insect may then be subjected to examination, with a reasonable expectation of seeing the full extent of the great dorsal vessel; particularly

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if one be selected which has the intestinal canal free, or nearly free, from food, as the success of the observation will greatly depend upon this circumstance. In fixing the larva for observation, which of course must be in water, great care must be taken not to compress the body, as although the central circulation may be seen proceeding with considerable vigour, that through the lateral vessels, and those of the tail, legs, and antennæ, will either be much impeded or entirely stopped. Having fixed the insect, with the above precautions, and with its back towards you, a truly beautiful and astonishing sight presents itself. The blood, abounding in flattened oat-shaped particles, will be seen circulating in every part of the body, not in a continuous stream, but at regular periods, agreeing in its motion with the pulsations of the great dorsal vessel."

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24-2

melanura in *Samouelle. Feb? 1. 1834.*

PSOCUS BIPUNCTATUS. *Latr.*

Hemerobius bipunctatus. Linné.

Variiegated with yellow and black : *head* above the clypeus blackish : *superior wings* with a small costal mark, and another on the opposite margin black ; the interjected cords blackish ; stigma white, with a black spot.

Expansion of the wings 4 lines.

Inhabits the trunks of trees.

To the family *Psocidæ* belongs the *white ants*, whose history we beg to copy from Messrs. Kirby and Spence.

“ Their societies consist of five different descriptions of individuals—workers or larvæ—nymphs or pupæ—neuters or soldiers—males, and females.

“ 1. The *workers* or larvæ, answering to the hymenopterous neuters, are the most numerous and at the same time most active part of the community ; upon whom devolves the office of erecting and repairing the buildings, collecting provision, attending upon the female, conveying the eggs when laid to what Smeathman calls the nurseries, and feeding the young larvæ till they are old enough to take care of themselves. They are distinguished from the soldiers by their diminutive size, by their round heads and shorter mandibles.

“ 2. The *nymphs* or pupæ. These were not noticed by Smeathman, who mistook the neuters for them :—they differ in nothing from the larvæ, and probably are equally active, except that they have rudiments of wings, or rather the wings folded up in cases (*Pterothecæ*). They were first observed by Latrielle ; nor did they escape the author of the MS.

above alluded to, who mistook them for a different kind of larvæ.

“3. The *neuters*, erroneously called by Smeathman pupæ. These are much less numerous than the workers, bearing the proportion of one to one hundred, and exceeding them greatly in bulk. They are also distinguishable by their long and large head, armed with very long and subulate mandibles. Their office is that of sentinels; and when the nest is attacked, to them is committed the task of defending it. These neuters are quite unlike those in the *Hymenoptera* perfect societies, which seem to be a kind of abortive females, and there is nothing analogous to them in any other department of Entomology.

“4. and 5. *Males* and *females*, or the insects arrived at their state of perfection, and capable of continuing the species. There is only one of each in every separate society; they are exempted from all participation in the labours and employments occupying the rest of the community, that they may be wholly devoted to the furnishing of constant accessions to the population of the colony. Though at their first disclosure from the pupa they have four wings, like the female ants they soon cast them; but they may then be distinguished from the blind larvæ, pupæ, and neuters, by their large and prominent eyes.

“The first establishment of a colony of Termites takes place in the following manner. In the evening, soon after the first tornado, which at the latter end of the dry season proclaims the approach of the ensuing rains, these animals, having attained to their perfect state, in which they are furnished and adorned with two pair of wings, emerge from their clay-built citadels by myriads and myriads, to seek

their fortune. Borne on these ample wings, and carried by the wind, they fill the air, entering the houses, extinguishing the lights, and even sometimes being driven on board the ships that are not far from the shore. The next morning they are discovered covering the surface of the earth and waters: deprived of the wings which enable them to avoid their numerous enemies, and which are only calculated to carry them a few hours, and looking like large maggots; from the most active, industrious, and rapacious, they are now become the most helpless and cowardly beings in nature, and the prey of innumerable enemies, to the smallest of which they make not the least resistance. Insects, especially ants, which are always on the hunt for them, leaving no place unexplored; birds, reptiles, beasts, and even man himself, look upon this event as their harvest, and, as you have been told before, make them their food; so that scarcely a single pair in many millions get into a place of safety, fulfil the first law of nature, and lay the foundation of a new community. At this time they are seen running upon the ground, the male after the female, and sometimes two chasing one, and contending with great eagerness, regardless of the innumerable dangers that surround them, who shall win the prize.

“The workers, who are continually prowling about in their covered ways, occasionally meet with one of these pairs, and being impelled by their instinct, pay them homage, and they are elected as it were to be king and queen, or rather father and mother, of a new colony: all that are not so fortunate, inevitably perish; and considering the infinite host of their enemies probably in the course of the following day. The workers, as soon this elec-

tion takes place, begin to inclose their new rulers in a small chamber of clay, before described, suited to their size, the entrances to which are only large enough to admit themselves and the neuters, but much too small for the royal pair to pass through ;— so that their state of royalty is a state of confinement, and so continues during the remainder of their existence. The impregnation of the female is supposed to take place after this confinement, and she soon begins to furnish the infant colony with new inhabitants. The care of feeding her and her male companion devolves upon the industrious larvæ, who supply them both with every thing that they want. As she increases in dimensions, they keep enlarging the cell in which she is detained. When the business of oviposition commences, they take the eggs from the female, and deposit them in the nurseries. Her abdomen now begins gradually to extend, till in process of time it is enlarged to 1500 or 2000 times the size of the rest of her body, and her bulk equals that of 20,000 or 30,000 workers. This part, often more than three inches in length, is now a vast matrix of eggs, which make long circumvolutions through numberless slender serpentine vessels : —it is also remarkable for its peristaltic motion, (in this resembling the female ant,) which like the undulations of water, produces a perpetual and successive rise and fall over the whole surface of the abdomen, and occasions a constant extrusion of the eggs, amounting sometimes in old females to sixty in a minute, or eighty thousand and upwards in twenty-four hours. As these females live two years in their perfect state, how astonishing must be the number produced in that time!"





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24-2

PERLA LUTEA. *Latreille. Stephens.*

Black : *head* yellow, broad, flat and inclined, with a brownish ring in the centre : *ocelli* three in a triangle, but placed close to each other : *eyes* hid beneath the broadness of the head : *antennæ* as long as the body, filiform and brown : *thorax* flat and nearly square—the margins and a broad yellow streak down the centre of a dirty yellow : *wings* considerably longer than the body, and when the insect is at rest, incumbent and placed lengthways, covering the body : the *upper wings* with a faint tinge of yellow, the nervures nearly brown and reticulated ; the *lower wings* slightly nervured, but not reticulated by transverse nerves ; all the wings irredescent, but the lower ones more so than the upper : *legs* moderately long and of a pale brown : *body* flat and depressed, black, with two setæ of the length of the body.

Expansion of the wings 1 inch ; length of the body 4 lines.

Inhabits trees near waters.

The perfect insects of this family, the Perlidæ, are very fond of settling on posts, rails, and other wood work, for the want of which they will settle in trees, bushes, or grass, near the water : they form a good bait to the angler. At the period of their appearance, generally May and June, the larvæ are aquatic ; but we know very little of their habits ; we suspect

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they take refuge in open straws, and do not form their covers as the *Phryganidæ* do, by cementing blades of grass, shells, sand, and other foreign materials.



24-4

ORYSSUS CORONATUS. *Fabricius.*

Black shagreened : *head* orbicular, with a crown of tubercle on the top : *eyes* fuscous, with a white line on each side the face, more remote before than behind : *ocelli* three placed in a triangle : *antennæ* filiform : *abdomen* smooth and rufous, except the two basal joints, sessile, nearly cylindric and slightly clavate, conical at the apex : *ovipositor* concealed in a groove beneath : *wings* rather short, the upper with one long marginal and three imperfect submarginal cells, with a fuscous band towards the apex : legs rather small, the anterior stout, outside the *tibæ* white ; *tarsi* and inside of the posterior *tibæ* subferuginous.

Expansion of the wings 10 lines ; length of the body 7 lines.

Inhabits sandy places.

Two specimens of this very rare and interesting insect are preserved in the indigenous collection in the British Museum : the male is smaller than the female, and was taken in Devonshire by Dr. Leach ; he was also so fortunate, as to take the female in Darent Wood, in the month of July.

Latreille says, these insects are lively and restless : they repose in preference upon old trees, exposed to the sun. They run over a portion of their height

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with rapidity in a straight line, taking, when they are alarmed, a lateral or retrograde direction. Scopoli found them upon fir trees, and Latreille upon old hornbeams, in the spring.



24-5

Published by E. Samouelle, Feb 1, 1834.

GENUS JACULATOR. *Linn.*

Black, slightly glossy : *head* orbicular, attached by an elongated neck, thickly and minutely punctured : *eyes* oval and placed on the sides of the head : *antennæ* inserted below the middle of the face, black and filiform : *ocelli* three in the form of a triangle : *thorax* narrow and compressed and much elevated in the centre : *abdomen* compressed, very long and narrow, clavate, slightly arched, and very slender at the base, with the second, third and fourth joints reddish yellow : *ovipositor* the length of the whole insect : *wings* short, marginal cells large, and two large submarginal cells—the *lower wings* with a few fine nervures : *legs*, the four anterior short, the hinder long ; the *tibæ* clavate, with a minute spine : *tarsi* all five jointed.

Expansion of the wings $6\frac{1}{2}$ lines ; length of the body 7 lines.

Inhabits sandy places in June.

Latreille observes, the insects of this genus live upon flowers, and often elevate their abdomens in a state of repose : during the night, or when bad weather prevents them from flying, they fix themselves by their mandibles to the stalks of different plants, and are then almost in a perpendicular position. They are often met with in dry and sandy districts, flying with solitary bees and spheges, in

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order to discover their nests and take possession of them, or to deposit their eggs by the side of those of the above insects, or upon larvæ, which become their prey. The larvæ undergo the metamorphoses in the same nest.



24-6

Published by G. Samouelle, Feb 7 1, 1834.

PSILUS ELEGANS. *Jurine. Curtis.*Diapria elegans. *Latr. Steph.*

Black : *head* nearly globular and very glossy : *eyes* rather minute and placed near the mouth : *ocelli* three placed in a triangle nearly in front of the head : antennæ reddish yellow, longer than the body, moniliform with the basal joint long, the remainder verticillated, or furnished with hair about the centre of each joint : *thorax*, at its junction with the head, rather narrow, but increases in breadth where the wings are inserted, and then decreases at the foot-stalk of the abdomen, glossy and without punctures : *abdomen* ovoid, black and shining : wings with only a short costal nerve, which does not reach the middle : *legs* reddish yellow.

Expansion of the wings 2 lines ; length of the body 1 line.

Inhabits hedges and various plants.

All the insects of the family, *Proctotrupidæ*, are exceedingly minute but very numerous ; and it is seldom the case, but that, after beating a bush or tree, some of the species may be found in the net of the collector. They are best secured in quills with cork stoppers or in a phial, with a quill passed through the cork and a stopper for the quill : it is also necessary to put a little dry grass or fine stems for the insects to crawl upon ; they may also be found frequently in

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the windows and are easily collected. They form most beautiful objects for the microscope, more especially the wings and the antennæ, which are truly wonderful, from their elegant variety and structure.

Mr. F. Walker has furnished the *Entomological Magazine* with many valuable and interesting papers, as *Monographs* on this family of insects.



CYCHRUS. *Fabricius.*Family *CARABIDÆ.* *Mac Leay.*

GENERIC CHARACTER. *Antennæ* setaceous, first joint stout, second and fourth shortest: *external palpi* elongated, the first joint minute, second long and clavate, third half the length of the second, fourth dilated, compressed, triangular and concave; *internal* with the last joint somewhat oval; *labial* with the last joint likewise spoon-shaped, the penultimate long and spinose; *mandibles* narrow exerted, and having two teeth a little below the apex: *thorax* much narrower than the elytra, the hinder angles not projecting; *elytra* oval, the sides deflexed and embracing the abdomen: *wings* wanting: anterior tarsi simple in both sexes.

Sp. 1. *Cy. rostratus*.—Black, the upper surface granulated; head narrow and elongate, the elytra carinated on both sides.

Tenebrio rostratus. *Linné.* *Carabus rostratus.* *Marsham.* *Cychnus rostratus.* *Leach.* *Sam. Curtis.* *Stephens.*

Length from 8 to 10 lines.

Head long and narrow, somewhat rugosely punctate, with an elevated line over the base of the antennæ; labrum long, smooth and bifid; mandibles ferruginous; the first four joints of the antennæ black and shining, the remainder pubescent: thorax small, somewhat rounded on the sides and behind,

where the margin is considerably elevated, the surface rugosely punctate, marked with a slender dorsal line, and a transverse impression near the base: elytra ovate, much widened in the middle, very convex, granulated, with a few tubercular elevations along the outer margin, which has a smooth elevated line, and a broad granulated portion beneath it, bent inwards and embracing the abdomen; the latter black and shining: legs long and black.

The larva of this insect is yet unknown, we suspect that they feed in the stumps of decayed trees, as we once observed a considerable quantity of the elytra that had been rejected from the stomach of a bird, which had no doubt met with the brood; this was many years since in a Wood at Bexley, in Kent. The perfect insects are generally met with in the months of May and August in plantations, and will occasionally be found crawling slowly along and sometimes secreted under moss, dry leaves, and under the trunks of decayed trees lying on the ground, and loose bark. We have also found them at Coombe Wood, in Surrey, and on Plumstead Heath, in Kent.

Two other species have crept into our lists of British Insects, but we believe that as yet no cabinet possesses them: the *C. elongatus* is very near to *rostratus*, and may possibly be only a variety; but the *attenuatus*, should it be found, is readily distinguished by the bright red colour of the tibiæ.





23 2

Genus CALOSOMA. *Fabricius.*

Family CARABIDÆ. *Mac Leay.*

GENERIC CHARACTER. *Labrum* deeply emarginate: *mandibles* arcuate, with a tooth at their base: *maxillæ* increased towards the tip: *palpi* with the basal joint minute, second elongate clavate, third and fourth equal, the latter subsecuriform truncate: *labial palpi* with the two basal joints short, third elongate, fourth securiform, truncate: labium short, broad, the upper margin setose, acuminate: mentum sublinear, rounded laterally, unidentate in the middle: *antennæ* linear, second joint shortest, third longest, compressed: thorax transverse suborbiculate: abdomen subquadrate, convex: wings two, anterior tarsi of the males dilated.

Sp. 1. *Cal. inquisitor*. Coppery or brassy bronzed black: elytra margined with green, striated and reticulated: abdomen shining green: antennæ and feet black. (25. 1. A.)

Carabus inquisitor. *Linné*. *Calosoma inquisitor*. *Fabricius*. *Leach*. *Sam*. *Curtis*. *Stephens*.

Length from 8 to 10 lines.

Head, thorax and elytra deep coppery or bronzed black, the latter with a green margin, and about sixteen reticulated striæ, each elytron having three rows of deep impressions placed between the fourth, eighth and twelfth striæ from the suture: the body beneath shining green, glossed with violet: legs and

antennæ black : thorax finely punctured with a deep impression near the posterior angles.

Inhabits the oak and whitethorn the end of May and beginning of June, feeding on the larvæ of Lepidopterous insects. This rare and interesting species we have met with early in the morning on the oaks in Epping Forest, it has likewise been found at Norwood; and at Windsor by Mr. Griesbach.

Sp. 2. *Cal. Sycophanta*. Violet black, antennæ and feet black, elytra bright green and coppery, striated and punctured. (25. 2. B.)

Carabus Sycophanta. *Linné*. *Cal. Sycophanta*. *Fabr.* *Leach.* *Kirby.* *Sam.* *Curtis.* *Stephens.*

Length from 10 to 14 lines.

Head and thorax deep blue black, the margin of the latter greenish : elytra brilliant golden green, externally glossed with bright copper, the margins bluish, finely punctate-striated, each elytron with three rows of impressed dots placed between the fourth, eighth and twelfth striæ from the suture : legs and antennæ black : abdomen a deep blue black.

Mr. Curtis observes, " I have always suspected that this beautiful insect, like *Papilio Podalirius*, *Vanessa Antiope*, *Melolontha Fullo* and many others, is only an occasional visitor of our island, for it has always been captured upon or near the sea coast, and I believe invariably in an exhausted state. The one found in Norwich, in June, was the furthest from the sea of any I have heard of, and there the distance is inconsiderable : I saw this specimen soon after it was taken, it was then quite dead though not stiff. Last year (1829) a considerable number were

found along the coast of Norfolk, Suffolk and Sussex : Mr. Hewitson obtained some from Lowestoft ; Mr. Waller Clifton picked up a fine specimen floating off Hastings ; another was brought to Yarmouth, found thirty miles from the shore ; and Mr. Sparshall writes me word that some were found in the wash of the sea, near that town, and several were taken on the shore feeding on putrid fish. It has also been met with at Aldborough and Southwold, in Suffolk, and at Dartmouth, in Devon.”



25-3

THYMALUS. *Latreille.*Family NITIDULIDÆ. *Mac Leay.*

GENERIC CHARACTER. *Antennæ* short, the basal joint elongate, clavate, third and fourth joints equal, gradually thickened to the extremity, the three last joints forming an elongate, compressed, perfoliate club, with the terminal joint orbicular: *palpi* subclavate, the last joint subovate: head small, concealed by the anterior margin of the *thorax*, which is slightly notched, the posterior truncate, and the sides broadly margined and depressed: *elytra* convex, large, entire, nearly oval, hairy, the sides with a broad margin, covering the abdomen: *body* convex subhemispheric: *legs* short simple: *tarsi* with five simple joints.

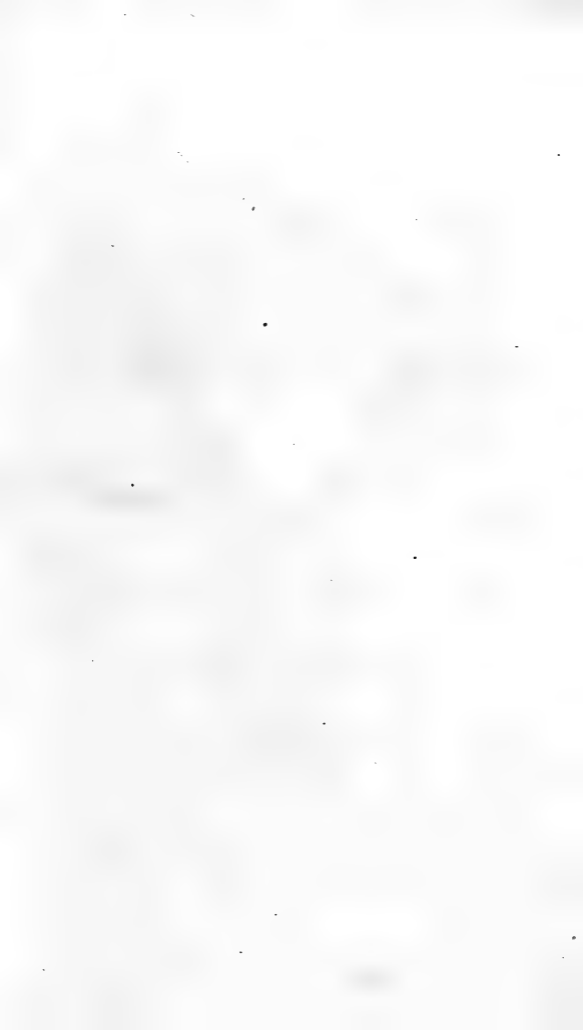
Sp. 1. *Thy. limbatus*. Brassy brown and hairy the margin bright red: *elytra* punctured and striated.

Cassida limbata. *Fabricius*. *Thymalus limbatus*. *Curtis*. *Stephens*.

Length from $2\frac{1}{2}$ to 3 lines.

Brassy-brown, hairy: head ferruginous, punctured: eyes black: thorax rufo-ferruginous, thickly and finely punctured, with the disc somewhat convex behind, and glossed with æneous: *elytra* broader than the thorax, very convex, deeply, coarsely, and somewhat irregularly punctate-striate, the margin obscure sanguinous or rufo-ferruginous: the legs, antennæ and body ferruginous, the latter punctured.

Inhabits beneath the bark of the oak, where it is concealed in a white cottony substance with which the insect is covered. It was first discovered in 1817 by Mr. Daniel Bydder, who took it in the New Forest of Hampshire where it is not uncommon. It has also been found on a flower near Westerham, Kent, by Mr. Ingpen. Mr. Dillwyn in his list of Insects found in the neighbourhood of Swansea, says "taken under the bark of an oak near Danygraig, by Mr. Millard, and also under bark in Cline Wood." Our specimens we captured in the month of June, beneath the bark of oak trees near Brockenhurst, in the New Forest.





25-4

GRYLLOTALPA. *Ray. Leach. Sam.*

Family *ACHETIDÆ. Leach.*

GENERIC CHARACTER. *Antennæ* setaceous, composed of a vast number of joints (beyond sixty) : *anterior tibiæ* and tarsi formed for digging, two first joints of the tarsi very large, dentiform : hinder feet slightly formed for leaping.

Sp. 1. *Gry. vulgaris*. Above fuscous ferruginous, yellowish beneath : *anterior tibiæ* quadridentate : wings twice the length of the elytra.

Gryllus Gryllotalpa. Linné. Acheta Gryllotalpa. Fabr. Gryllotalpa vulgaris. Latreille. Leach. Sam. Kirby. Curtis. Stephens.

Length of body 1 inch 9 lines, expansion of wings, 3 inches.

Mole cricket.

This interesting animal is a complete representative of the mole, among the insect race, and in its fore feet bears a great resemblance to that animal. They are used for precisely the same purpose of burrowing under the surface of the ground, where the insect usually resides ; and so expertly does it use them, that it can penetrate the earth with even greater expedition than the mole.

The female forms a cell of clammy earth, about the size of a hen's egg, closed up on every side, and within as large as two hazel nuts. The eggs, amount-

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ing to nearly one hundred and fifty, are white, and near the size of caraway comfits ; they are carefully covered, as well to defend them from injuries of the weather as from a coleopterous insect, probably a *Carabus*, which often destroys them. The female places herself near the entrance of the nest, and whenever the beetle attempts to seize its prey, the guardian insect catches it behind and bites it asunder. Nothing can exceed the care of these animals in the preservation of their young. Wherever a nest is situated, fortifications, avenues and entrenchments surround it ; there are also numerous meanders which lead to it, and a ditch encompasses the whole, which few other insects are capable of passing.

About the middle of April, if the weather be fine and just at the close of day, the mole crickets utter a low, dull, jarring note, not much unlike the chattering of the goat-sucker. In the beginning of May they lay their eggs. Mr. White, in his *Natural History of Selborne*, says, " that a gardener, at a house where he was on a visit, happening to be mowing by the side of a canal, on the 6th of May, his scythe struck too deep, pared off a large piece of turf and laid open to view a curious scene of domestic œconomy. There were many caverns and winding passages leading to a kind of chamber, neatly smoothed and rounded, and about the size of a moderate snuff-box. Within this secret nursery were deposited near a hundred eggs of a dirty yellow colour, and enveloped in a tough skin, but too lately excluded to contain any rudiments of young, being full of a viscous substance. The eggs lay but shallow, and

within the influence of the sun, just under a little heap of fresh mould, like that which is raised by ants."

At the approach of winter, the mole crickets remove their nest to so great a depth in the earth as to have it always lower than the frost can penetrate. When the mild season comes on, they raise it in proportion to the advance of that favourable time, and at last elevate it so near the surface as to render it susceptible both of air and sunshine; and if the frost returns, they again sink it to its proper depth.

Mr. Kirby, in his letter on luminous insects, gives the following curious fact: "A learned friend, the Rev. Dr. Sutton, of Norwich, has informed me, that when he was curate of Inckleton, Cambridgeshire, in 1780, a farmer of that place, of the name of Simpringham, brought to him a mole cricket (*Gryllotalpi vulgaris*, Latr.), and told him that one of his people seeing a *jack-o'-lantern* pursued it and knocked it down, when it proved to be this insect, and the identical specimen shown to him." Mr. Kirby observes, "this singular fact, while it renders it probable that some insects are luminous which no one has imagined to be so, seems to afford a clue to the partial explanation, at least, of the very obscure subject of *ignes fatui*, and to show that there is considerable ground for the opinion long ago maintained by Ray and Willoughby, that the majority of these supposed meteors are no other than luminous insects."

But that the *ignis fatuus* mentioned by Denham as having been seen by himself, and which he des-

cribes, as flitting about a thistle, was, though he seems of a different opinion, no other than some luminous insect I have little doubt. Mr. Sheppard informs me that, travelling one night between Stamford and Grantham, on the top of the stage, he observed for more than ten minutes, a very large *ignis fatuus* in the low marshy ground, which had every appearance of an insect. The wind was very high; consequently had it been a vapour, it must have been carried forward in a direct line; but this was not the case. It had the same motions as a *Tipula*, flying upwards and downwards, backwards and forwards, sometimes appearing as settled and sometimes hovering in the air.—Whatever be the true nature of these meteors, of which so much is said and so little known, it is singular how few modern instances of their having been observed are on record. Mr. Darwin declares, that though in the course of a long life he had been out at night, and in places where they are said to appear, times without number, he had never seen any thing of the kind: and from the silence of other philosophers of our own times, it should seem that their experience is similar.



25-5

GONEPTERYX. *Leach.*Family *PAPILIONIDÆ.* *Leach.*

GENERIC CHARACTER. *Antennæ* short, gradually thickening into an obconic club: *palpi* short, much compressed, the last joint very short: *feet* alike in both sexes, all with a bifid or unidentate nail: *wings* angulated, large, the hinder ones grooved to receive the abdomen: *chrysalis* angulated, with a thread round the middle.

Sq 1. *Gonep. Rhamni.* The upper surface of the wings of the male is of a sulphur-yellow, and of the female greenish-white, with a dusky spot at the base of the wings, and an orange or fulvous spot in the centre, and minute ferruginous dots on the margin, the male beneath is greenish, the female paler: the abdomen is black above and yellow beneath; its base and thorax thickly covered with long glossy white silken hair: the legs white, antennæ reddish.

Expansion of the wings, 2 inches to 3 inches 6 lines.

A curious variety, approaching to the *Gon. Cleopatra*, has been figured by Mr. Curtis in pl. 173.

The caterpillar feeds on the Buckthorn; it is smooth and green, with a darker line along the back; the pupa is gibbous, acuminate before, suspended in a vertical position on a branch, with a thread of silk wound round its middle as a support. The per-

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fect insect is found from April to June. A second brood is produced in August; will remain during the winter, and appear in warm days during the winter and early spring months. They frequent woods, commons, meadows and lanes, and are found to be pretty generally diffused over the country; their flight is rather slow than otherwise.

Mr. Children, in his *Abstract of the Characters of Ochsenheimer's Genera of the Lepidoptera of Europe*, published in the *Philosophical Magazine*, has not adopted this genus further than as a division of the *Colias*. There are as yet only two species known, they are found in Europe. *Rhamni*, as before observed, is not uncommon. *Cleopatra*, which is common on the continent has not yet been detected in this country.





25 - 6

MACROGLOSSA. *Ochsenheimer.*Family *SESIIDÆ.* *Stephens.*

Antennæ hooked, gradually thickening nearly to the apex, fringed in the males, simple in the females: *palpi* contiguous, above the maxilla, thickly covered with scales: tongue as long as the body: *wings* elongate-lanceolate, opaque. *Larva* elongate, slightly attenuated in front, caudal horn straight: pupa elongate, head case produced.

Sp. 1. *Macr. Stellatarum.* Upper wings dusky brown, with several obsolete and two waved transverse and black streaks, a central black spot, generally with a pale band; *lower wings* reddish tawny, with the base and hinder margin dusky, the latter tinted with a rust colour, 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 tuft at the end of the body.

Expansion of the wings 1 inch 9 lines to 2 inches.

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 fore legs deep yellow: the horn blue at the base, reddish-yellow at the tip: it feeds on the various kinds of bedstraw. 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.

The late Mr. Haworth, in his valuable work, the *Lepidoptera Britannica*, a work that is now very scarce, has made the following observation : “ 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 nectarious juice of tubes bearing flowers ; this it extracts with amazing address, by the assistance of its exerted spiral tongue, inimitably poising itself all the while on rapidly vibrating wings, whence its name of humming-bird. It is delightful indeed, to the entomological eye of an Aurelian, to behold and contemplate the dexterity exhibited by this charming insect, whilst it sails, all gaiety and grace, round the tall sprig of a larkspur or other flower ; probing to the very bottom *every single tube*, neglecting none, and *trying no one twice*.

In 1810, we remember a specimen visiting some geraniums in the garden, at two o'clock precisely, every successive day for a fortnight.

Mr. Stephens says they are found in abundance at Dover, in August and June ; the larvæ may be found in profusion beneath the cliffs.



26-1.

Genus PANAGÆUS. *Latreille.*

Family HARPALIDÆ. *Mac Leay.*

GENERIC CHARACTER. *Palpi* elongate; *labial* with the two basal joints short, second and fourth of the same length, the last securiform; *internal maxillary* filiform, with the basal joints the longest; *external* with the basal joint minute, the second elongate-clavate, the third short, conic, the last securiform: *labrum* transverse, slightly notched: *mandibles* short, bent, simple: *mentum* notched, with a bifid tooth in the centre: *head* small: *neck* distinct: *thorax* suborbiculate: *wings* two: *antennæ* filiform: *anterior tarsi* with the two first joints dilated in the males: *claws* simple.

Only two species are known to inhabit this country; both are rare, or at least very local.

Sp. 1. *Pa. quadripustulatus*. Black, each elytra with a round red spot at the base and apex. (26. 1. A.)

Panagæus quadripustulatus. *Sturm.*

Length from 3 to 3½ lines.

Head black and punctured; thorax black, coarsely and deeply punctured, nearly orbicular, rather convex, and sparingly furnished with long tawny hair: elytra black, striated and coarsely punctured, with an irregular large red spot on the anterior part, and a large round spot of the same colour near the apex:

body beneath and legs black, shining and slightly hairy.

We met with two specimens of this rare and interesting insect many years since, in a gravel pit, at the top of Robin Hood Lane, Coombe Wood, in the month of May. Mr. Stephens has since met with it very plentifully, in July, under clods of earth and stones, in a corn-field near Hertford.

Sp. 2. *Pa. crux-major*. Black, clytra red, with a large black cross, the apex black.

Carabus crux-major. Linné.

Panagæus crux-major. Latr. Leach. Sam. Stephens. (26. 1. B.)

Length from $3\frac{1}{2}$ to 4 lines.

Head black and punctured, thorax rounder than in *quadripustulatus*, punctured and more closely covered with tawny hair, clytra also broader than in the above, with the red spots considerably larger, or the black less predominant, striated and punctured : body beneath and legs black.

This insect is rare near London ; but the late Mr. James Bydder found three specimens, some years since, at the root of an oak, in the month of March, on the road to Epping. Our specimens were furnished by the Rev. L. Jennings, who found them beneath the bark and at the roots of willows in the spring months near Cambridge.





I

26-2.

MEZIUM. *Leach.*Family *PTINIDÆ*. *Leach.*

Antennæ approximating at their base, subfiliform, robust and covered with coarse scales, the first or basal joint the largest, the remainder of near an equal size, the last or apical joint black and pointed: head moderate, partially retractile within the thorax: *eyes* small and placed above the insertion of the antennæ: *thorax* covered with coarse scales: *scutellum* none: *elytra* gibbous, shining and semi-transparent: *legs* long, the femora clavate.

Sp. 1. *M. sulcatum*. Thorax tawny, being covered with long hair and coarse scales: *elytra* reddish-brown and transparent, very shining.

Ptinus sulcatus. *Marsham.*

Length $1\frac{1}{2}$ to $1\frac{3}{4}$ lines.

Inhabits old houses and paper-warehouses.

This pretty and singular insect has more the appearance of a small spider than of a coleopterous insect, and is not common. They are generally found in closets amongst old paper. The motions of this species are slow, and the antennæ constantly used alternately in touching the surface of the object it may be walking on. This is the case also with many of the *Cerambycidæ*, and other simple and long horned insects, apparently thus seeking a proper situation by the females for depositing their eggs, as in butterflies and moths.

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The larvæ or caterpillars of this family of insects are known as the celebrated book-worm, and are a serious nuisance in warm climates ; for this reason most books sent to the East Indies are bound in Russia leather. Of the length of time they remain in the larvæ state we have yet to learn. Mr. Kirby on the indirect injuries caused by insects mentions an instance where, in a public library, but little frequented, *twenty-seven* folio volumes were perforated in a straight line by the same insect, in such a manner that on passing a cord through the perfectly round hole made by it, these twenty-seven volumes could be raised at once.





26-3.

Published by C. Samouelle, July 2, 1834.

LIXUS. *Fabricius.*Family *CURCULIONIDÆ.* *Leach.*

Antennæ geniculated, the basal joint very much elongated and received in a lateral oblique groove on the sides of the rostrum, the insertion near the apex; the remaining joints but little longer than the first, and terminating in a gradually formed acuminate club: *rostrum* elongate, moderately robust, nearly cylindric, and slightly curved: *eyes* circular, slightly convex, of a moderate size: *thorax* oblong, conic: *elytra* oblong, cylindric, attenuated and gaping at the apex: *legs* long, slender, the femora cylindric, anterior pair the longest and thickest.

Sp. 1. *L. productus.* Black, antennæ reddish-brown at the base, the club black, rostrum black at the tip, the upper part of the thorax and elytra covered with minute scales of a dirty yellow, abdomen of a brighter yellow, legs of the same colour with the elytra.

Lixus productus. *Marsham.* *Stephens.*

Length 7 to 8 lines.

Inhabits drills in marshes.

We first met with this insect in Plaistow Marshes, in the month of September, 1810 or 11, at that time it was considered very rare; but some years since it was found on aquatic plants, on the banks of the Thames, near Putney, in the greatest profusion, by

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Mr. Ingpen. Since then we believe it has again become scarce.

This species is said to feed on aquatic plants. The *L. paraplecticus*, a species allied to the above, is said in the larvæ state to feed on the *Phellandrium aquaticum*, or water hemlock, and to be injurious to horses.



26-4.

LIMENITIS. *Fabricius.*

Family NYMPHALIDÆ. *Swainson.*

GENERIC CHARACTER. *Palpi* longer than the head, not contiguous, clothed with scales and slightly hairy; three-jointed, basal joint small oval; second long, cylindric, slightly bent; third longer than the basal, elongate ovate: *antennæ* long, gradually clubbed; club slender, round, obconic: *wings* somewhat triangular, the hinder slightly scolloped: *eyes* pubescent: *anterior legs* short in both sexes, slender, with a minute claw; posterior long with double claws. *Caterpillar* elongate, with obtuse spines on the back, and bundles of hair on the sides.

Chrysalis subangular, gibbous beneath, head case beaked, suspended from the tail.

White Admiral Butterfly.

Sp. 1. *Lim. Camilla.* Wings above brownish black, indented with a central whitish band, between which and the base is an ashy crescent of obscure black marginal spots; beneath, the central areolet is inscribed with zigzag black markings, the lower wings like the upper.

Expansion of the wings 2 inches to 2 inches 6 lines.

Inhabits woods in July.

Mr. Haworth in his *Lepidoptera Britannica*, a work that is now become very rare, observes, "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. There was an old Aurelian of London, so highly delighted at the inimitable flight of Camilla, that long after he was able to pursue her, he used to go to the woods, and sit down on a stile, for the sole purpose of feasting his eyes with her fascinating evolutions."

This species was plentiful in the year 1812, at Bedstile Wood, near Finchley; and the last specimen we ever saw on the wing was at Coombe Wood, Surrey, in the year 1813, since which period it has not appeared near London.



A



B

26-5.

Illustrated by J. G. Rehn, July 1, 1934.

SATURNIA. *Schrank.*Family BOMBYCIDÆ. *Stephens.*

Head small, scarcely visible from above: *antennæ* short of the male, strongly bipectinated, the pectinations divergent and diminishing in length to the end of the antennæ, each joint of which bears two ramifications fringed externally and internally; female with each joint bidentate, and each tooth terminated by two setæ or short spines: *thorax* short, broad, and densely covered with long fine down or soft hair: *abdomen* short in the males; in the females broad, stout and slightly tufted at the apex: *wings* broad, horizontally expanded during repose, *fringe* very short: *larvæ* naked, with a coloured ring on each segment, with several pencils of hair placed upon distinct tubercles: *pupa* enclosed in a strong, hard, and coarse pear-shaped cocoon.

Sp. 1. *Sat. Pavonia minor. Leach. Emperor Moth.*

Antennæ yellowish brown: the male with the thorax and abdomen tawny, the former with a broad white band on the anterior part: upper wings covered with variegated scales and whitish streaks; the first oblique, abbreviated, purplish and edged with black; the second, beyond the middle, undulating; the third, or outer, on the hinder margin, whitish; the extremity dusky; between the two anterior streaks is an elongate whitish patch, in which is a nictitating ocellus, or half-closed eyelet, and a black pupil with a whitish iris, apex of the wings with one or two black, white, and reddish spots: posterior wings reddish tawny, with a half-closed ocellus as in the upper, a greyish band and the hinder margin purplish: females largest and paler.

SAMOUELLE'S

Expansion of the wings in the males ♂ 2 inches 6 to 10 lines ; female ♀ 2 inches 6 lines to 3 inches.

The caterpillars of this fine species when young are black, and afterwards in the changes of their skin become of a beautiful green, annulated with black, and pencils of hair on the red and yellow warts which ornament the black bands. They feed on the alder, oak, &c. In Autumn change to the pupæ state; after remaining the winter, the perfect insect appears in the month of April.

Pavonia minor is the only species of *Saturnia* found in this country : the males are very active ; the females sluggish, and like the rest of this genus of insects produce an immense quantity of eggs. The strongly pectinated antennæ in the males, greatly assist them in detecting the latter ; and, as a curious instance of the distance which the males will fly in pursuit of the females, we quote from Dr. Roxburgh's description of the Tussek and Arrindy silk-worms of Bengal, published in the 7th volume of the Transactions of the Linnæan Society. "The accounts given by the natives of the distance to which the male insects fly, are very astonishing. I have put, at different times and occasions, innumerable questions to them on this subject, and they assure me that it is no uncommon practice amongst them to catch some of the male moths, and put a mark on their wings previous to letting them fly. The marks of different districts being known, I am told that it has been ascertained that male moths have come from a distance equal to a hundred miles and upwards. I of course cannot vouch for the truth of this, but have no hesitation in declaring that I believe it."



LEDRA. *Fabr. Leach.*

Family *CERCOPIDÆ. Leach.*

Antennæ setaceous, three-jointed, inserted beneath in the frontlet before the eyes; the two first joints of a nearly equal length; the third elongate, conic: *head* broad, flat, and nearly semi-circular: eyes large, globose and prominent: *ocelli* two: *thorax* convex and dilated behind on each side, into two compressed horns or ear-like processes: *scutellum* large, rounded in front, angulated behind with an inflated point: *elytra* meeting in a straight suture down the back, semi-transparent, reticulated and covering the abdomen: legs of moderate length and much compressed.

Sp. 1. *L. aurita*, of a brownish olive green, deeply punctured and variegated with minute reddish spots.

Cicada aurita. Linné.

Length 8 to 9 lines.

Inhabits oak trees in the months of August and September.

Of this genus only one species has yet been observed in this country. The pupa is active, it has a scaly appearance, and resembles the perfect insect, but is destitute of wings; in this state we have taken it from the oak in the month of August, when in the entomologist's net it lies close, and looks like a piece of the rind of a tree. They are not common.

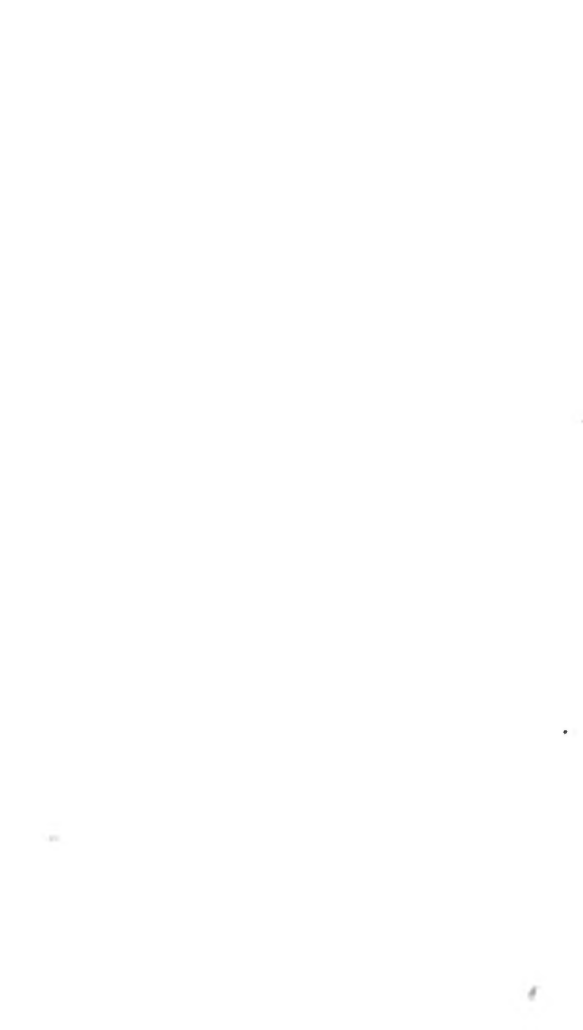
SAMOUELLE'S

The female is furnished with a long and strong ovipositor, which, in a state of rest, is contained in a fissure of the last joint of the abdomen. The eggs are probably deposited beneath the cuticle of the leaves of plants.

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