BRITISH PYRALIDES,

INCLUDING THE

PTEROPHORIDÆ.

BY

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F.L.S., F.Z.S., ETC.

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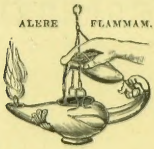

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INTRODUCTION.

Whilst the history of Tortrices has been so ably treated by Mr. Wilkinson and the Tineina by Mr. Stainton, the Pyralidæ and their allies have been so far somewhat neglected in this country. The object of this treatise is to set before the student an illustrated list of the British examples of this group; and, as far as the writer's knowledge and research will carry him, the localities and conditions in which each species has been found, the dates of their appearance, and also a brief description of their larvæ and food-plants.

The life-history of these species is in many cases founded on the personal experience of the writer, or

else compiled from the numerous books and magazines referring to the subject by German and French as well as English authors. References will be given in each case where a fuller description may be found in English periodicals.

The study of local fauna, even of such a puny character as that with which the present work deals, cannot be without interest even to the most casual observer; whilst the elimination of error, in the sifting away of doubtful information, no matter how feeble the attempt may be, must always be welcomed and encouraged by every scientific enthusiast.

In conclusion I beg to offer my best thanks to

Mr. C. G. Barrett,
Mr. Briggs,
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Mr. W. H. Harwood,
Mr. E. G. Meek,
Mr. Richard South,
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for the most valuable assistance and information they have been kind enough to place at my disposal.

Of course it is impossible that a work of this description can be entirely free from errors; but if it should stimulate collectors to fresh researches in the distribution and habits of this branch of entomology, its end and object would be more than gained.

NOTE.

The methods used for collecting Lepidoptera have been so often and so exhaustively described that it is unnecessary to refer to them. Suffice it to say, that the author has always found it best to box every specimen alive, and kill them on his return by placing all the boxes with their contents in a large air-tight tin canister, containing either crushed laurel-leaves or pure ammonia on a piece of sponge. They will be found in excellent condition for setting on the following morning.

The Continental method of setting (*i. e.* with the wings flat, and the pin driven three-quarters of the way through the insect, perpendicular to the plane of the wings) will be found far preferable to the mode of setting prevalent in this country (in which the pins are found to be usually placed at varying angles and the wings at different slopes).

The advantages of the former method are:—

(1) The shape of the wings is easier to see;
(2) The fringes do not get damaged against the bottom of the drawer;

(3) The specimens are safer from mites, dust, &c.;
(4) There is room under each specimen for a ticket, recording locality and date of capture, which should never be omitted.

It is quite unnecessary to use the continental pins, as the finer ones are inconveniently flexible, and they are too long for English cabinet drawers.

This method is being adopted at the British Museum of Natural History and by many of the leading English entomologists. The enormous advantages of this method of setting over any other are so obvious that its general adoption in this country is only a matter of time.

*** *Setting-boards can be obtained at a very reasonable price from Mr. Crockett.*

BRITISH PYRALIDES, ETC.

AVENTIIDÆ.

Aventia flexula, *Schiff.*

sinuata, Fb.

(Plate 2. fig. 3.)

Loc. Rugby, Almondsbury, Bath, Scarborough, York, Norwich, Chedgrave, Merton, Neatishead, Horning, Bournemouth.

Frequents fir-woods in July.

This larva possesses only two pairs of abdominal legs. According to Dr. O. Hofmann it feeds from the autumn till June on lichens growing on fir trees. It is green, with black markings; head grey. The author's figure, however, is a purple larva with white markings. Pupates in a slight cocoon.

HERMINIIDÆ.

Rivula sericealis, *Scop.*

(Plate 1. fig. 9.)

Loc. Lochgoil, Arran, Exeter, Bristol, Ledsham,

York, Norwich, Brooke, Surlingham, Aldeby, Merton, Barton, Epping, Colchester, St. Osyth, Deal, Southend, Galway, Pembroke.

This species frequents woods during June and July.

The larva, which feeds on *Brachypodium sylvaticum* and other grasses, is velvety green, with a darker dorsal and white subdorsal lines; head dull green, with dark hairs and markings; tubercles shining green, with a black apex and hair; spiracles flesh-colour, ringed with black; legs green. It passes the winter in the larval state, pupating about the end of the following May in a blade of grass folded together by means of silk threads.

E. M. M. xix. 49.

Zanclognatha grisealis, *Hb.*

nemoralis, Fb.

(Plate 2. fig. 1.)

Loc. S.W. of Scotland, Devonshire, Eastham, Wirral, Chester, Huddersfield, Richmond (York.), Sheffield, Norwich, Aldeby, Merton, Colchester, Hastings, Suffolk, Southend, Pembroke, Kingstown.

Common in woods during June and July.

The larva, which feeds on oak, is pinkish grey, slightly freckled with darker; the head and dorsal plate dark brown; dorsal and subdorsal lines, spiracles, and tubercles all of a darker shade of the ground-colour; abdominal surface paler. This larva pupates in September between leaves spun together.

E. M. M. xiii. 110.
Ent. iii. 223.

Zanclognatha tarsipennalis, *Tr.*

tarsicrinalis, Hb., Haw.

(Plate 1. fig. 12.)

Loc. S.W. of Scotland, Ayrshire, Bristol, Burton, Holywell, Bramham, Huddersfield, Scarborough, Sheffield, York, Norwich, Aldeby, Thetford, Lynn, Colchester, Hastings, Suffolk, Southend, Conway, Chatham, Epping, Pembroke, Galway.

Common from May to July and again in September in woods.

The larva, which feeds on *Polygonum aviculare* (knotgrass) &c., is dull brownish grey, freckled with a darker tint; the head, plate on the second segment, dorsal and subdorsal lines, and spiracles are darker than the ground-colour. It pupates in a slight cocoon amongst leaves &c. E. M. M. x. 101.

Zanclognatha emortualis, *Schiff.*

olivaria, Bork.

(Plate 1. fig. 8.)

Loc. Epping, Henley-on-Thames, Dorsetshire.

Rare from the end of May to July in woods.

The larva, which feeds on oak, preferring the dead leaves, is brownish yellow, spotted with orange-brown; dorsal line brown; on the back of each segment are four black dots arranged quadrangularly, below which occur on each side two black spots, from each of which springs a single black hair; head thick and round. The

larva pupates in a white silk cocoon amongst leaves in October. Treit.

Herminia cribralis, *Hb.*

(Plate 2. fig. 2.)

Loc. Glastonbury, Diss, Merton, Ranworth, Horning, Aldeby, Walton-on-the-Naze, Suffolk, Wicken, Southend.

This species, which occurs in fens and marshy fields, is found in July.

The larva, which feeds on sallow (*Carex sylvatica*) and *Luzula pilosa* (wood hairy rush), is a light greyish brown, freckled with ochreous; dorsal line darker than the ground-colour, edged with paler; subdorsal line pale; spiracles black; belly pale. It hybernates, and the following spring it spins a slight cocoon amongst its food, &c. E. M. M. x. 103.

Herminia derivalis, *Hb.*

emortualis, Haw.

(Plate 1. fig. 10.)

Loc. Woolwich, Deal, Lewes, Colchester, Hastings, Herne Bay.

In July and August in damp woods, very local.

The larva feeds on decaying oak-leaves; it is dark velvety brown, pubescent; dorsal and subdorsal lines slightly darker than the ground-colour; spiracles ringed with black; the plate on the second segment is divided by a paler line of the ground-colour; abdominal surface

somewhat paler. This larva hybernates, and pupates the following June or July between leaves spun together.

E. M. M. x. 102.

Pechypogon barbalis, *Clerck.*

pectitalis, Hb.

(Plate 1. fig. 11.)

Loc. Devonshire, Weston-super-Mare, Wakefield, York, Foulsham, Cawston, Horning, Colchester, Hastings, Suffolk, Southend, Ireland.

This species is generally common in woods from June to August.

The larva, which feeds on birch-catkins, also on oak, is deep reddish ochreous; there is a pattern of diamond markings on the back and sides; the dorsal line is blackish; spiracles black; segmental divisions pale ochreous; head dusky; skin soft and velvety. It hybernates, and at the end of the following April spins itself a cocoon amongst leaves, débris, &c.

E. M. M. x. 100.

HYPENIDÆ.

Madopa salicalis, *Schiff.*

obliquata, Fb.

(Plate 1. fig. 1.)

Loc. West Wickham, Kent.

Occurs in May and June; not common, amongst low brushwood &c.; comes to light.

The larva is velvety green, with yellow segmental inci-

sions ; head and abdominal surface paler ; possesses only three pairs of abdominal legs ; spiracles black. It feeds on sallow and willow in July and August; forms a cocoon of silk covered with débris. Treit., Guen., &c.

Bomolocha fontis, *Thnb.*

crassalis, Fb.

(Plate 1. fig. 4.)

Loc. Plymouth, Spitchwick, Dunsford, Clovelly, Hastings, Suffolk, Haslemere, Dorking, Staffordshire, Sevenoaks, South of Ireland, Leith Hill, Carrick-on-Shannon.

Occurs from the middle of June to the middle of July, usually amongst bilberry.

Var. tericularis, *Hb.* In this variety the wings are nearly black, with white markings.

The larva is green, with three dark lines; spiracles black ; pale spots on the segments. On heath (?), bilberry, nettle (?). It forms a cocoon among leaves in the autumn. Treit., Hofmann, &c.

Hypena rostralis, *L.*

(Plate 1. fig. 3.)

Loc. Plymouth, Almondsbury, Sheffield, Lynn, Norwich, Thetford, Colchester, Hastings, Suffolk, Bromley, Kent, Ireland.

In June, July, and again in September. Hybernated specimens occur also in April.

Var. radiatus is redder, with dark veins.

The larva, which feeds in May and June and again in August and September on hops (*Humulus lupulus*) and nettle, is green, with a darker dorsal line and white lateral stripes; head brownish yellow; tubercles black; the first pair of abdominal feet wanting. It pupates amongst leaves.

Hypena obsitalis, *Hb.*

(Plate 13. fig. 7.)

Loc. Bloxworth (Dorset).

Occurs in June and again in September, many of the later brood hybernating. Common in sheltered places all over Southern Europe, Northern Africa, Madeira, Canaries, &c.; very variable, but always distinct from any other species.

The larva is bright yellowish green, with a dark dorsal and pale subdorsal lines; feeds in May on *Parietaria* (pellitory).

Hypena proboscidalis, *L.*

(Plate 1. fig. 2.)

Loc. Scotland (abundant), Rugby, Marlborough, Plymouth, Bristol, Chester, Yorkshire, Lynn, Colchester, Hastings, Suffolk, Ireland, Pembroke, Carmarthen.

In June and July, sometimes again in autumn; common on weedy banks.

The larva, which feeds in May and June on nettles (*Urtica urens*), is bright green, with yellowish segmental

incisions; dorsal line darker, subdorsal lines yellowish; abdominal surface paler than back; head and legs green; tubercles pale, each bearing a brown hair. The larva forms a cocoon amongst leaves.

Hypenodes albistrigalis, *Haw.*

(Plate 1. fig. 5.)

Loc. Plymouth, Exmouth, Barnstaple, Dartmouth, Frome, Scarborough, Aldeby, Merton, Guestling, Suffolk, Deal, Pembroke, Canterbury, Linton, Tilgate Forest, Monkswood (Huntingdon).

This species occurs in woods in June and July, and comes freely to sugar.

Hypenodes costæstrigalis, *St.*

acuminalis, Wk.

(Plate 1. fig. 6.)

Loc. Lochgoil Head, Barnstaple, Dartmouth, North Devon, Bristol, Bidston, Chester, Askham Bog, Harrowgate, Scarborough, Sheffield, York, Merton, Cawston, Horning, Hastings, Suffolk, Bournemouth, Canterbury, Epping, New Forest.

Frequents woods in July, comes also to sugar like the preceding species.

The larva, which feeds on *Thymus serpyllum*, is dark purplish or crimson brown, shiny; dorsal and subdorsal lines slightly paler; sides and ventral surface also paler. This larva possesses only two pairs of ventral legs, or twelve in all. It forms a cocoon in which it pupates. E. M. M. vi. 216.

Tholomiges turfosalis, *Wk.*

humidalis, Dbl.

(Plate 1. fig. 7.)

Loc. Rannoch, Killarney, Keswick, Crewe, New Forest, Norfolk, Chat Moss (Lancashire).

This species flies during the early part of the evening in damp situations on heaths, in July.

PYRALIDIDÆ.

Cledeobia angustalis, *Schiff.*

bombycatus, Haw.

(Plate 2. fig. 10.)

Loc. Plymouth, Minehead, Maltby Woods (York.), Walton-on-the-Naze, Colchester, Tenby, Hastings, Suffolk, Southend, Deal, Pembroke.

Occurs in June and July in dry sandy localities.

The larva, which feeds in galleries among moss (*Hypnum cupressiforme*), is smoky black; ventral surface paler; head black, glossy; frontal plate chocolate-colour, glossy; anal segment pale brown; medio-dorsal line black. It forms a cocoon among moss.

A variety of the larva occurs in which the ground-colour is light chocolate, suffused with smoke-colour. E. M. M. xxi. 124.

Aglossa pinguinalis, *L.*

(Plate 2. fig. 8.)

Loc. Scotland (widely distributed), Rugby, Plymouth,

Bristol, Chester, Bradford, Bramham, Huddersfield, Leeds, Sheffield, Wakefield, York, Norfolk, Colchester, Hastings, Suffolk, Outer Hebrides, Arran, Pembroke, Ireland.

Occurs everywhere, in stables, outhouses, &c., in June and July. A very variable species.

Var. **Streatfieldii**, *Curt.* Fore wings uniform grey, with a dark basal and terminal band and a black cellular spot.

The larva is black or dark brown; legs drab; belly bronzy. It lives in a silken gallery covered with particles of débris amongst its food, viz. the refuse of barn-floors, &c. It hybernates, never leaving its gallery until full-fed, when it seeks a convenient situation in which to spin its cocoon, which is externally covered with bits of its surroundings, mortar, rubbish, &c. It has a great *aversion* to grease. E. M. M. xx. 193.

Aglossa cuprealis, *Hb.*

capreolatus, Haw.

(Plate 2. fig. 9.)

Loc. Stapleton?, Huddersfield?, Colchester, Suffolk, Cambridge, Southend.

This species also occupies outhouses &c. in June and July. The larva lives in the same manner as *pinguinalis*, in galleries, under the refuse of barn-floors, and similar localities, feeding on chaff, bits of dried grass, straw, &c. It hybernates.

The larva is brilliant bronze; hind segments rather paler; head deep chestnut-red; collar deeper red, edged

in front with black; anal plate reddish. It spins a white silken cocoon covered externally with particles of straw and husks, amongst which it lives.

E. M. M. xxi. 75.

Pyralis costalis, *Fb.*

fimbrialis, Schiff.

(Plate 2. fig. 5.)

Loc. Bristol, York, Merton, Cawston, Horning, Colchester, Hastings, Suffolk, Southend, Chingford, London.

In July and August.

The larva is dull olive-brown; along each side occur two series of polished light spaces, the upper row with a dark shining central spot emitting a hair, the lower row of squarer spaces are more tumid and have two black spots, one, smaller, below the other; venter paler than dorsum, with a row of dots bearing a fine hair on each side; legs the same colour as venter, the abdominals with a spot and hair exteriorly. This larva is very variable in colour. It feeds on stacked clover, preferring the lower and moister parts, living in a web. There are several broods during the year. In some States of America it is very injurious to crops.

Riley's Sixth Annual Report on the Injurious Insects of Missouri, 1874.

Pyralis glaucinalis, *L.*

nitidalis, Fb., Hb.

(Plate 2. fig. 7.)

Loc. Marlborough, Stapleton, Clifton, Askham Bog, Scarborough, Wakefield, Norfolk, Colchester, Hastings, Suffolk, Southend, Deal, Bromley, Wicklow, Carrington Moss.

In June, July, and August.

The larva feeds in the "nest-like bunches of twigs" which grow on birch trees, also old thatch and the pith of old raspberry-canes. The ground-colour is dark bronzy green, becoming paler along the spiracles, belly, and legs; the head and the second and thirteenth segments are also paler; a fine black undulating line runs along under the spiracles, which are inconspicuous. It lives in a gallery, and spins a silken cocoon in April.

E. M. M. vi. 111.

Pyralis farinalis, *L.*

(Plate 2. fig. 6.)

Loc. Scotland (as far north as Aberdeen), Plymouth, Devonshire, Bristol, New Ferry, Bradford, Bramham, Huddersfield, Leeds, Wakefield, York, Norfolk, Colchester, Hastings, Suffolk, Bromley, Pembroke, Ireland.

Common everywhere from June to October about houses.

The larva is bone-white, becoming whiter towards the ventral surface; head shining chestnut-brown; mouth blackish; second segment pale brown; anal plate yellowish brown; there is a blackish tinge over the

anterior and posterior segments (distinguishing character of the species); spiracles ringed with black; legs tipped with brown hooks. This larva lives through two winters; it inhabits long tubes of silk mixed with flour, &c., in secluded situations about flour-mills, under corn-bins, &c. It feeds, like *Aglossa pinguinalis*, on mixed rubbish, and forms a cocoon of white silk covered with rubbish. E. M. M. xxi. 248.

Pyralis lienigialis, *Zell.*

(Plate 7. fig. 1.)

This species has been taken at light during August and September near Stony Stratford by Mr. W. Thompson and other collectors. It is extremely rare in collections, being only otherwise recorded from Finland and Livonia.

Scoparia cembræ, *Haw.*

cembralis, Gn.

(Plate 14. fig. 1.)

Loc. Scotland (widely distributed), Radford, Devonshire, Bristol, Denhall, Bradford, Bramham, Redcar, Scarborough, Sheffield, Norwich, Aldeby, Hunstanton, Wootton, Colchester, Hastings, Suffolk, Teignmouth, Pembroke, Howth, Southend, Deal.

This species occurs on fir-trunks, but also in fields.

Var. **Zelleri**, *Wk.* (Plate 14. fig. 2), is rather larger than the type, and has the markings more distinct; it usually occurs in the same localities.

Loc. Paisley, North Devon, Bristol, Huddersfield, Carmarthen, Norwood, Teignmouth, Wolverton.

Var. **scotica**, *White*, E. M. M. viii. 169 (Plate 14. fig. 3). The fore wings are grey with the markings more distinct than in the type, the hind wings silky white; the fore wings are more triangular and broader.

Loc. Near Perth. Has been taken in company with the type.

Scoparia basistrigalis, *Knaggs*.

(Plate 14. fig. 4.)

Loc. Plymouth, Portbury, Edlington Wood, Doncaster, Selby, York, Norwich, Aldeby, Suffolk, Sussex, Worcestershire, Haslemere, Tilgate Forest.

This species cannot be confounded with any other except *ambigualis*, from which the greater width of the fore wings, its deeper markings, and larger size at once separate it, not to mention its entirely different shape.

A dark form of the female occurs.

Scoparia ambigualis, *Tr.*

dubita, Haw.

(Plate 14. fig. 5.)

Loc. Scotland (Lowlands), Rugby, Plymouth, Devonshire, Bristol, Wirral, Chester, Yorkshire, Norwich, Cawston, Lynn, Colchester, Hastings, Suffolk, Shetland, Pembroke, Southend, Deal, Folkestone, Powerscourt (near Dublin).

From June to August, at rest on trees, common nearly everywhere.

The larva is said to feed on moss and lichen on oak and beech trees.

Scoparia atomalis, *Dbl.*

(Plate 14. fig. 6.)

Loc. Scotland (common on Highlands), Duntocher, Bingley, Orkney, Isle of Unst (Shetlands).

Common in the north of England.

It can be easily separated from *ambigualis*, its nearest ally, by its smaller size, darker markings, straighter costa, and more triangular fore wings.

Scoparia conspicualis, *Hodgn.*

(Plate 14. fig. 7.)

Loc. Doncaster, Windermere, Sandburn, Upper Wharfedale, Wilsden (York.).

This species occurs in June, July, and August. It can be recognized from any other species by the pale basal and marginal areas. The female is usually greyer than the male.

Scoparia ulmella, *Dale.*

(Plate 14. fig. 8.)

This species is distinguished from *dubitalis* by the slender conformation of the wings; also the characters of the first line, arched concavely towards the base of

wing, in which the stigmata are scarcely visible; the very characteristic renal stigma, filled in with ochreous; and the apical markings of the fore wings.

The only three known examples of this species were taken by Mr. Dale, on the 13th of July, 1844, on a wych-elm tree, in a thick wood at East Meon.

E. M. M. iii. 217.

Scoparia dubitalis, *Hb.*

pyralella, Hb.

(Plate 14. fig. 9.)

Loc. Scotland (widely distributed), Plymouth, Devonshire, Bristol, Ledsham, Puddington, Bramham, Harrowgate, Huddersfield, Richmond (York.), Norwich, Roydon, Colchester, Pembroke, Hastings, Ireland, Southend.

Common in June and July in damp situations. Easily distinguished from other *Scopariæ* by the shape of the stigmata, filled-in with buff.

Var. ingratella, *Zell.* (Plate 14. fig. 10), is a larger and paler insect, with fewer markings. It has a habit of resting on lumps of chalk.

It occurs at Folkestone, Plymouth, Brandon, Pembroke.

The larva feeds on moss and lichens on oak and beech trees in March and April. Hartm.

Scoparia truncicolella, *Sta.*

mercuriellus, Zinck., Tr.

(Plate 14. fig. 11.)

Loc. Perthshire, Inverness-shire, Glasgow, Ply-

mouth, Exeter, Bristol, Wirral, Grassington, Croydon, Leatherhead, Brandon, Huddersfield, Scarborough, Sheffield, Norwich, Horsford, Cawston, Mayo.

This common species occurs in July and August. It is at once distinguished from *murana* by its smaller size, paler and more olive colouring, and the absence of black markings.

The larva feeds in common moss, which usually grows among short grass. It lives in silken galleries through the winter, and pupates in moss the following spring. Ground-colour dark olive-brown; head dark brown, dorsal line darker; legs and tubercles black.

E. M. M. xviii. 106.

Scoparia murana, *Curt.*

muralis, Gn.

(Plate 15. fig. 1.)

Loc. Scotland (widely distributed), Cadder, Milngavie, Langside, Exeter, Wirral, Bradford, Huddersfield, Richmond, Sheffield, Outer Hebrides, Belfast.

This species is common nearly everywhere in June and July, and again in August. The markings on the fore wings are far darker than in any other *Scoparia*.

The larva is generally to be found under moss on old walls, rocks, and stones in April. It feeds on *Bryum capillare* and *Hypnum cupressiforme*, in silken galleries. The ground-colour of the larva is brown, tinged with ochre, grey, or purple, becoming paler towards the ventral surface; dorsal line dark brown, also tubercles and dorsal plate; head and plates shining, the anal plate paler brown. It pupates about the end of May.

Ent. xv. 133.

Scoparia resinea, *Haw.*

resinalis, Gn.

(Plate 15. fig. 2.)

Loc. Plymouth, Exeter, Bristol, Almondsbury, Lyndhurst, Ventnor, Folkestone, Scarborough, Sheffield, Norwich, Lundy Island, Powerscourt, Wicklow.

In July and August. Can be distinguished by the triangular and pointed fore wings and the dark costal blotch near the apex of the fore wing.

The larva is said to feed on the lichens on ash trees.

Scoparia mercurella, *L.*

frequentella, Sta.

(Plate 15. fig. 3.)

Loc. Perthshire, South-west of Scotland, Plymouth, Norwich, Devon, Bristol, Ness, Puddington, Askham Bog, Huddersfield, Sheffield, Yarmouth, Horsford, Colchester, Hastings, Suffolk, Pembroke, Ireland.

Generally common at rest on stones, walls, &c. It differs from *cratægella* in its browner and general darker colouring.

Scoparia cratægella, *Hb.*

cratægalis, Gn.

(Plate 15. fig. 4.)

Loc. Perthshire, Aberdeen, Glasgow, Ayrshire, Edinburgh, Plymouth, Cadder, Milngavie, Bristol, Lynd-

hurst, Bingley, Brandon, Bramham, Richmond (York.), Sheffield, Norwich, Cawston, Howth.

Common amongst whitethorn during July and August. It is paler and greyer than the preceding species.

The larva is yellowish green, with large shining tubercles, each bearing a hair. Head shining dark brown; dorsal plate divided by an indistinct line. Occurs in May under moss on trees, in a tubular silken gallery.

Scoparia phæoleuca, *Zell.*

portlandica, Dale.

(Plate 15. fig. 5.)

Loc. Brandon, Portland.

In July and August. The white basal and marginal bands of the fore wing separate it from every other species.

Scoparia lineolea, *Curt.*

lineolalis, Gn.

(Plate 15. fig. 6.)

Loc. Perthshire, Ayrshire, Plymouth, Exeter, Bristol, Doncaster, Redcar, Norwich, Galway, Howth, Folkestone, Isle of Man, Worthing, Lymmington.

In July and August. This species can be easily distinguished from *cratægella* by the narrower fore wings, with their squarer hind margin and straighter costa; also by their paler ground-colour, which causes the markings to appear much more distinct.

The larva feeds on lichens on old fences, trees, and

rocks, forming a slight web. Ground-colour dark olive-green; on each segment are two pale streaks, on which are situated the tubercles, which appear to divide them into sections; head, frontal plate, tubercles, and spiracles shining black; ventral surface and legs paler olive. There is a black spot on the outer side of each proleg. The larva pupates in June, in a slight web.

E. M. M. xxi. 101*.

Scoparia angustea, *St.*

coarctalis, Gn.

(Plate 15. fig. 7.)

Loc. Edinburgh?, Outer Hebrides, Perthshire, Shetland, Milngavie, Ardrossan, Plymouth, Exeter, Bristol, Wirral, Redcar, Huddersfield, Scarborough, Norwich, Hastings, Dublin, Howth, Folkestone.

This widely-distributed species is found in August and September; also in May in the south of England, where the species appears to be double-brooded.

Larva light reddish grey, with shining tubercles, each bearing a hair; head round and black; dorsal plate dark brown. In galleries, under moss on walls.

Scoparia alpina, *Dale.*

parella, Zell.

(Plate 15. fig. 8, ♂ ♀.)

Loc. Perthshire, Aberdeenshire, Orkney, Shetland, Inverness.

This species occurs at high elevations in July.

* Erroneously described as *Scoparia cratægalis.*

Var. **gracilalis**, *Dbl.*, is a form occurring at the same localities, in which the markings are more developed and darker.

Loc. Perthshire, Milngavie.

Scoparia pallida, *St.*

pallidulalis, Gn.

(Plate 15. fig. 9.)

Loc. Isle of Unst, Edinburgh, Braunton Burrows, Devonshire, Ashley Hill, Stapleton, Bidston Marsh, Brandon, Askham Bog, Scarborough, Norwich, Aldeby, Ranworth, Horning, Lyndhurst, Pembroke, Sandwich, Southend, Deal, Folkestone.

This species occurs only in marshy situations in July and August; usually plentiful where it occurs.

Nomophila noctuella, *Schiff.*

hybridalis, Hb.

(Plate 7. fig. 2.)

Loc. Scotland (common in the south-west), Dunoon, Ardrossan, Luss, Marlborough, Plymouth, Devonshire, Bristol, Chester, Hastings, Suffolk, Askham Bog, Flamborough Head, Richmond (York.), Sheffield, Norfolk, Colchester, Pembroke, Glamorgan, Carmarthen, Deal, Folkestone, Ireland.

In July, August, and September. Common everywhere. Variable both in size and colour.

The larva feeds on *Polygonum aviculare* (knot-grass) in July. Ground-colour warm olive-drab; head dark

reddish brown; dorsal line dark olive-drab, bordered with paler; on each side of the back is a row of large, round, polished, plate-like, black marks, encircled with pale drab; there is also a pale whitish waved stripe below the spiracles, which are black encircled with grey; ventral surface dark olive. The larva forms a tough white cocoon amongst its food-plant.

E. M. M. xiv. 161.

Odontia dentalis, *Schiff.*

(Plate 2. fig. 4.)

Loc. Tavistock, Hastings, Folkestone, Deal.

This species occurs in July and August.

The larva feeds on the stems and leaf-stalks of *Echium vulgare* (viper's bugloss). It has the appearance of a full-fed maggot. On the second segment is a broad dorsal plate, on each side of which are two scabrous spots; there is another plate on the thirteenth segment. The ground-colour is yellowish white, covered with black tubercles, each emitting a bristle; colour of head and plates black. It pupates between leaves of its food-plant spun together. Ent. iv. 159.

Pyrausta aurata, *Scop.*

punicealis, Schiff.

(Plate 2. fig. 11.)

Loc. Scotland, Coombe, Portishead, Bramham, Huddersfield, Richmond (York.), Sheffield, York, Colchester, Hastings, Suffolk, Folkestone, Deal, Isle of Wight, Ireland.

Generally common on grassy banks in May, July, and August.

The larva feeds in May and September on calamint and various species of *Mentha*, under a web. Larva: back dull green; dorsal stripe of the same colour edged with yellow; spiracular stripe broad and yellowish; head and second segment pale brown, freckled with black; below the spiracles is a double greenish line; ventral surface pale yellow, dots shining black, ringed with yellow.

A uniform green variety occurs; also a variety with a yellow blotch on the back of the twelfth and thirteenth segments. E. M. M. xi. 66.

Pyrausta purpuralis, *L.*

(Plate 2. fig. 12.)

Loc. Scotland (widely distributed?), Arran, Wotton, Brockley, Ledsham, Yscciliog, Rugby, Marlborough, Plymouth, Aldeby, Ketteringham, Booton, Horsford, Pembroke, Ireland, Hastings, Suffolk, Huddersfield, Bramham, Sheffield, Colchester, Colwyn.

Usually common on railway-banks, slopes, &c., in May and July.

The larva feeds on *Mentha arvensis* and *aquatica* in June and August. Head brown; ground-colour grey, with black spots, surrounded by white; dorsal and subdorsal stripes yellow.

A variety of the larva occurs of a uniform dark brown.

Pyrausta ostrinalis ?, *Hb.*

punicealis, Haw.

(Plate 2. fig. 13.)

Loc. Plymouth, Bristol, Huddersfield, Richmond (York.), Scarborough, Biddleston, Ireland, Scotland ?

Occurs in June and again in August; it frequents many of the same localities as *purpuralis*, of which it is probably only a variety. Although the extreme forms of *purpuralis* and *ostrinalis* are distinct enough, yet all the intermediate grades occur commonly, and it is impossible to say where *purpuralis* ends and *ostrinalis* begins. The late Professor Zeller had a large series in which some specimens were labelled *purpuralis*, others *ostrinalis*, evidently not thinking it wise to separate them.

The extreme specimens of *ostrinalis* differ from *purpuralis* in the *pale yellow* band not being divided into spots.

Rhodaria sanguinalis, *L.*

cruentalis, Scriba.

(Plate 3. fig. 1.)

Loc. Troon (Ayrshire) ?, Wallasey sandhills, Rhyl, Galway, Cheshire sandhills, New Brighton.

Occurs in May (?) and August on sandhills.

Some specimens are much suffused with pink. The larva is red with a white dorsal line; it feeds on *Thymus serpyllum* in a web, devouring the flowers by preference.

Herbula cespitalis, *Schiff.*

sordidalis, Hb.

(Plate 3. fig. 2.)

Loc. Scotland (widely distributed), Ardrossan, Arran, Shetland, Orkney, Rugby, Marlborough, Plymouth, Bristol, Wirral, Loggerheads, Hastings, Suffolk, Bramham, Richmond (York.), Sheffield, Aldeby, Norwich, Merton, St. Osyth, Pembroke, Ireland, Folkestone, Southend.

A common coast-insect in May and August. The females are smaller and stronger marked than the males. The larvæ, which are gregarious, live in a web on the lower leaves of *Plantago lanceolata* and *major*, also on *Salvia*.

Ground-colour of larva dull smoky brownish black; head and second segment wainscot-brown, freckled with dark brown; dorsal line dark, edged with grey; spiracular stripe dingy ochreous; tubercles polished, black, encircled with grey; spiracles black, with minute white centres; ventral surface and prolegs paler than the dorsal area; the anterior legs tipped with dark brown and encircled with black at the base. The larva pupates in a stiff white cocoon. E. M. M. xxi. 30.

Ennychia cingulata, *L.*

cingulalis, Schiff.

(Plate 3. fig. 3.)

Loc. Scotland (widely distributed), Dumbarton, Plymouth, Bristol, Clevedon, Wallasey sandhills, Logger-

heads, Llandrillo, Richmond (York.), Pembroke, Box Hill, Folkestone.

This species occurs in dry meadows, flying in the sunshine, in May and July.

Ennychia nigrata, *Scop.*

anguinalis, Hb.

(Plate 3. fig. 4.)

Loc. Worcombe, Clevedon, Folkestone, Galway.

Occurs during May and August in dry situations amongst rank herbage.

The larva feeds on *Mentha arvensis* and *Thymus serpyllum*. Ground-colour dull purple, covered with large black spots, each bearing a fine hair; head bright olive-green, shining, marked with black; second segment the same, the plate freckled with black; spiracles black; anterior legs green; the ventral and anal legs are translucent and almost colourless. It forms a cocoon of white silk amongst its food-plants. E. M. M. xix. 77.

Ennychia octomaculata, *Fb.*

octomaculalis, Tr.

(Plate 3. fig. 5.)

Loc. Scotland (West and N.W.), Hebden Bridge, Hastings, Suffolk, Saundersfoot, Battle, Ireland, Pembroke.

In June and July in woods and also on rough ground. The larva feeds on *Solidago virgaurea* (golden rod) in a slight web under the leaves.

The head is whitish brown, having a few light brown

freckles and black ocelli; back cream-colour; dorsal line green; the cream-colour extends lower down the side of the last half of each segment than the first half; near the lower margin of this cream-colour is a fine yellowish-green line. It spins a white cocoon among the leaves of its food-plant, in which it passes the winter, pupating the following spring. E. M. M. xviii. 57.

Agrotera nemoralis, *Scop.*

erosalis, Fb.

(Plate 3. fig. 6.)

Loc. Hastings, Holmbush, Sussex, Herne, Battle, Folkestone.

This species occurs in June and August, and may be taken by beating hornbeam.

The larva feeds on hornbeam. Head pale orange-brown; ocelli black; back brownish olive-green; dorsal line darker; the lower parts of the sides, belly, and legs are of a uniform tint of very pale watery olive-green. It forms a slight cocoon amongst its food-plant. E. M. M. xii. 232.

Endotricha flammealis, *Schiff.*

(Plate 3. fig. 7.)

Loc. Plymouth, Clifton, Bristlington, Lundy Island, Colchester, Saundersfoot, Hastings, Lowestoft, Southend, Folkestone, Galway.

Common in woods during June and July; difficult to take on account of its shyness.

The larva feeds on hazel, *Lotus major*, sallow, hornbeam, &c. It hybernates and pupates in May, enclosed

in a cocoon covered with particles of mud, dead leaves, and débris, half sunk in the earth.

Larva: head dark brown; back chocolate-colour; plate on the second segment blackish brown; belly brownish ochreous; legs pale greyish drab; anal plate blackish; the front and side margins paler. E. M. M. xix. 149.

Eurrhypara urticata, *L.*

urticalis, Schiff.

(Plate 3. fig. 8.)

Loc. Scotland (Mid. and S.W.), Rugby, Marlborough, Plymouth, Monkton, Devon, Bristol, Chester, Leeds, Richmond (York.), Sheffield, Wakefield, Norfolk, Colchester, Southend, Deal, Folkestone, Ireland, Pembroke, Glamorgan, Carmarthen.

Common everywhere in June and July.

The larva, which feeds in rolled-up leaves of nettle, is of a dirty pale yellow, rather transparent; dorsal stripe green, on each side of which is a yellowish-white line; head black, with white marks on each side; dorsal plate greenish, with black markings; spiracles black; legs the same colour as the body. This larva forms a cocoon in October in any convenient situation in which to pass the winter, changing to pupa in the following April or May.

Scopula alpinalis, *Schiff.*

(Plate 3. fig. 9.)

Loc. Scotland (generally distributed at great elevation), Rannoch, Luss, Ardentinny, Invergarry, Inverness, Ross.

In June and July.

This is an alpine species, occurring only at high elevations in Scotland, where it is usually very common. It is easily disturbed by day, flying a short distance and settling again.

The larva is pale yellow, with four shining black spots, each bearing a hair on each segment; head finely freckled; abdominal legs finely streaked; anterior legs black. Feeds in June in leaves of a large species of *Senecio* rolled together. Pupates in the earth.

E. Hofmann.

Scopula lutealis, *Hb.*, *Haw.*, *Gn.*

pascualis, Zell.

(Plate 3. fig. 10.)

Loc. Scotland (common to Orkney), Possil Park, Rugby, Marlborough, Cathcart, Devonshire, Clifton, Chester, Yorkshire, Ketteringham, Norwich, Suffolk, Lynn, Cawston, Croydon, Pembroke, Howth.

A common species in July and August.

The larva feeds on dock, bramble, and thistle. Head pale yellowish brown, with a few dark brown dots; ground-colour pale green; dorsal stripe broad, dark green, edged with greyish white from segments two to six; spiracular line narrow, greyish white, tubercular spots dark green; belly pale greyish green; second segment green; anal flap yellowish. This larva spins a slight cocoon amongst its food.

Lutealis larva is distinguishable from *prunalis* by the absence of black spots on the second segment.

Scopula olivalis, *Schiff.*

umbralis, Hb.

(Plate 3. fig. 11.)

Loc. Scotland (South-east), Kenmuir Bank, Southend, Rugby, Marlborough, Plymouth, Devon, Bristol, Chester, Yorkshire, Norfolk, Suffolk, Colchester, Hastings, Ireland, Pembroke.

Common everywhere in June and July about hedgerows.

The larva feeds on *Sambucus nigra*, *Stachys sylvatica* (hedge-woundwort), *Urtica dioica*, and *Humulus lupulus* (hop). It hybernates between leaves spun together and continues feeding the following spring.

Ground-colour of the larva pale greenish grey; head and dorsal plate marked with black; dorsal line dark green; spiracular stripes greyish; spots black, arranged four on the back of each segment, and a row of triangular ones above the spiracular stripe; legs black.

E. M. M. xvi. 228.

Scopula prunalis, *Schiff.*

leucophæalis, Hb.

(Plate 3. fig. 12.)

Loc. Scotland (widely distributed), Kenmuir Bank, Dunoon, Rugby, Marlborough, Plymouth, Devon, Bristol, Wirral, Hastings, Suffolk, Loggerheads, Yorkshire, Norfolk, Colchester, Southend, Pembroke, Ireland.

Common in June and July in hedgerows.

The larva feeds on *Stachys sylvatica, Teucrium scorodonia, Lychnis,* marjoram, elder, *Veronica officinalis,* &c. Larva: head opaline; back and sides deep transparent green; subdorsal stripes broad, white; legs and abdominal surface paler than the back. Pupates between leaves spun together.

This larva is distinguishable from *lutealis* by the distinct black spot on each side of the second segment.

E. M. M. xvi. 209.

Scopula ferrugalis, *Hb.*

(Plate 4. fig. 1.)

Loc. Scotland (South-west), Ardrossan, Plymouth, Exeter, Barnstaple, Dartmouth, Bristol, Chester, Colchester, Hastings, Suffolk, Rock Ferry, Bidston, Harrowgate, Scarborough, Norwich, Merton, Cawston, Scilly Isles, Isle of Wight, Herne Bay, Folkestone, Dublin, Pembroke.

This common species occurs in August, September, and October, plentifully at ivy-bloom.

The larva feeds on *Eupatorium cannabinum* (hemp-agrimony), *Stachys palustris,* strawberry, &c., between leaves spun together. It pupates in October.

Larva: head pale drab, freckled with brown; dorsal stripe dark green, bounded on each side by a broad creamy white stripe, commencing from the thoracic segments, narrowing towards the extremities; this stripe is followed alternately by green and white stripes; legs pale green; on each side of the second segment are two velvety black spots. E. M. M. xiv. 200.

Scopula decrepitalis, *H.-S.*

(Plate 4. fig. 2.)

Loc. Scotland, Perthshire, Inverness-shire, Argyleshire, Sutherland, Ardentinny.

Very rare; specimens have occurred in May, June, July, and August. It is an alpine species.

Mecyna polygonalis, *Hb.*

limbalis, Tr.

(Plate 4. fig. 3.)

Loc. Bury St. Edmund's, south coast of Kent.

This very rare species has occurred at the above-named localities in August. It is extremely common all round the Mediterranean in April, frequenting grassy slopes, and easily disturbed by day. The fore wings are very variable in colour.

Larva feeds on *Cytisus laburnum*, also on *Cythisus*, *Genista*, and *Spartium*, in June and July. Evidently double-brooded. Ground-colour of the larva ashy grey, with rich yellow lateral stripes; three large black tubercles in a triangle and one above (viz. on each segment); spiracles, head, and prolegs black. In June and July.

Tr.
Mill.

Botys nubilalis, *Hb.*

lupulinalis, Gn.

(Plate 4. fig. 4.)

Loc. Isle of Wight, south of London.

Very rare; occurs in May and June.

The larva feeds in the stems of hop (*Humulus lupulus*), *Puniceus mileaceus*, and allied plants. It hybernates and turns to pupa the following spring.

Larva: head dark brown; ground-colour dirty white, with three shining black tubercles on each segment; thoracic plate yellowish, freckled with dark brown, and traversed by a white streak; dorsal and spiracular lines dark; ventral surface paler than the ground-colour.

Note.—*nubilalis* is easily separated from *pandalis* by the deeper indentations of the second line, the larger size, and the brown colouring of the males, which occurs also sometimes in the females.

Botys pandalis, *Hb.*

verbascalis, Hb.

(Plate 4. fig. 5.)

Loc. Marlborough, Almondsbury, Weston-super-Mare, Sheffield, York, Merton, Suffolk, Southend, Galway.

Common everywhere during June in lanes, hedgerows, and fields.

The larva feeds in a case, formed of a leaf rolled up, on *Teucrium scorodonia* and brambles (*Rubus corylifolius*). The colour of the back and sides of the larva is dark grey; the dorsal line darker, bordered with pale grey; head grey, marked with black; dorsal plate dark, divided by a pale line. Two pale longitudinal lines, one situated on each side of the third and fourth segments. The tubercular spots are large, black, and glossy; spi-

racles black; ventral surface greenish grey, spotted with brown. It pupates in its case in September.

E. M. M. xvii. 28.

Note.—This species is double-brooded on the continent.

Botys flavalis, *Schiff.*

(Plate 4. fig. 6.)

Loc. Halvergate, Cawston, Isle of Wight, Dover.

This insect occurs in July, and is fond of dry pastures.

The larva is said to feed on nettle (*Urtica urens*) and bedstraw (*Galium verum*).

Botys hyalinalis, *Hb.*

(Plate 4. fig. 7.)

Loc. Plymouth, Wotton, Clifton, Merton, Thetford, Box Hill.

Common in July in open places in woods.

The larva feeds on *Centaurea nigra* during the autumn, then hybernates, and pupates in the following May in a slight cocoon.

The ground-colour of the larva is opaque white; head pale red with four black dots; belly yellowish white; spiracles black; thoracic legs rich brown; tubercles shining, with a black dot at the apex.

E. M. M. xxi. 99.

Botys ruralis, *Scop.*

verticalis, Schiff., D. L.

(Plate 4. fig. 8.)

Loc. Perthshire, Aberdeen, Scotland (S.E.), Norfolk, Southend, Deal, &c.

Common in June and July.

The larva feeds on nettles (*Urtica urens*), rolling up the leaves, in which position it eventually pupates in a slight cocoon. It is shining green, rather transparent, covered with small dark tubercles bearing a single hair; dorsal line darker than the ground-colour; on each side of the dorsal plate is a black spot; head olive-brown.

Botys fuscalis, *Schiff.*

cineralis, Hb., Haw.

(Plate 4. fig. 9.)

Loc. Scotland, Paisley, Ardrossan, Clober, Marlborough, Plymouth, Devon, Almondsbury, Merton, Ketteringham, Cawston, Colchester, Hastings, Wirral, Loggerheads, Bradford, Harrowgate, Richmond, Pembroke, Ireland.

Usually common in June and July; a variable species.

The larva feeds on the flowers and seeds of *Melampyrum pratense* in webs. It forms itself a cocoon in August, away from its food-plant, but does not change to a pupa until the next spring. The ground-colour of the larva is dark greyish brown, becoming paler towards

the abdominal surface; head and plate on the second segment glossy brown; the dorsal line is darker than the ground-colour; tubercles shining dark brown; anal plate brown, freckled with black; spiracles black; ventral spots light brown. E. M. M. xvi. 161.

Botys terrealis, *Tr.*

borealis, Curt.

(Plate 4. fig. 10.)

Loc. Kirkcudbright, Dunoon, Grange, Lynmouth, Clovelly, Puddington, Loggerheads, Scarborough, Saundersfoot.

This widely distributed species occurs in July.

It differs from *fuscalis* in the darker colouring, especially the dark margin round all the wings, and the more pointed apex of the fore wing. The larva feeds in September on *Solidago virgaurea* (golden rod), devouring everything but the stalk. It forms a strong web-like cocoon, in which it passes the winter, pupating in spring.

The ground-colour of the larva is rich reddish pink or green; head and anal segment yellowish brown, the former marked with dark brown; the alimentary canal shows through as a dark dorsal stripe; sides variegated with a darker shade of the ground-colour; ventral surface pale; prolegs tipped with a black dot on the outside. E. M. M. xii. 209.
Ent. iii. 184.

Botys asinalis, *Hb.*

characteralis, Frr.

(Plate 4. fig. 11.)

Loc. Plymouth, Dartmouth, Instow, Bristol, Clifton, Isle of Wight, Pembroke.

In June and July.

The larva feeds on *Rubia peregrina* (madder). Ground-colour yellowish brown, rather transparent, becoming paler towards the ventral surface; dorsal and subdorsal lines reddish brown, between which is a broad band of olive-brown; head straw-colour, with dark brown markings; spiracles and spots black. It forms a slight cocoon in July, and is sometimes double-brooded. E. M. M. ii. 135. Ent. xi. 190.

Ebulea crocealis, *Hb., Tr.*

ochrealis, Hb.

(Plate 4. fig. 12.)

Loc. Plymouth, Rothesay, Devon, Bristol, Flamborough Head, Redcar, Hastings, Suffolk, Scarborough, Sheffield, Norwich, Gillingham, Hunstanton, Colchester, Southend, Deal, Folkestone, Northfleet, Pembroke, Dublin, Wicklow, Galway, Howth.

Common in damp situations in June and July.

The larva is dirty yellowish green; dorsal and subdorsal lines dark green; head black, with a few greyish-white hairs; plate on the second segment dirty white, marked with black; ventral surface paler than the ground-colour; tubercles and spiracles black. It feeds

on *Inula dysenterica* (fleabane) in May, and pupates among leaves of its food-plant in a slight cocoon.

Ent. ix. 88.

Ebulea verbascalis, *Schiff.*

arcualis, Hb.

(Plate 5. fig. 1.)

Loc. Wotton, Folkestone, Sheffield, Norwich, St. Faith's, Colchester, Suffolk.

This species frequents dry meadows in June and July.

The larva feeds on *Teucrium scorodonia*; it hybernates in a cocoon, pupating the following spring.

Larva: head pale drab, freckled with darker; second segment the same colour, with a conspicuous long black mark on each side; dorsal stripe dark green, bordered with white; sides green; spiracular stripe whitish yellow; spiracles black; ventral surface pale green.

E. M. M. xv. 102.

Ebulea sambucalis, *Schiff.*

(Plate 5. fig. 2.)

Loc. Scotland?, Rugby, Marlborough, Plymouth, Sidmouth, Bristol, Birkenhead, Chester, Colchester, Hastings, Suffolk, Askham Bog, Goole, Bradford, Halifax, Leeds, Norwich, Yarmouth, Lynn, South London, Ireland, Pembroke.

Common nearly everywhere in June and August.

The larva feeds in a slight web on the underside of the leaves of *Sambucus nigra* and convolvulus; it pupates in a slight cocoon.

Larva: head pale watery green; second segment similar, but with a broad triangular green mark; dorsal stripe dark green, between two wide paler green stripes; segmental folds yellowish; spiracles black; belly and legs watery green; on each side of the front part of the third and fourth segments is a velvety black spot; skin dull, with the exception of the head and second segment. E. M. M. xiii. 133.

Note.—The larva of *sambucalis* can always be separated from that of *stachydalis* by the black lateral spot, which always occurs on the third and usually on the fourth segment, and the less glassy appearance.

Ebulea stachydalis, *Zinck.*

(Plate 5. fig. 3.)

Loc. Colchester, Ashford, Kingsbury, Freshwater (Isle of Wight), Brighton, Carmarthen, Pembroke.

Occurs in June amongst *Stachys*.

It differs from *sambucalis* in its deeper colouring, smaller and yellower spots, smaller size, and deeper fore wings. The larva feeds on *Stachys sylvatica* (hedge-woundwort) in August, spinning the sides of the leaves together. The head and second segment are whitish; on the back of the latter is a broad triangular green mark; dorsal line green, bordered with white; segmental folds pure white; sides green; belly and legs paler; spiracles black. The whole skin of the larva is lustrous; it spins a cocoon in September, away from its food-plant, in which it passes the winter, pupating in the following spring. E. M. M. xiii. 133.

Spilodes sticticalis, *L.*

fuscalis, Hb.

(Plate 5. fig. 4.)

Loc. Scotland, Fifeshire, Perthshire, Aberdeen, Instow, Ilfracombe, Dartmouth, Clifton, Wallasey, Suffolk, Bramham, Halifax, Redcar, Merton, Thetford, Brandon, Colchester, Folkestone, Howth.

Occurs on rough ground and uncultivated fields, during July and August.

The larva, which feeds in June on *Artemisia vulgaris* (mugwort), is dull grey; head and dorsal plate polished, black; dorsal line darker, bordered by a pale line on either side; subdorsal lines paler; spiracular stripe pale sulphur-yellow, intersected by a dark grey line; dorsal spots black, with a pale centre; spiracles black; belly pale olive-grey. Pupates under ground.

E. M. M. iii. 260.

Note.—This larva is liable to variation in colouring.

Spilodes palealis, *Schiff.*

(Plate 5. fig. 5.)

Loc. Thetford, Colchester, Hastings, Suffolk, Folkestone, Sheerness, Brighton, Sidmouth, Darenth Wood, Dartford, Southend.

This species flies in June and July.

The larva feeds in September on the umbels of the wild carrot (*Daucus carota*) in a web, which it leaves when full-fed. It forms an oval cocoon in some convenient situation, in which it passes the winter, not pupating until the following June.

Larva: ground-colour of the dorsal surface dull dingy green marbled with black; dorsal stripe dark green; tubercles large, black, encircled with yellow; spiracular region yellow; spiracles black; ventral surface yellowish white; legs black. E. M. M. iii. 260.

Spilodes verticalis, *L.*

cinctalis, Tr., D. L.

(Plate 5. fig. 6.)

Loc. Plymouth, Devon, Bristol, Stapleton, Chester, Bingley, Bishops Wood, Suffolk, Goole, Huddersfield, Wakefield, Norfolk, Colchester, Folkestone, Brandon, Pembroke, Ireland, Southend, Deal.

Occurs in clover-fields in July and August.

The larva is pale green, with three black warts on each segment; head pale brown, marked with darker brown. It feeds on *Spartium scoporium* and *Cirsium arvense* in May and June. Pupates in a strong thick cocoon covered with grains of sand. Nolk.

Psamotis pulveralis, *Hb.*

(Plate 5. fig. 7.)

Loc. Ranworth, Folkestone, Isle of Wight.

This species occurs in July and August in marshy places where reeds, sedges, and rushes grow; it is easily disturbed by day. The best locality (viz. at Folkestone) has disappeared owing to the encroachment of the sea.

The undescribed larva is said to feed in August on *Mentha aquatica*.

Pionea forficalis, *L.*

(Plate 5. fig. 8.)

Loc. Scotland, Kirklee, Ardrossan, Dunoon, Rugby, Marlborough, Plymouth, near London, Bristol, Devon, Chester, Yorkshire, Norfolk, Colchester, Hastings, Suffolk, Pembroke, Ireland.

Common everywhere in May, June, and again in August.

The larva feeds on cabbage, horse-radish, and other garden plants; often very destructive. It is yellowish green, with darker longitudinal lines and spots, between which are fine white lines; segmental divisions white; head light brown. It is double-brooded. Treit. &c.

Orobena extimalis, *Scop.*

erucalis, Hb.
margaritalis, Schiff., Fb.

(Plate 5. fig. 9.)

Loc. Redlands, Beachamwell, Cambridge, Wicken, Folkestone.

In June and July, frequenting the flowers of the food-plant.

The larva feeds on *Sinapis alba* (white mustard) and *Sinapis arvensis* (charlock) in July, under a sort of web, three or four living together and coming out at night to feed on the seed-pods.

Larva: head black, marked with white; a white ring round the neck; the medio-dorsal surface of the second segment is also white; dorsal stripe yellow, succeeded alternately by dingy purple and yellow

stripes; tubercles, spiracles, and dorsal plate black; ventral surface and legs smoky flesh-colour. It forms a cocoon of silk covered with particles of earth, in which it hybernates, pupating the following May.

Ent. iii. 224.

Orobena straminalis, *Hb.*

elutalis, Hb.

(Plate 5. fig. 10.)

Loc. Lundy Island, Norwich, Wooton, Cawston, Coltishall, Horsford, Colchester, Hastings, Suffolk, Cavan, Killarney, Ranworth, Red Hill.

This insect frequents damp meadows, grassy places in woods, &c., in June and July.

The larva feeds on *Barbarea vulgaris*, *Sinapis arvensis*, and other plants in August.

Larva: head black, upper lip bright green; back olive-green; spiracular stripe deep yellow, followed by a paler stripe; spiracles black, ringed with light brown; belly dirty green, paler than the back; along the back and sides are two series of longitudinal white marks; tubercles black; side margins of the plate on the second segment black. In September it forms a cocoon covered with particles of earth, in which it hybernates, pupating the following spring. E. M. M. xix. 127.

Perinephele lancealis, *Schiff.*

glabralis, Hb.

(Plate 5. fig. 11.)

Loc. Plymouth, Exeter, Barnstaple, Dartmouth, Wotton, Folkestone, Aldeby, Barton, Bendish, Beachamwell, Colchester, Hastings, Suffolk.

Very local; occurs in May and June.

The larva feeds on *Eupatorium cannabinum* (hemp-agrimony) in a web during July and August. It forms a cocoon and hybernates, pupating in the spring.

Larva: head drab, glossy, speckled with dark brown; the second segment is glossy green above, with a series of black dots; dorsal stripe dark green, bordered on each side with white stripes, followed by a broad green stripe, margined below by a narrow white line; spiracles black; ventral surface and legs watery green; the whole skin shining and semitransparent.

E. M. M. xii. 277.

Margarodes unionalis, *Hb.*

(Plate 5. fig. 12.)

Loc. Dartmouth, Torquay, Scilly Islands, Gravesend.

Of very unusual occurrence in this country. Common in Southern Europe in June and July, where the larva feeds in autumn on the olive. It is yellowish green, with green stripes and a yellowish-green head.

Mill.

STENIIADÆ.

Diasemia literata, *Scop.*

literalis, Schiff., D. L.

(Plate 6. fig. 1.)

Loc. Plymouth, Bristol, Pembroke, Glamorganshire, Carmarthen, Suffolk, Exeter, Hampshire.

Occurs in June and again in the middle of August. The second brood are smaller than the first. This species is found on rough ground, where it is easily disturbed, settling again after a short flight.

Diasemia ramburialis, *Dup.*

(Plate 6. fig. 2.)

Loc. Lewes, Folkestone, Dover, Cornwall.

This rare species is occasionally taken in June and again in September and October. In Europe it is recorded from Corsica and Austria.

It differs from *literata* in the darker and less brown ground-colour, the basal silvery band which crosses both wings, the great difference in the pattern of all the markings, the deep hollow in the outer margin of the hind wings.

Antigastra catalaunalis, *Dup.*

(Plate 6. fig. 3.)

Loc. Near London, near Dover.

In August and September. Occurs in Spain, Southern France, Central India, Canary Islands.

Easily disturbed by day from herbage on dry rocky ground.

The larva is pale greenish yellow, with reddish lines and black tubercles; head small, polished, black; shoulder-plate marked with two black spots. It feeds in spring on *Linaria spuria*. Mill.

Note.—In the Canary Islands this species must be double-brooded, as fresh specimens occur in April and May.

Nascia cilialis, *Hb.*

acutalis, Ev., Gn.

(Plate 6. fig. 4.)

Loc. Cambridge Fens.

Appears in May and June.

This species frequents boggy places, and often comes to light.

Stenia punctalis, *Schiff.*

ætnæalis, Dup.

(Plate 6. fig. 5.)

Loc. Plymouth, Sydmouth, Exmouth, Weston-super-Mare, Sheffield, Hastings, Pett, Ventnor, Brighton, Dover.

This species occurs in June and again in August.

The larva feeds on *Lotus corniculatus* (bird's-foot trefoil), clover, knapweed, and plantain in the autumn. It hybernates in a slight web amongst its food-plant, and pupates the following May in a tough cocoon covered with bits of leaves &c.

Larva: skin shiny; ground-colour pale yellowish

stone-tint; dorsal area ashy grey, traversed by a dark line; head reddish chestnut; collar dark brown, divided by a paler line; spiracles ringed with brown; dots black, placed on large shining warts.

E. M. M. xxi. 121.

Cataclysta lemnata, *L.*

lemnalis, Schiff., D. L.

(Plate 6. fig. 6, ♂ ♀.)

Loc. Rugby, Axminster, Possil Marsh, Devon, Bristol, Chester, Bramham, Suffolk, Hastings, Huddersfield, Wakefield, Norfolk, Colchester, Tenby, Ireland, Southend, West of Scotland.

Usually common during June and August in the neighbourhood of water.

Larva aquatic; feeds on *Lemna minor*; inhabits a case formed out of duckweed &c. It lives through the winter, and pupates in May.

Ground-colour of the larva dull olive; head pale olive-brown; plate on the second segment shining black; dorsal line black; spiracles black; anterior legs pale olive. E. M. M. xii. 102.

Paraponyx stratiotata, *L.*

stratiolata, Fb.

(Plate 6. fig. 7, ♂ ♀.)

Loc. Rugby, Frome, Stapleton, Bidston Marsh, Ness, Chester, Hastings, Suffolk, Askham Bog, Bradford, Scarborough, Sheffield, Norfolk, Colchester, Red Hill, Ireland, Highgate, Deal.

Occurs in June and August near water.

The aquatic larva feeds on *Anacharis alsinastrum*, *Stratiotes aloides*, &c.

The larva is furnished with eight rows of "branchiæ," composed of fleshy filaments of unequal length, tapering to a point. Ground-colour pale yellowish olive, marked with a few small purplish freckles; dorsal stripe darker; head brown, with darker markings; spiracles black; branchiæ pale grey. It forms a cocoon amongst its food, and is double-brooded.

E. M. M. xii. 161.

Hydrocampa nymphæata, *L.*

nymphæalis, Schiff., D. L.

(Plate 6. fig. 8, ♂ ♀.)

Loc. Scotland (widely distributed), Rugby, Marlborough, Plymouth, Possil Marsh, Devon, Bristol, Chester, Hastings, Suffolk, Bradford, Scarborough, Sheffield, Wakefield, Norfolk, Lyndhurst, Epping, Deal, Pembroke, Ireland.

This species is found in June, and again towards the end of July and August, in the neighbourhood of water.

The larva, which is aquatic, lives in a floating case formed of leaves of its food-plant, viz. *Callitriche verna* (starwort) or *Potamogeton natans*. It usually pupates under water amongst its food-plant, but sometimes above the surface or on some neighbouring vegetation.

The ground-colour of the larva is light olive-brown; dorsal plate darker. The plate on the second segment

is light olive, marked with dark brown; head light olive; ventral surface and legs paler than the ground-colour. Double-brooded. E. M. M. xii. 210. Ent. iii. 368.

Hydrocampa stagnata, *Don.*

stagnalis, Gn., D. L.

(Plate 6. fig. 9.)

Loc. Scotland (widely distributed), Rugby, Possil Marsh, Axminster, Bristol, Chester, Bramham, Hastings, Suffolk, Goole, Huddersfield, Sheffield, Norfolk, Colchester, Deal, Pembroke, Ireland.

Common in most places near water in June, July, and August.

The aquatic larva feeds on *Sparganium simplex*, mining the reeds in its early stages, and after hybernation feeding between the leaves united by silk. The ground-colour of the larva is either bright transparent yellow or olive-yellow; the head pale brown; second segment yellow, marked with brown. It pupates between two fragments of leaf spun together, either partially or entirely submerged, and moored to a floating leaf. E. M. M. xiv. 101.

ACENTROPODIDÆ.

Acentropus niveus, *Oliv.*

♀. *hansoni*, St.
♂. *nivosa*, St.

(Plate 6. fig. 10.)

Loc. Fifeshire (locally abundant), Loch Leven, York,

Brandon, Merton, Ranworth, Colchester, Hastings, Aldborough, Haslemere, Sheerness, Peckham, Hampstead, Hyde Park, Ringwood.

Occurs in July and August, flying just over the water at dusk; at rest on the underside of leaves, posts, &c. over water during the day.

The female is semiapterous.

The larva, which is light green, feeds under water on *Potamogeton heterophyllus*, *perfoliatus*, *pectinatus*, and *lucens*. When full-fed, in June and July, the larva may be found in silken cocoons, mixed with bits of leaves &c., in submerged leaf-axils of *Potamogeton*.

Ent. vi. 153.

PTEROPHORI.

PTEROPHORIDÆ.

Agdistis Bennetii, *Curt.*

(Plate 16. fig. 1.)

Loc. Redcar, Malden, St. Osyth, Southend, Canvey Island, Shoeburyness, Sheerness.

This species frequents salt marshes in June and August.

The larva feeds on the sea-lavender (*Statice limonium*) in July, and the second brood in September, which hybernates and continues feeding in the spring. The pupa is suspended by the tail from the food-plant.

The ground-colour of the larva is green, thickly sprinkled with small white dots; the second segment has several horny spikes protruding from the middle in a horizontal direction, the tips and bases of which are

rosy; the anal segment is yellowish green on the sides, and violet-brown on the back; on the twelfth segment is a rosy horn; the head is yellowish green, with rosy markings; spiracular stripe yellow. Ent. xvi. 27.

Cnæmidophorus rhododactylus, *Fb.*

(Plate 16. fig. 2.)

Loc. North Kent, Chattenden, Kingsbury, Mill Hill, Finchley.

This sluggish species occurs in July and August; it sometimes comes to light, and may also be beaten out of rose-bushes.

The larva feeds on the buds of the dog-rose at the end of May and beginning of June; the pupa is attached by the tail to the flower-stem, between the bud and a leaf, united by silken threads.

The ground-colour of the larva is yellowish green; dorsal line reddish violet, most distinct from the second to the sixth segment, and from the eleventh to the thirteenth; head yellowish green, freckled with brown, and a large black spot on each cheek; tubercles whitish, bearing a white hair; spiracles reddish brown, ringed with white; prolegs blackish; ventral legs green, tipped with brown; the whole body is covered with short whitish bristles. Ent. xviii. 275.

Platyptilia ochrodactyla, *Hb.*

dichrodactylus, Mühlig.

(Plate 16. fig. 4.)

Loc. Perthshire, Exeter, Huddersfield, Scarborough,

Lundy Island, Horning, Wallasey, Tranmere, Puddington, Colchester, Darlington, Howth.

Occurs amongst rank herbage in June and July. The larva feeds in the stems of the tansy (*Tanacetum vulgare*), and pupates suspended by the tail from a leaf of its food-plant.

The ground-colour of the larva is green; dorsal stripe whitish, traversed by a dark green line; head shining yellowish green; ocelli black; mouth brown; plates on the second and anal segments yellowish green; subdorsal and spiracular lines whitish, interrupted at the segmental divisions; tubercles black, each bearing a white hair; spiracles dark brown; legs semitransparent, tipped with brown. Ent. xv. 146.
E. M. M. xii. 233.

Var. **Bertrami**, *Rössl.* (*ochrodactylus*, Tgstr.), (Plate 16. fig. 3), is a smaller and paler form, with the tips of the fore wings less produced.

Loc. Hendon, Mill Hill, Ventnor, Folkestone, Brandon, Norwich, Thetford, Cawston, Colchester, Hastings.

The larva resembles the type, but feeds on yarrow (*Achillea millefolium* and *Achillea ptarmica*).

Platyptilia isodactylus, *Zell.*

monodactyla, Haw.

(Plate 16. fig. 5.)

Loc. Teignmouth, Exmouth, Norwich, Pembroke, Killarney, Cullunamore.

Occurs in June and August in marshy places.

This species differs from *gonodactyla* in the less distinct costal triangle, the more uniform ground-colour of the fore wings, and the very minute patch of black in the third feather of the hind wing.

The larva feeds in the stems of *Senecio aquaticus* in May and July, and pupates in its burrow.

The ground-colour of the larva is watery-green, the dorsal vessel showing through; subdorsal stripe dark green, bordered above with white; two white stripes occur along each side; head, anterior legs, tubercles, and plates black; the dorsal plate divided by a line of the ground-colour. E. M. M. viii. 154.

Platyptilia gonodactyla, *Schiff.*

trigonodactyla, Haw.

(Plate 16. fig. 6.)

Loc. West and South-west of Scotland, Perthshire, Sidmouth, Bishops Wood, Cawston, Walton-on-the-Naze, Clacton-on-Sea, Hastings, Brandon, Bramham, Flamborough Head, Goole, Cheshire, Southend, Gravesend, Howth, Pembroke.

This species is found amongst coltsfoot in June and August.

The larva occurs in April and May in the flower-heads of coltsfoot (*Tussilago farfara*); the second brood of larvæ probably feed on the underside of the leaves in June and July.

The ground-colour of the larva is whitish; dorsal and subdorsal stripes rosy brown; head and dorsal plate shining black; a few black tubercles, each bearing a black hair, are scattered over the dorsal and subdorsal

areas, also a row of black warts along the spiracular line. Ent. xv. 33.

Platyptilia Zetterstedti, *Zell.*

(Plate 16. fig. 7.)

Loc. Folkestone, Lynmouth (North Devon).

Occurs in June and July.

The larva probably feeds in the stems of *Solidago virgaurea.*

This species is distinguished from *gonodactyla* by its more slender appearance, by the broken dash of dark brown colour along the inner margin of the fore wing, and the broad pale posterior edging of the costal triangle.

Var. **tæniadactylus**, *South.* (Plate 16. fig. 8.)

This variety occurs in June and July at Lynmouth (North Devon); it flies at dusk; differs from the type by the narrower wings, the darker brown digital fascia, and the black cilia. Ent. xv. 34.

Amblyptilia acanthodactyla, *Hb.*

calodactyla, Fb., St., Haw.

(Plate 16. fig. 9.)

Loc. South and South-west of Scotland, Perthshire, Dunoon, Devon, Exeter, Huddersfield, Richmond, Scarborough, York, Norwich, Aldeby, Cawston, Cromer, Bidston, Tranmere, Colchester, Hastings, Pembroke, Dover, Folkestone.

Widely distributed in June; easily disturbed by day.

The larva feeds in autumn and May on rest-harrow (*Ononis*), hedge-woundwort (*Stachys sylvatica*), wild basil (*Calamintha clinopodium*), *Mentha*, &c. It pupates suspended from the stem of its food-plant.

The larva is pale green, with two white dorsal and one lateral stripe, plentifully covered with hairs and bristles; head yellowish; mouth darker. Dr. Hofmann.

The following is a description of a larva bred by Mr. South at Ventnor on *Stachys sylvatica*, feeding on the flowers and unripe seeds; they produced in September an intermediate form between *acanthodactyla* and *cosmodactyla*, which Mr. South considers to be identical with the Plume bred by Prof. Frey from the same plant and named by him *cosmodactyla*, var. *stachydalis*.

Description of larva referred to above:—Head pale olive-green; crown and cheeks freckled with blackish; mandibles reddish brown. Ground-colour darkish green; alimentary canal darker. Dorsal tubercles four on each segment, from each of which two bristles of unequal length are emitted; subdorsal, two warts on each segment, the anterior with two and the posterior with one whitish hair; spiracular, one dark green wart with two whitish hairs on each segment; there are minute blackish bristles scattered over the entire dorsal and ventral areas; dorsal and subdorsal warts seated on linear patches of a yellowish colour; prolegs blackish; anal claspers semitransparent, with greenish tinge.

Pupa attached by the tail to stem of food-plant, generally near the flower-whorl; it is at first of a greenish colour, but changes to an obscure reddish brown; the leg-cases are detached from the abdomen; head truncate; two conspicuous points on back. R. S.

Amblyptilia cosmodactyla, *Hb.*

punctidactylus, Haw.

(Plate 16. fig. 10.)

Loc. Dunoon, Rothshire, Braemar, Perthshire, Exeter, Lynmouth, Dorsetshire, Cardiganshire, Killarney.

Occurs in July and October.

The larva feeds in June and July on the seeds of columbine (*Aquilegia vulgaris*), meadow cranesbill (*Geranium pratense*), *Stachys sylvatica*, &c.

The larva is dirty green, with a dark green dorsal line, and two interrupted white lateral stripes; tubercles small; head light brown, with darker spots; prolegs black; abdominal legs of the ground-colour. Frey.

In the E. M. M. vol. xxii. p. 149, Mr. Porritt gives two descriptions of larvæ which he reared on *Stachys sylvatica*, and which produced both *acanthodactyla* and *cosmodactyla*; he was unfortunately unable to discover which form of larvæ produced *acanthodactyla* and which *cosmodactyla*; but considering that Mr. Porritt observed larvæ intermediate between the two forms which he described, and that Mr. South bred the intermediate forms of the perfect insects, one would conclude that *acanthodactyla* and *cosmodactyla* are forms of the same species.

Oxyptilus distans, *Zell.*

lætus, D. L.

(Plate 16. fig. 11.)

Loc. Norfolk, Folkestone, Merton, Thetford, Brandon.

Occurs in July and August.

Var. **lætus**, *Zell.* (Plate 16. fig. 12.)

The insect known in this country as *lætus*, Zell., is a pale variety of *distans*.

The larva is bone-coloured, hairy, with a small blackish head and divided dorsal plate; feeds in July on the flower of *Andryala sinuata*. Mill.

Oxyptilus pilosellæ, *Zell.*

didactyla, Zett.

(Plate 17. fig. 1.)

Loc. Mickleham (Surrey), Belfast.

Occurs in July and August.

Hieracii is said to be darker and with more distinct markings than *pilosellæ*; but neither in British nor foreign specimens is there any sufficiently distinguishable character by which to separate them. The descriptions of the larvæ and their food-plant are almost identical.

The larva feeds on *Hieracium pilosellæ* and *umbellatum*, generally in a company. The ground-colour of the larva is dirty yellow or greenish, covered with knobbed bristles and long white hairs; on the back of the abdominal segments is a double row of red or brown longitudinal marks; head honey-yellow. Frey.

Oxyptilus Teucrii, *Greening.*

(Plate 17. fig. 2.)

Loc. Yarmouth, Brandon, Box Hill, Folkestone, Warrington, Tilgate Forest.

Local, but plentiful where it occurs; it flies over wood-sage in the sunshine in July.

This species is larger than *pilosellæ*; it can be recognized by the broad fascia-like markings of the fore wings, and the larger patch of black on the inner digit of the hind wing.

The larva feeds in May and June on *Teucrium scorodonia* (wood-sage).

The ground-colour of the larva is green or yellowish green; head yellowish green, with dark brown markings; dorsal line faint pink; subdorsal line broader, pale rosy; tubercles brown, bearing short white bristles; spiracles ringed with violet-brown; legs yellowish green, mottled with violet-brown. Ent. xvi. 73.

E. M. M. iv. 16, 39, & viii. 155.

Oxyptilus parvidactylus, *Haw.*

microdactylus, St.

(Plate 17. fig. 3.)

Loc. Ventnor, Box Hill, Folkestone.

Occurs in May and June, flying in the sun on chalk downs.

This species differs from any other in its smaller size and darker colour.

The larva feeds in April in the young leaves of *Stachys alpina*; in autumn in the heads of *Marrubium*.

The ground-colour of the larva is dirty pale green; on each segment are four black warts, bearing a star-shaped tuft of bristles; head and dorsal plate black; the latter divided by a pale line. Frey.

Mimæseoptilus phæodactylus, *Hb.*

lunædactylus, Haw.

(Plate 17. fig. 4.)

Loc. Exmouth, Teignmouth, Epsom, Leatherhead, Mickleham, Box Hill, Folkestone, Maidstone, Caterham Valley, Croydon, Dover.

This species occurs in July; it flies about dusk, but is easily disturbed by day.

The larva feeds in June and July on *Ononis spinosa* and *repens*, eating the terminal leaves.

The ground-colour of the larva is green; segmental divisions paler; dorsal line bluish green; head whitish green, marked with black; tubercles black, with a tuft of short white bristles and a long grey hair; legs semi-transparent, dotted with grey. Ent. xvi. 75.

Mimæseoptilus bipunctidactyla, *Haw.*

serotinus, Zell.

(Plate 17. fig. 5.)

Loc. Glasgow, Possil Marsh, Milngavie, Devon, Bramham, Grassington, Redcar, Sheffield, Norwich, Merton, Cawston, Ranworth, Wallasey, Brandon, Folkestone, Dover, Howth, Belfast, Pembroke.

Generally distributed in July and August.

Var. aridus, of British collections, is a pale ochreous form of *bipunctidactyla*.

The larva feeds in May and September upon the terminal leaves of *Scabiosa arvensis* and *Galium mollugo*.

The ground-colour of the larva is green, with white hairs; dorsal stripe wide, purplish; head yellowish green, marked with black; mouth brown; anterior legs black. Frey.

Note.—This description of the larva seems to agree with the larva of *plagiodactylus*, which is only a variety of *bipunctidactyla*. Ent. xviii. 98.

Mimæseoptilus zophodactylus, *Dup.*

loewii, Zell.

(Plate 17. fig. 6.)

Loc. Bramham, Sandburn, Norwich, Merton, Ness, Burton, Hitchin, Lancashire, Isle of Wight, Tilgate Forest, Saffron Walden, Pembroke.

Occurs in August, probably also in June. *Hodgkinsoni*, Greg., is only a slight variety of this species.

The larva feeds from July to September in the green seed-capsules of *Erythræa centaureum*, which it hollows out, living well concealed in the interior; it leaves the plant in September to pupate.

The ground-colour of the larva is yellowish green; dorsal and subdorsal stripes dark; segmental divisions deeply cut; head dusky, with two black spots; larva covered with light brown hairs. A. Schmid.

The following note was kindly sent me by Mr. South; it seems to apply to this larva:—

"In September 1881, I had a Plume-larva sent me from Sussex; it was feeding in the flowers of *Erythræa centaureum*, but I failed to rear the imago.

"Length 5 lines, tapering towards anal extremity; head shining yellowish green, smaller than second seg-

ment. Ground-colour yellowish green, with a *broadish violet* dorsal stripe from the third to thirteenth segments inclusive; numerous short pale grey hairs arranged in four lines along the dorsal and lateral areas, but no perceptible warts. Spiracles dark brown." R. S.

Mimæseoptilus pterodactylus, *L.*

fuscus, Retz.

(Plate 17. fig. 7.)

Loc. Glasgow, Perthshire, Ayrshire, Ardrossan, Exeter, Boroughbridge, Bramham, Doncaster, York, Norwich, Merton, Cawston, St. Faith's, Wallasey, Colchester, Hastings, Suffolk, Folkestone, Southend, Pembroke, Howth.

This widely distributed species occurs in July and September.

The cinnamon-brown colour and somewhat larger size sufficiently distinguish this species from *bipunctidactyla*; and from similar coloured forms of *monodactylus*, its smaller size and narrower wings at once separate it.

The ground-colour of the larva is green; the segmental divisions yellowish green; head whitish green, spotted with blackish; mandibles brown; dorsal line dark olive-green; subdorsal and spiracular lines whitish; tubercles whitish, with tufts of hair; legs semitransparent light green; the prolegs spotted with brown; the abdominal legs tipped with black.

The larva feeds on the flowers of *Veronica chamædrys* and, according to Schmid, on *Convolvulus arvensis*.

Œdematophorus lithodactylus, *Tr.*

septodactyla, Tr.

(Plate 17. fig. 8.)

Loc. Flamborough Head, Redcar, Scarborough, Hunstanton, Colchester, Hastings, Suffolk, Gravesend, Southend, Deal, Pembroke, Galway.

Occurs in July and August; it is rather sluggish by day.

This species can at once be distinguished from *monodactylus* by the costal spur.

The larva feeds in June on the leaves of *Inula dysenterica* (fleabane) and *Conyza squamosa*.

The ground-colour of the larva is yellowish green; head pale brown; mandibles and freckles reddish brown, and a black spot on each cheek; dorsal stripe pinkish, approaching violet towards the edges and bordered with whitish, divided by a yellow line; tubercles pinkish, bearing pale hairs; legs semitransparent greenish.

Ent. xv. 104.

Pterophorus monodactylus, *L.*

pterodactyla, Hb., Haw., D. L.

(Plate 17. fig. 9.)

Loc. Doncaster, Huddersfield, Marsden Moor, Kent, Pembroke.

Generally distributed in July, and from September to April; often found at rest on palings.

The larva is found from June to September on various species of *Convolvulus*, feeding on both leaves

and flowers; it pupates attached by the tail to its food-plant. There are probably two or more broods in the course of the year.

The ground-colour of the larva is dingy green, streaked and spotted with whitish, and slightly suffused with reddish brown; head pale brown; mandibles brown; on each cheek is a black spot; dorsal stripe dark green or reddish brown, dilated on the crest of each segment; tubercles paler than the ground-colour, with tufts of pale brown hairs; legs pale greenish brown.

Ent. xv. 278.

Ent. xviii. 277.

This species may be recognized by the brush-like tufts of appressed scales on the upperside of the hind feet. Pter. of California, p. 40.

Leioptilus lienigianus, *Zell.*

melinodactylus, H.-S.

(Plate 17. fig. 10.)

Loc. Norwich, Ringland, Horning, Colchester, Ipswich, Deal, Ventnor, Dover.

Occurs in July amongst its food-plant.

The larva feeds on the terminal leaves of *Artemisia vulgaris* in May and June; the pupa is attached anally to the underside of a leaf of its food-plant.

The ground-colour of the larva is pale green; dorsal line darker, divided by a pale line; subdorsal line yellowish, interrupted at the segmental divisions; head shining greenish brown, marked with darker brown; tubercles whitish, crowned with white hairs; legs paler than the ground-colour, with dark brown markings.

Ent. xv. 105.

E. M. M. viii. 157.

Leioptilus tephradactylus, *Hb.*

(Plate 17. fig. 11.)

Loc. Huddersfield, Scarborough, Sheffield, Hastings, Folkestone, Lynmouth, Lake-district, Witherslack.

This species occurs in shady places in woods during July.

It can be separated from *lienigianus* by the absence of costal spots and its smaller size.

The larva feeds in May and June on the golden rod (*Solidago virgaurea*)—when young mining the stems, afterwards eating holes in the leaves; it pupates suspended by the tail from its food-plant.

The ground-colour of the larva is yellowish green; head shining, pale yellowish brown, with reddish-brown mandibles and a black spot on each cheek; dorsal stripe whitish, darker towards the centre; subdorsal line interrupted, yellowish; tubercles whitish, with tufts of pale hairs; legs yellowish green. Ent. xv. 106.

Leioptilus osteodactylus, *Zell.*

microdactylus, Zett.

(Plate 17. fig. 12.)

Loc. Devon, Huddersfield, Scarborough, Sheffield, Tenby, Hastings, Folkestone, Lynmouth, Lake-district, Plymouth, North Wales.

Occurs in July; may be taken at flowers of the wood-sage at dusk.

Mr. South has kindly sent me the following description of a larva which he takes to be *osteodactylus*:—

Larva in seed-heads of golden rod (*Solidago virgaurea*) in October. Length 4–5 lines, plump, tapering towards each end. Head smaller than second segment, light brown; with reddish-brown mandibles, and a black spot on each cheek.

Ground-colour whity brown with greenish tinge, and thickly dotted with minute black dots; dorsal stripe and subdorsal line pale rosy pink; tubercles inconspicuous, hardly raised above the surface of the skin, dorsal two rows (two on each segment) each emit a single brownish hair of moderate length. These hairs on the third, fourth, and fifth segments curve forwards, those of other segments backwards; lateral series consist of one wart on each segment with a moderately long hair; spiracles black; prolegs pale brown. R. S.

Leioptilus microdactylus, *Hb.*

(Plate 18. fig. 1.)

Loc. Scotland (S.E.), Scarborough, Ranworth, Merton, Hastings, Folkestone, Cambridge, Pembroke.

In May and June amongst its food-plant.

The larva feeds on hemp-agrimony (*Eupatorium cannabinum*), mining the flower-stem, in which it hybernates, pupating in the cavity the following spring.

The ground-colour of the larva is yellowish white; a series of quadrate dark brown markings forms the dorsal stripe, another row of black dots occurs along the spiracular region; head pale brown, with darker freckles and mandibles, also a black spot on each cheek; prolegs tipped with brown, and the upper portion of the anal claspers spotted with black. Ent. xv. 102.

E. M. M. xii. 234.

This species is not unlike *osteodactylus*, but is much smaller, and has always one, sometimes two, black spots on the costa.

Leioptilus brachydactylus, *Tr.*

ætodactylus, Dup.

(Plate 18. fig. 2.)

Loc. Glen Tilt (Perthshire), Norfolk, Westmoreland, Folkestone, Deal.

This extremely rare species has been taken in July.

The larva feeds on the undersides of the leaves of *Prenanthes purpurea*, also on *Lactuca muralis*, in May and June.

The ground-colour of the larva is pale dirty green; dorsal stripe darker, on each side of which is a row of tubercles bearing dark bristles, followed by another row bearing one dark bristle and a few small white hairs; a third row occurs lower down, crowned with white bristles. Frey.

Aciptilia galactodactyla, *Hb.*

(Plate 18. fig. 3.)

Loc. Devon, Norwich, Spirham, Colchester, Ipswich, St. Osyth, Hastings, Folkestone, Chattenden, Wicklow.

This species occurs amongst burdock, about the borders of woods, in July.

The larvæ feed in a company on the undersides of the leaves of burdock (*Arctium lappa*).

The ground-colour of the larva is pale green, segmental divisions paler; the broad dorsal stripe is whitish, bisected by a fine line of the ground-colour;

the head is whitish green, with light brown mandibles and a black spot on each cheek; tubercles crowned with pale hairs. Ent. xv. 147.

Aciptilia spilodactyla, *Curt.*

obsoletus, Zell.

(Plate 18. fig. 4.)

Loc. Lundy Island, Freshwater, Ventnor, Brandon.

Occurs amongst its food-plant in July and August.

The larva feeds on the leaves of the white horehound (*Marrubium vulgare*) in June and July, it also eats the garden variety; pupates attached by the tail to the upper surface of a leaf of its food-plant.

The ground-colour of the larva is green, sprinkled with minute black dots; tubercles whitish, with star-like tufts of white hairs; legs semitransparent green, tipped with brown. Ent. xvi. 28.

Aciptilia baliodactyla, *Zell.*

tridactylus, St.

(Plate 18. fig. 5.)

Loc. Folkestone, Dover, Bristol, Ventnor, Box Hill, Caxton.

This species occurs in July and August.

The larva feeds in June on *Origanum vulgare* (marjoram), eating the terminal leaves; it pupates attached by the tail to its food-plant.

The ground-colour of the larva is dingy green; segmental divisions and dorsal line yellowish green; head yellowish green, with brown mandibles and black cheek-spots; tubercles whitish, with tufts of white hairs; legs transparent yellowish green. Ent. xvi. 26.

Aciptilia tetradactyla, *L.*

leucodactyla, IIb.

(Plate 18. fig. 6.)

Loc. Renfrewshire, Doncaster, Richmond (York.), Scarborough, Galway, Dover, Folkestone.

This species flies at dusk in July and August; it can be easily distinguished from *baliodactyla* by the dark fringes and costal margin.

The larva feeds in May and June on *Thymus serpyllum*, *Pulmonaria officinalis*, *Origanum*, &c.

The larva is light green, covered with white hair, th blackish markings and spots on each segment; spiracular stripe yellow; head yellowish brown. Treit.

Aciptilia pentadactyla, *L.*

tridactyla, Scop.

(Plate 18. fig. 7.)

Loc. Devon, Bramham, Wakefield, Goole, York, Norfolk, Wallasey, Tranmere, Ness, Burton, Hastings, Suffolk, Pembroke, Wicklow, Cork.

This species, which is generally distributed, flies at dusk in June and July.

The larva feeds in May and June on convolvulus (*Calystegia sepium*), eating both leaves and flowers. It pupates attached by the tail to a leaf or stem of its food-plant.

The ground-colour of the larva is green; the dorsal area margined by narrow white lines commencing at the third segment and terminating at the end of each

succeeding segment in a triangular yellow spot; on the ninth segment these spots coalesce, forming a yellow blotch; head shining yellow; face pale greenish; mandibles pale brown; cheek-spots dark brown; the dorsal and subdorsal tubercles are black, the remainder are of the ground-colour, bearing tufts of hairs; legs semitransparent, tipped with brown. Ent. xvi. 27.

Aciptilia paludum, *Zell.*

(Plate 18. fig. 8.)

Loc. Cambridge fens.

Occurs in June. Flies at dusk.

ALUCITIDÆ.

Alucita hexadactyla, *L.*

polydactyla, Hb.

(Plate 18. fig. 9.)

Loc. Scotland (widely distributed), Glasgow, Dunoon, Bothwell, Devon, Bramham, Doncaster, Huddersfield, Sheffield, Scarborough, Lundy Island, Norwich, Merton, Lynn, Cheshire, Colchester, Hastings, Blarney, Wicklow, Pembroke.

This species occurs from July to April, hybernating in outhouses &c.

The larva feeds on the flowers of the honeysuckle in June. It leaves the food-plant when full-fed and pupates in the ground.

The ground-colour of the larva is reddish pink, be-

coming paler when nearly full-fed; dorsal and anal plates somewhat shining; head pale pinkish brown, spotted with darker brown; mandibles dark brown; a few short bristles are scattered over the body. Ent. xvi. 74.

CHILIDÆ.

Chilo cicatricellus, *Hb.*

strigellus, Tr.

(Plate 7. fig. 3.)

Loc. Dover.

Extremely rare in July.

The larva is dirty white, rather reddish above. The interrupted dorsal lines are blood-red; head and dorsal plate yellow; anterior legs white, tipped with brown hooks. It feeds during May and June in the lower parts of *Scirpus lacustris*. Tr.

Chilo phragmitellus, *Hb.*

gigantellus, St.

(Plate 7. fig. 5, ♂ ♀.)

Loc. Perth ?, Bidston Marsh, Askham Bog, Norwich, Merton, Cawston, Barton Turf, Ketteringham, Hastings, Suffolk, Southend, Plumstead, Folkestone, Cambridge and Norfolk fens.

Frequents marshes in June and July.

The larva feeds in the stem of *Arundo phragmites* just below the surface of the ground.

The colour of the back is pinkish grey or light brown,

the sides flesh-colour, and the belly white; dorsal line narrow, darker than the back; subdorsal stripes paler; head yellowish brown; plates on the second and anal segments pinkish brown; tubercles and spiracles black. Lives through the winter, pupating in spring.

E. M. M. vi. 188.
Ent. xvi. 64.

Schœnobius forficellus, *Thnb.*

(Plate 7. fig. 6, ♂ ♀.)

Loc. St. Davids, Redland, Brockley, Stapleton, Bidston Marsh, Foxton, Little Neston, Burton, Chester, Askham Bog, Huddersfield, Norwich, Aldeby, Brandon, Horning, Tenby, Hastings, Gravesend, Folkestone, Deal, Killarney.

Common in marshes in June and July.

The larva is greyish green, with darker dorsal stripes; head black; a black spot on the dorsal plate. It feeds in May and June in the young stems of *Arundo*, *Carex*, and *Poa spectabilis*. In *Carex* it rolls the leaves together; in *Poa* it feeds in the thin parts of the stems of the former year, which it bites up and uses for a case. It pupates in a cocoon. Zk., Tr.

Schœnobius mucronellus, *Schiff.*

straminella, Hb.

(Plate 7. fig. 7, ♂ ♀.)

Loc. Kirkcudbright, Norwich, Cawston, Barton Turf, Ranworth, Beeily, Braemar, Wicken, Galway.

Flies feebly at dusk in marshes and damp situations. It is double-brooded, the first brood appearing in June and July, the second in August.

The larva is undescribed, but stated to feed, like the preceding species, in stems of *Arundo phragmites*.

Schœnobius gigantellus, *Schiff.*

gigantalis, Hb.

(Plate 7. fig. 8, ♂ ♀.)

Loc. Diss, Barton Turf, Horning, Ranworth, Southend, Folkestone.

Occurs in marshy situations in July.

The larva is loamy yellow, with shining grey transverse wrinkles; head and dorsal plate shining yellowish brown. In captivity the colouring often becomes olive-green.

It lives in May and June in the young stems of *Arundo phragmites*, which often break and wither away in the parts under water. Pupates in a cocoon.

Tr., Zk.

CRAMBIDÆ.

Calamotropha paludella, *Hb.*

obtusellus, Sta.

(Plate 7. fig. 4.)

Loc. Ranworth, Horning.

Occurs in moist situations in July.

The larva is shining, with a dark dorsal line caused by the alimentary canal showing through, and dark

spots on the sides of the first segments; head small and brown.

It feeds in June and July in the strong outer leaves of *Typha latifolia*, eating its way between the cells of the leaves down to the roots. It pupates in this cavity.

Platytes cerussellus, *Schiff.*

pygmæus, St., Curt.

(Plate 8. fig. 1, ♂ ♀.)

Loc. Merton, Brandon, Wootton, Hastings, Suffolk, Plymouth, Gravesend, Southend, Deal, Isle of Wight, Worthing, Portland.

Frequents fields in June and July.

The larva feeds amongst the roots of a short stiff species of grass. The skin is glossy, but variable in colour, being usually flesh-colour, greyish brown, or olive-green; the head is also variable in colour, usually yellowish brown with darker markings; plates on second and anal segments darker. E. M. M. xxi. 86.

Crambus alpinellus, *Hb.*

(Plate 8. fig. 2.)

Loc. Yarmouth, Deal sandhills, Southsea.

This species frequents sandy places in fir-woods, also coast sandhills in July and August. It is not an alpine insect as its name would imply. It occurs regularly every season, but sparingly.

Crambus falsellus, *Schiff.*

abruptella, Thnb.

(Plate 8. fig. 3.)

Loc. Perth, Edinburgh, Fifeshire, Aberdeen, Plymouth, Stapleton, Ness, Brandon, Cawston, Ranworth, Hastings, Suffolk, Southend, Haslemere, Lewes, Dover, Brighton.

Occurs in July and August.

The larva lives in silken tubular galleries in thick moss (*Barbula muralis* and *Anœctangium ciliatum*) which grows on rocks, walls, &c. It pupates in its gallery.

The larva is pale grey and wrinkled, with small dark grey tubercles clothed with fine hair, situated on shining, pale grey, oval spots; the head is shining brown, paler at its hind margin; dorsal plate yellowish grey, sometimes brownish, and shining; anal plate polished, of a darker shade of the ground-colour; spiracles small and black; legs and abdominal surface paler than the back. Tr.

Crambus verellus, *Zinck.*

(Plate 8. fig. 4.)

Loc. Folkestone, Cambridge.

Occurs in July and August.

It differs from *falsellus* in the absence of a white streak below the costa and its general darker appearance.

The larva, according to A. Schmid, feeds in moss on old fruit-trees.

Crambus pratellus, *L.*

pratorum, Fb.

(Plate 8. fig. 5.)

Loc. Scotland (common), Shetland, Outer Hebrides, Rugby, Plymouth, Devon, Bristol, Chester, Yorkshire, Norfolk, Pembroke, Carmarthen, Ireland, Hastings, Suffolk, Deal, Folkestone, Southend.

A very common species from May to August.

The males are paler than the females. It can be distinguished from other species by the narrow dull white subcostal and central streaks.

Var. **alfacarellus.** In this variety the fore wings are rather broader, the second line is less angulated, and the ground-colour is white.

The larva feeds amongst roots of grass (*Aira flexuosa*) in silken galleries. The ground-colour is dingy brown; head brown marked with darker; tubercles dark olive-brown; anterior legs black; spiracles black; plates on the second and anal segments polished. The tubercles give the skin a rough and uneven appearance.

The larva hybernates, and pupates in spring in a slight cocoon among the roots of grass.

E. M. M. xxi. 62.

Crambus dumetellus, *Hb.*

pratella, Hb.

(Plate 8. fig. 6.)

Loc. Scotland (east), Bristol, Wallasey sandhills, York, Blubberhouses, Hastings, Pembroke, Box Hill.

Occurs during June and July on dry hill-slopes.

The distinguishing features of this species are the short costal streak, the long fore wings, and the white central streak.

The females of this species have yellower fore wings and darker hind wings than the males.

Crambus ericellus, *Hb.*

(Plate 8. fig. 7.)

Loc. Perthshire, Sutherlandshire, Inverness-shire (common at Invergarry), Ross, Rannoch, Spean Bridge.

This species occurs during July on moors at an elevation of about a thousand feet above the sea. It can be easily distinguished by its dark colouring, the pure white central streak, and the narrow dirty yellowish-white streak along the inner margin of the fore wings.

Crambus sylvellus, *Hb.*

adipellus, Tr.

(Plate 8. fig. 8.)

Loc. Horning, Ranworth, Killarney.

Occurs in bogs and marshy meadows from June to August.

Distinguishing character : the white spot which follows the central streak is continuous to the hind margin.

The females are larger and have much darker hind wings than the males.

Crambus hamellus, *Thnb.*

ensigerella, Hb.

(Plate 8. fig. 9.)

Loc. Exmouth, Chester, Scarborough, Haslemere, Weybridge, New Forest, Canterbury, Killarney.

Frequents sandy situations and heaths in July and August.

Distinguishing character: the continuous white central streak, toothed at its lower margin.

Crambus pascuellus, *L.*

(Plate 8. fig. 10.)

Loc. Scotland (local), Rugby, Plymouth, Exeter, Bristol, Bidston Marsh, Claughton, Ness, Burton, Bramham, Redcar, Sheffield, Lundy Island, Norfolk, Hastings, Deal, Southend, Suffolk, Pembroke, Ireland.

Frequents damp meadows, woods, and moors in June and July.

Distinguished by the pale head and thorax bordered on each side with brown, the broad white central streak, and the produced tip of the fore wing.

Crambus uliginosellus, *Zell.*

(Plate 8. fig. 11.)

Loc. Devon, Bristol, Norwich, Ranworth, Horning, St. Faith's, Lyndhurst, Deal, Dartford.

Occurs in damp meadows in June and July.

Distinguished by the white hind wings, and the broad white central streak, which is often divided.

Crambus furcatellus, *Zett.*

radiellus, Curt.

(Plate 8. fig. 12.)

Loc. Perthshire, Aberdeenshire, Inverness-shire, Lake-district, Wales, Ross-shire, Invergarry, Rannoch, Killin, on Helvellyn and Scawfel.

Frequents grassy mountain-slopes in July and August.

The larva is pale whitish yellow; head ashy grey. It feeds under the club-moss, which grows plentifully wherever *furcatellus* occurs. E. M. M. xx. 189.

Crambus margaritellus, *Hb.*

(Plate 8. fig. 13.)

Loc. Scotland (widely distributed), Invergarry, Outer Hebrides, Bishopton Moss, Exmouth, Salterton, Thorne Waste, Lowestoft, Deal, Galway.

Occurs in woods during June, July, and the beginning of August.

This species differs from *furcatellus* in its larger size and much broader central streak.

Var. **anglicanus** has much paler fore wings.

Crambus pinellus, *L.*

pinetella, L., D. L.

(Plate 9. fig. 1.)

Loc. Scotland (widely distributed, but not common), Dumbarton, Strathglas, Dunkeld, Plymouth, Possil, Cadder, Exeter, Bristol, Colwyn, Sheffield, Doncaster, Norwich, Surlingham, Headley, Beccles, Merton, Hastings, Suffolk, Bournemouth, New Forest, Epping, Croydon, Blean Woods, Folkestone, Pembroke, Killarney, Galway.

Occurs in July and August; but does not fly so readily in the daytime as many species of *Crambus*. It is best sought for at night, with a lantern, in situations where it is known to occur.

The larva feeds in a silken web amongst the tufts of grass on which it feeds, viz. *Eriophorum vaginatum*, *Aira cæspitosa*, &c. After hybernation it pupates in a cocoon amongst its food.

The larva is reddish slate-colour; the head, plates on the second and anal segments, tubercles, and spiracles are shining black. E. M. M. x. 163.

Crambus myellus, *Hb.*

conchellus, Tr.

(Plate 9. fig. 2.)

Loc. Glen Tilt (Perthshire), Braemar, Aberdeenshire, Rannoch.

This species is found in June and July, and has probably the same habits as *pinellus*. It is distin-

guished from that species by the central streak being twice divided, and by its deeper colouring.

The larva feeds in silken galleries under moss on stones, in which galleries it hybernates, pupating the following May.

The ground-colour of the larva is earthy brown; head dark brown; plate on the second segment dark brown, traversed by a pale line; tubercles black-brown, situated on raised spots of the ground-colour; spiracles black; anal plate the same colour as the back, but shining. Treit.

Crambus latistrius, *Haw.*

leachellus, Zinck.

(Plate 9. fig. 3.)

Loc. Teignmouth, Exeter, Norwich, Cawston, Yarmouth, Brandon, Blean Woods, Folkestone, Haslemere, Canterbury, Weybridge, New Forest.

Occurs on damp heaths and coast sandhills in July and August.

This species cannot possibly be confounded with any other.

Crambus perlellus, *Scop.*

dealbella, Thnb.

(Plate 9. fig. 4.)

Loc. Scotland (widely distributed), Rugby, Plymouth, Exeter, Bristol, Bromborough, Puddington, Windsor, Ince, Askham Bog, Richmond (York.), Thorne Waste,

Isle of Man, Norfolk, Hastings, Suffolk, Folkestone, Deal, Southend, Pembroke, Ireland.

Occurs in fields from May to August.

Var. warringtonellus (Plate 9. fig. 5) is a local variety of *perlellus*, all the intermediate stages occurring.

The larva feeds in perpendicular tubular galleries on *Aira flexuosa* and other hard grasses. It hybernates and pupates the following spring in a cocoon half sunk in the earth.

The ground-colour of the larva is dirty greyish green, paler on the belly. The head and plate on the second segment are light brown marked with darker; spots dark brown, lighter on the sides than the back; spiracles black. E. M. M. xviii. 129.

Crambus selasellus, *Hb.*, *St.*

obtusellus, St.

(Plate 9. fig. 6.)

Loc. Bristol, Cheshire, Puddington, Askham Bog, Scarborough, Norwich, Surlingham, Gillingham, Cawston, Ranworth, Horning, Hastings, Suffolk, Canvey Island, Pembroke, Belfast.

Common in damp meadows in July and August.

This species can easily be distinguished from *tristellus* by its broader and shorter fore wings, its ochreous colour, and the absence of the hind line.

The larva feeds upon *Poa maritima* and other coarse grasses, inhabiting a green frass-covered gallery, in which it finally pupates, first spinning up the end.

The larva is brown, becoming paler towards the belly;

head black; plate on the second segment blackish brown traversed by a paler line; spots large, shining dark brown, becoming paler towards the belly; anal plate light brown; spiracles black. E. M. M. xvi. 41.

Crambus tristellus, *Fb.*

ferruginella, Thnb.

(Plate 9. fig. 7.)

Loc. Scotland (abundant), Plymouth, Devon, Bristol, Chester, Yorkshire, Norfolk, Hastings, Suffolk, Folkestone, Deal, Pembroke, Carmarthen, Glamorgan, Ireland.

This very common species occurs nearly everywhere in July and August. It is extremely variable in colour.

The larva feeds on *Aira flexuosa* and other grasses in a vertical silken tube; pupates amongst the roots after hybernating.

The larva is light brown; the head, plates, spots, and spiracles are glossy black. E. M. M. xiii. 14.

Crambus fascelinellus, *Hb.*

aridellus, Zell.

(Plate 9. fig. 8.)

Loc. Yarmouth (coast sandhills and also inland).

This species occurs in July on sandhills, and is extremely sluggish.

The larva, which feeds on *Triticum junceum*, lives in a silken gallery under the sand, pupating in a cocoon amongst the roots of grass.

The larva is shining pearly grey; the fore part of each segment broadly banded with darker grey; head shining dark brown; plate on the second segment shining brown, traversed by a pale line, and margined at the back with darker brown; tubercles blackish brown; dots and spiracles black; anal plate brown; legs and ventral surface paler than the dorsal area.

E. M. M. vii. 160.

Crambus inquinatellus, *Schiff.*

arbustella, Schrk.

(Plate 9. fig. 9.)

Loc. Scotland (S.W.), Perthshire, Plymouth, Bristol, Scarborough, Sandburn, York, Norfolk, Saundersfoot, Hastings, Suffolk, Folkestone.

Frequents dry fields and heaths in July and August. It can be distinguished from *fascelinellus* by its smaller size and narrower fore wings. It is extremely variable in colour and markings.

The larva feeds on the surface of the ground in silken galleries, upon various species of grass. The ground-colour is purplish brown or greyish green; head dark brown; plate on the second segment paler; dorsal line dark; tubercles large and darker than the ground-colour; spiracles black. E. M. M. xx. 155.

Crambus contaminellus, *Hb.*

inquinatella, Hb.

(Plate 9. fig. 10.)

Loc. Plymouth, Exeter, Sea Mills (Bristol), Dee

Marsh, Puddington, Denhall, Milford Haven, Hastings, Sheerness, Tilgate Forest, Southend, Gravesend, Deal.

Frequents dry fields and salt marshes in July and August.

Distinguished by its dull colour, narrow fore wings, and few markings.

The larva feeds on *Poa maritima* and other grasses, in a silken gallery under stones, surrounded by its food.

The colour of the larva is light earthy grey; dorsal line darker; head greyish brown, marked with darker, also the plate on the second segment, both glossy; spots light brown and glossy; spiracles black; a few dark dots are scattered over the shining anal plate; legs tipped with brown hooks. E. M. M. xv. 38.

Crambus geniculeus, *Haw.*

inquinatellus, St.

(Plate 9. fig. 11.)

Loc. Scotland?, Plymouth, Devon, Bristol, Wallasey, Christleton, Colwyn, Redcar, Norwich, Brandon, Cawston, Horning, Hastings, Suffolk, Folkestone, Pembroke, Dublin (coast).

Occurs in July and August.

Distinguished by its small size and the acutely angled transverse lines.

The larva lives on grasses in a silken tube on the surface of the ground. It pupates in a cocoon.

The ground-colour of the body is reddish grey, darker on the thoracic segments, paler towards the belly; head shining black, with paler markings; dorsal plate shining

black, traversed by a grey line; dorsal line dark brown; tubercles dark brown and glossy; anal plate brown; spiracles black. E. M. M. xv. 206.

Crambus culmellus, *L.*

strigella, Fb.

(Plate 9. fig. 12.)

Loc. Scotland (abundant), Shetland, Hebrides, Rugby, Plymouth, Devon, Bristol, Chester, Yorkshire, Norfolk, Suffolk, Hastings, Deal, Folkestone, Glamorgan, Carmarthen, Pembroke, Ireland.

Occurs everywhere in fields from June to August.

The larva lives in upright silken tubes among the tufts of grass on which it feeds (*Festuca duriuscula* &c.) and forms a cocoon in its tube for pupation.

The ground-colour of the larva is pale flesh-colour; the head, plates, and spots are of a light glossy cinnamon; the spots are less conspicuous than in most of the genus; each tubercular spot bears two dark brown dots furnished with hairs; spiracles black.

E. M. M. xvii. 91.

Crambus chrysonuchellus, *Scop.*

campella, Hb.

(Plate 9. fig. 13.)

Loc. Clifton, Henbury, Merton, Thetford, Brandon, Deal, Box Hill.

Occurs in May and June. Fairly common in the south of England.

The larva feeds in a tubular gallery amongst the roots of *Festuca ovina*, pupating the following spring in its gallery.

The ground-colour of the larva is earthy brown; tubercles darker, each bearing a hair; head honey-yellow, with a few scattered hairs; dorsal plate of the ground-colour, narrow, and divided by a pale line.

Gärt.
Stettin. e. Z.

Crambus craterellus, *Scop.*

rorella, L.

(Plate 9. fig. 14.)

Loc. South of England, Folkestone, Brighton.

Very rare, in June and July.

Var. **cassentiniellus**. In this variety there are only eight brown streaks between the hind line and the hind margin, whereas in the type there are nine.

Crambus hortuellus, *Hb.*

(Plate 10. fig. 1.)

Loc. Scotland (common), Rugby, Plymouth, Exeter, Bristol, Chester, Yorkshire, Norfolk, Suffolk, Pembroke, Glamorgan, Carmarthen, Hastings, Deal, Folkestone, Southend, Ireland.

Very common in June and July. Rather variable in colouring.

The larva occurs amongst the roots of grass in fields, inhabiting a silken tubular gallery.

The ground-colour of the larva is purplish brown; head and dorsal plate light brown; the tubercles, which are dark brown, are very prominent; spiracles black. The colouring of this larva varies considerably in intensity. E. M. M. xvi. 162.

Eromene ocellea, *Haw.*

cyrilli, Costa.

(Plate 10. fig. 2.)

Loc. Dumfries (September), Glamorgan (March), Folkestone (August), Cheshire (February).

This species occurs along the Mediterranean coast. I have taken it at Tangier, flying at dusk on the coast sandhills, February 1885. It can be easily recognized by the row of four metallic dots along the hind margin of the fore wings.

PHYCIDÆ.

Anerastia lotella, *Hb.*

miniosella, Tr.

(Plate 10. fig. 3.)

Loc. Exmouth, Redcar, Yarmouth, Brandon, Malahide, Portmarnock, Hastings, Suffolk, Deal, Southend, Bournemouth.

Occurs in June and July, in sandy places.

The larva feeds in tufts of grass (*Ammophila arenaria*, &c.), living in a silken gallery just below the surface of

the sand. It pupates in a silken cocoon coated with sand.

The ground-colour of the larva is pale yellow; head pale chestnut; dorsal line faint, reddish; there are also two faint reddish transverse bars on the back of each segment; the plates on the second and anal segments are polished; spiracles of the ground-colour. A few pale hairs occur on the tubercles, also at the extremities of the larva. E. M. M. xi. 186.

Epischnia farrella, *Curt.*

lafauryella, Constant.

(Plate 10. fig. 4.)

Loc. Yarmouth (sandhills), Lowestoft, Deal.

This species occurs in July, on sandhills.

The larva is said to feed, in a sand-covered gallery, on *Anthyllis vulneraria*.

Ilithyia semirubella, *Scop.*

carnella, L.

(Plate 10. fig. 5.)

Loc. Exmouth, Horning, Folkestone, Isle of Wight, Dover, Box Hill, Sevenoaks.

Var. **sanguinella**, *Hb.*, is without the pale costal streak.

The larva feeds in a slight web on *Lotus corniculatus*, and spins a cocoon amongst its food after hybernation.

The ground-colour of the larva is bronzy black; the

head and second segment black; lines alternate green and black, indistinct; tubercular dots and spiracles black, ringed with paler; hairs from the tubercles and the extremities of the larva light brown; ventral legs pinkish. E. M. M. xvi. 167.

Myelophila cribrum, *Schiff.*

cribrumella, Hb.

(Plate 10. fig. 6.)

Loc. Merton, Thetford, Brandon, Southend, Gravesend.

Occurs in July and August.

The larva feeds in the stems of thistles. It forms a cocoon, in which it pupates the following spring, inside the excavated stem.

The ground-colour of the larva is greyish olive-green; head and plates on the second and anal segments brownish black; dorsal stripe dark, bordered with white; subdorsal stripes white; spiracles, tubercles, and hairs black. E. M. M. xv. 258.

Trachonitis pryerella, *Vaughan.*

(Plate 10. fig. 7.)

Of this species there are only three known specimens —one taken by Mr. Eedles, one by Mr. Pryer (after whom it was named), and one by Mr. Howard Vaughan. All three specimens were taken in London in August or September.

Myelois cirrigerella, *Zinck.*

(Plate 10. fig. 8.)

Occurs in dry sandy localities in July.
Very rare in this country.

Myelois ceratoniæ, *Zell.*

ceratoniella, Fisch.

(Plate 10. fig. 9.)

Loc. Dover, London, Greenwich.

Occurs in grocery warehouses in June.

The larva feeds on the pods of the locust-bean, dried figs, chestnuts, and other fruits.

The ground-colour of the larva is reddish white, covered with reddish-brown tubercles; head brown; dorsal and anal plates with brown warts. F. R.

Nyctegretes achatinella, *Hb.*

(Plate 10. fig. 10.)

Loc. Deal, Yarmouth, Lowestoft, Folkestone.

Occurs among "rest-harrow" in July.

Homœosoma sinuella, *Fb.*

sinuatus, Fb.

(Plate 10. fig. 11.)

Loc. Plymouth, Exmouth, Teignmouth, Tenby, Suffolk, Brighton, Folkestone, Sevenoaks, Dover, Southend, St. Margaret's Bay, Gravesend, Pembroke, Howth.

Occurs in June and July.

The larva feeds in the root-stocks of the ribwort plantain (*Plantago lanceolata*), pupating in a tough black cocoon in its gallery.

The ground-colour of the larva is white, with a faint bluish tinge when full-grown, darker between the segments. The head and plates on the second and anal segments are pale brown; the anterior feet black.

E. M. M. xv. 180.

Homœosoma nimbella, *Zell., Dup.*

nebulella, Dup.

(Plate 10. fig. 12.)

Loc. Exmouth, Wallasey (sandhills), Flamborough Head, Scarborough, Yarmouth, Tenby (quarries), Pembroke, Malahide, Howth, Wicklow.

Common among thistles in May and June; also in August.

The larva feeds in October on the flower-heads of *Aster chinensis* and other plants. Pupates in a white web.

The ground-colour of the larva is yellow or greenish white, with five broad pale violet stripes; head brownish yellow; dorsal plate with two blackish-brown lateral spots.

Tr. Fischer.

Homœosoma saxicola, *Vaughan.*

(Plate 10. fig. 13.)

Loc. Kirkcudbright (coast), Clifton, Isle of Man, Dover, Folkestone.

Occurs in June and July.

This species differs from *nimbella* in the longer and narrower fore wings, the costal streak, and the more conspicuous longitudinal white lines; from *senecionis* by its smaller size, narrower wings, smaller dots, darker colouring of the fore wings, bifurcating costal streak, and by the absence of the second dotted line.

The larva feeds in September on the flower-heads of chamomile. It is greenish, with darker spots and markings. It passes the winter in a cocoon, pupating the following spring. E. M. M. vii. 132.
E. M. M. viii. 68.

Homœosoma nebulella, *Hb.*

(Plate 10. fig. 14.)

Loc. Exeter, Bristol, Flamborough Head, Scarborough, Norwich, Brandon, Merton, Horning, Yarmouth, St. Margaret's Bay, Malahide, Howth, Wicklow.

Occurs in July and August.

Can easily be distinguished from *binævella* by the indistinctness and lesser number of the spots on the fore wing.

The larva feeds in the heads of asters, thistles, and other Compositæ. It passes the winter in a cocoon, away from its food-plant, and pupates the following spring.

The ground-colour of the larva is yellow or whitish green, with five pale violet stripes; head and dorsal plate yellowish brown, the latter with a black spot on each side.—*Treit.* (referred to *nimbella* by Stainton).

Description of larva by G. T. Porritt (Ent. xvii. 143) is almost identical.

Baron v. Nolken describes the larva as dirty reddish brown, with a shining blackish-brown head and divided dorsal plate; in flowers of *Tanacetum vulgare*.

Homœosoma binævella, *Hb.*

petrella, H.-S.

(Plate 11. fig. 1.)

Loc. Exeter, Bristol, Merton, Brandon, Tenby, Hastings, Southend, Folkestone, Pembroke, Howth.

Common in the south of England in July.

The larva feeds in the seed-heads of thistle (*Carduus lanceolatus*). When full-fed it leaves its food-plant and spins a tough brown cocoon in which it hybernates, pupating in the following spring.

The ground-colour of the larva is pale green, becoming paler towards the ventral surface; dorsal and subdorsal stripes pink; spiracular stripe also pink but interrupted; head bright chestnut; dorsal plate greenish in front, pale brown behind; anal plate blackish.

E. M. M. xv. 181.

Homœosoma senecionis, *Vaughan.*

(Plate 11. fig. 2.)

Loc. Stapleton, Norwich, Folkestone, Southend, Dover, Chattenden.

Occurs in May and July.

This species is distinguished from *nebulella* by its

much smaller size. From *binævella* the straight dotted second line, independently of other characteristics, at once separates it.

The larva mines the stems of the ragwort (*Senecio jacobæa*).

The ground-colour of the larva is deep purplish brown, the ventral surface slightly tinged with olive; the head and plate on the second segment are deep blackish brown and brightly polished; the rest of the body is rather shiny, with a faint violet gloss.

E. M. M. vii. 131.

Ephestia elutella, *Hb.*

elutea, Haw.

(Plate 11. fig. 3.)

Loc. Plymouth, Exeter, Bristol, Wirral, Huddersfield, York, Tenby, Norwich, London, Bromley, Dover, Pembroke, Ireland.

Occurs commonly in grocers' warehouses, also can be beaten out of thatch in June and July. This species is extremely variable.

The larva feeds on grocery stores, dog-biscuits, cloth, &c. Pupates in any convenient spot away from its food.

The ground-colour of the larva is pale flesh-colour without gloss; the head, dorsal and anal plates are shining reddish brown; tubercles similarly coloured; on each side of the third and twelfth segments is an ocellated dark brown spot with a white centre.

E. M. M. x. 213.

Ephestia passulella, *Bar.*

(Plate 11. fig. 4.)

Loc. London and Dover.

Occurs in large numbers in grocers' warehouses in June and July.

The larva feeds on dried fruits, oilcake, &c. It pupates in a cocoon externally covered with frass, &c., about its food.

The ground-colour of the larva is brownish pink; head reddish brown and glossy; dorsal plate shining black and brown, divided by a pale line; tubercles dark brown and shining; anal plate dark brown; tubercles and dots dark brown; on each side of the third and twelfth segments occurs a black spot with a white centre. E. M. M. xix. 104.

Ephestia ficella, *St., Dougl.*

(Plate 11. fig. 5.)

Loc. Glasgow, Leeds, York, Norwich, Dover, London, Dublin.

Common in August and September in cork warehouses.

The larva feeds on cork.

Ephestia ficulella, *Bar.*

(Plate 11. fig. 6.)

Loc. London, and probably many seaport towns.

Common in grocers' warehouses in August.

This species can be readily distinguished from *ficella* by its smaller size and rounded costa.

The larva feeds on dried figs, raisins, &c.

The ground-colour of the larva is flesh-colour; the head and plates are glossy dark brown; the dorsal, subdorsal, and spiracular lines are pink; the spiracles and large shining raised tubercles are very dark brown; ventral surfaces greyish white; legs tipped with brown.

E. M. M. xvii. 44.

Ephestia semirufa, *St.*, *Haw.*

(Plate 11. fig. 7.)

Loc. Exeter, Redland, Norwich, Witherslack.

This species occurs in June and July. It has been beaten out of ivy and holly, and also found in grocers' warehouses. It has not yet occurred out of England.

By some this is considered only a variety of *elutella*.

Euzophera pinguis, *Haw.*

fischeri, Zell.

(Plate 11. fig. 8.)

Loc. Bristol, Batby, Sheffield, York, Norwich, Cawston, Hastings, Suffolk, Regent's Park, Henley-on-Thames, Hackney.

Occurs in July and August.

The larva feeds on the bark of the ash, eating out a cell in which it afterwards pupates in a cocoon.

The ground-colour of the larva is deep dull flesh-colour, becoming paler towards the ventral surface

the interrupted dorsal line is pink; head chestnut, marked with darker brown; thoracic plate pale brown, blotched at the hind margin with darker; anal plate chestnut; on each side of the third and twelfth segments is a chestnut spot with a pink centre; anterior legs chestnut. E. M. M. xv. 162.

Euzophera cinerosella, *Zell.*

artemisiella, St.

(Plate 11. fig. 9.)

Loc. Devon, Stapleton, Norwich, Tenby, Pembroke, Isle of Wight.

Occurs in June and July.

The larva feeds in the stems and root-stocks of *Artemisia absinthium* (wormwood); it forms a cocoon in its cell, in which it pupates.

The ground-colour of the larva is white; dorsal line greyish brown; head dark brownish red; dorsal plate brownish red, darker at the hind margin and divided by a pale line; on each side of the third and twelfth segments is a greyish-brown spot with a white centre; anal plate and anterior legs greyish brown.

E. M. M. ix. 143.

Cryptoblabes bistriga, *Haw.*

rutilella, Zell.

(Plate 11. fig. 10.)

Loc. Devon, Bristol, Portbury, Bidston, Birkenhead, Doncaster, Huddersfield, York, Horning, Hastings,

Suffolk, Southend, Folkestone, Lyndhurst, Darenth Wood, Witherslack.

Occurs in June and July in woods.

The larva feeds on oak-leaves, which it rolls up. It pupates in a brown web.

The head and back of the larva are light brown marbled with darker; the dorsal and subdorsal lines are dark brown, the latter followed by a pale line, then by a broad stripe of dark brown, below which is a broad band of cream-colour traversed by a brown line; belly and legs drab; tubercular dots black; on each side of the third and twelfth segments is a brown spot with a black centre. E. M. M. xiii. 111.

Plodia interpunctella, *Hb.*

(Plate 11. fig. 11.)

Loc. Devon, Clifton, York, Norwich, London, Dover, Dublin.

This species occurs commonly in grain-warehouses and on board ship. I have taken it in mid-Atlantic.

The larva feeds on grain, dried fruits, &c. It pupates in a loose silken cocoon.

The ground-colour of the larva is pale straw; the dorsal stripe darker; head and dorsal plate rich brown; mandibles and tips of fore legs dark brown.

E. M. M. xvi. 261.

Alispa angustella, *Hb.*

(Plate 11. fig. 12.)

Loc. Devon, Redland, Greenhithe, Leatherhead.

This species occurs in June and August.

The larva feeds in the berries of the spindle; it pupates in a cocoon.

The ground-colour of the larva is dull green; plates darker, the dorsal being divided by a pale line, below which on each side is a black spot; dorsal stripe dark green; between the dorsal stripe and the spiracular region are several series of rust-coloured markings on each segment; ventral surface pale green. Varieties of the larva occur of every shade of light brown and flesh-colour, with corresponding darker markings.

E. M. M. vi. 143.

E. M. M. xvi. 65.

Five descriptions of this larva to which I have referred are all different. It appears to be extremely variable.

Gymnancyla canella, *Hb.*

depositella, Zinck.

(Plate 11. fig. 13.)

Loc. Plymouth, Hastings, Suffolk, Portsmouth, Southend, Deal, Malahide.

This species frequents sandhills in July.

The larva feeds in September on *Salsola kali*, mining the stems during its earlier stages, afterwards feeding on the leaves in a slight web. It pupates under the sand in a cocoon of silk mingled with sand.

The ground-colour of the larva is usually dark green, sometimes reddish brown, becoming paler towards the ventral surface; dorsal line dark; subdorsal lines paler than the ground-colour; head light brown, with black

markings; the ocellated spot on each side of the third and twelfth segments is black with a pale centre.

E. M. M. viii. 163.
Ent. v. 430.
Ent. xvii. 111.

Phycis betulæ, *Göze.*

obtusella, Zinck.

(Plate 11. fig. 14.)

Loc. Clifton, Bramham, Sheffield, York, Hastings, West Wickham, Folkestone, Epping Forest, Tilgate Forest.

Occurs in August.

The larva feeds in May between leaves of birch spun together.

The ground-colour of the larva is coffee-brown or violet-brown; dorsal stripe pale yellow, interrupted; subdorsal stripes yellow; head light brown, with white markings; pupa black and shiny.

Phycis fusca, *Haw.*

carbonariella, Fisch.

(Plate 12. fig. 1.)

Loc. Scotland (widely distributed), Devon, Bidston, Llynhelig, Blubberhouses, Flamborough Head, Goole, Saddleworth, Norwich, New Forest, Howth.

Abundant on burnt heaths in July.

The larva feeds on sallow (in captivity). Ground-colour of the larva olive-black, becoming paler towards the ventral surface; dorsal line black; head, dorsal

plate, and tubercles polished black; legs black. The larva hybernates, pupating the following spring.

E. M. M. xix. 110.

Phycis adornatella, *Tr.*, *Dup.*, *Zell.*

dilutella, Hb., D. L.

(Plate 12. fig. 2.)

Loc. Box Hill, Devonshire, Dover, Galway, Howth.

Occurs in July.

This species differs from *ornatella* in the ground-colour and in the strongly angulated interrupted second transverse line, and from *subornatella* by the absence of the pale fascia and generally less distinct markings.

The larva feeds on "wild thyme."

The ground-colour of the larva is olive-black; head brown, marked with darker; dorsal line smoky black, edged with paler; subdorsal lines paler; head and dorsal plate polished. Ent. xvi. 212.

Phycis subornatella, *Dup.*, *Zell.*

serpylletorum, Zell.

(Plate 12. fig. 3.)

Loc. Devon, Perth, Henbury, Westbury, Pembroke, Howth, Isle of Man.

Occurs in July and August.

This species differs from *ornatella* in the deeper ground-colour and distinctness of the second transverse line; from *adornatella* by the white fascia and stronger markings.

The larva feeds on the wild thyme in a silken web at

the base of the plant; it pupates in a cocoon in its web.

Ground-colour of the larva dull greenish grey, more yellow on the back; dorsal and subdorsal lines darker; head, dorsal and anal plates dull black.

E. M. M. xvi. 162.

Phycis ornatella, *Schiff.*

criptella, Hb., Curt.

(Plate 12. fig. 4.)

Loc. Devon, York, Folkestone, Sevenoaks, Box Hill, Brighton, Howth.

Occurs in July and August.

Larva said to feed on *Thymus serpyllum*.

Dioryctria abietella, *Zinck.*

decuriella, Hb.

(Plate 12. fig. 5.)

Loc. Perthshire, Aberdeenshire, Ross, New Forest, Plymouth, Devon, Brockley, Coombe, York, Norwich, Merton, Cawston, Brandon, Bournemouth, Ringwood.

Occurs on fir trees in June and July.

The larva lives in fir-cones in October; it leaves them in November, and spins a cocoon on the surface of the ground, in which it passes the winter, pupating in spring.

The ground-colour of the larva is cherry-red, on the sides rather earthy brown; tubercles black; dorsal plate shining black; head round, deep cherry-red.

Dr. Hofmann.

Nephopteryx spissicella, *Fb.*

roborella, Zinck., D. L.

(Plate 12. fig. 6.)

Loc. Plymouth, Exeter, Bristol, Bishop's Wood, Bramham, Doncaster, York, Norwich, Merton, Horsford, Hastings, Suffolk, Lyndhurst, Croydon.

Occurs commonly in July and August.

The larva is found in May in a tubular web on oak-leaves, in which it afterwards pupates.

Ground-colour of the larva brown, paler on the sides; on each of the five central segments are two white spots; head reddish brown; shoulder-plate dark brown. Dr. Hofmann.

Nephopteryx rhenella, *Zinck.*

hostilis, St.

(Plate 12. fig. 7.)

Loc. Worcester, Colchester, Darenth.

This species occurs in June and July.

The larva feeds on aspen (*Populus tremula*) in a silken tube between rolled-up leaves, usually several together; it pupates in autumn in a slight cocoon.

The ground-colour of the larva is dingy olive-black; the dorsal stripe black; subdorsal stripes greyish yellow; subspiracular line dirty white; tubercles blackish brown; the ocellated spots on the third and twelfth segments are of the ground-colour ringed with black; anterior legs black; ventral and anal legs of the ground-colour. E. M. M. xvii. 177.

Nephopteryx genistella, *Dup.*

ulicella, H.-S.

(Plate 12. fig. 8.)

Loc. Isle of Wight (Freshwater), Dover, Portsea.

Occurs in August.

The larva feeds in a loose web on furze. Larva: dorsal stripe blackish brown, bordered with pale drab, followed by a ragged stripe of deeper reddish drab, followed by a pale stripe bearing the black tubercles; subdorsal stripe broad, dark brown, followed by two narrow drab stripes divided by a ragged brownish stripe; head pale drab, marked with dark brown; on each side of the third and twelfth segments is situated an ocellated spot, whitish grey with a black centre; spiracles whitish; anterior legs reddish brown; ventral legs spotted and tipped with dark brown.

E. M. M. x. 89.

Pempelia palumbella, *Fb.*

contubernella, Hb.

(Plate 12. fig. 9.)

Loc. Scotland (S.W.), Plymouth, Bristol, Bidston, Haddon, Ness, Sheffield, York, Brandon, Norwich, Horsford, St. Faith's, Cawston, Hastings, Croydon, Epping Forest, Bray (Wicklow).

Common in July and August on dry heaths.

The larva feeds during March and April on the stems of *Polygala chamæbuxus* in a web near the ground; it pupates in May in a white web.

The ground-colour of the larva is dark reddish brown,

with olive lines bordered with paler and reddish-brown stripes; the segments after the fourth have two black spots; head round, shining black; dorsal plate the same. Dr. Hofmann.

Rhodophæa formosa, *Haw.*

perfluella, Zinck.

(Plate 12. fig. 10.)

Loc. Norwich, Cawston, Leytonstone, Lewisham, Peckham, Plumstead.

In June and July.

The larva feeds on the leaves of elm and birch between leaves rolled up or spun together.

The ground-colour is dark green freckled with darker; head the same; dorsal and subdorsal stripes dark green bordered with grey; a grey line also occurs between the dorsal and subdorsal lines, and two similar lines about the spiracular region; ventral surface dull green; on each side of the third segment is a white spot with a black centre; tubercles black; plate on the second segment shining.

This larva is very variable in colour.

E. M. M. vii. 14.
Ent. xii. 206.

Rhodophæa consociella, *Hb.*

tumidella, Dup.

(Plate 12. fig. 11.)

Loc. Plymouth, Exeter, Gully, Stapleton, Birkenhead, York, Scarborough, Rossington, Norwich, Merton,

Cawston, Hampstead, Highgate, Southend, Folkestone, Pembroke.

Occurs in oak-woods in June and July.

The larva is sulphur-yellow, with five brown lines and small black tubercles; head honey-yellow; dorsal plate the same, spotted with brown. It is found in May and June in a tubular web between oak-leaves; pupates in a tough cocoon. Tr., Zell.

Rhodophæa advenella, *Zinck.*

palumbea, Haw.

(Plate 12. fig. 12.)

Loc. Purdown, Scarborough, Norwich, Cawston, Hastings, Brandon, Southend, Hampstead, Cambridge, Pembroke, Scotland (S.W.).

Occurs in June and July.

The larva feeds in May and June on the flowers of *Cratægus*. Pupates in the ground in a slight cocoon.

The ground-colour of the larva is bright green with reddish-brown lateral lines; head reddish brown.

Zk., Tr.

Rhodophæa marmorea, *Haw.*

cpelydella, Fisch., Gn.

(Plate 12. fig. 13.)

Loc. Exeter, Southend, Gully, Clifton, Norwich, Hastings, Brandon, New Forest, Whitbarrow, Cambridge, Epping Forest.

In June and July.

The larva feeds on sloe in spring, spinning the leaves together. It pupates in a cocoon amongst its food-plant.

The ground-colour of the larva is dull chocolate; head and dorsal plate dingy red, marked with black, shining; on each side of the third and twelfth segments is an ocellated spot, flesh-colour with a black centre; the tip of the anal segment is rather paler than the ground-colour and shining; spiracles flesh-colour; the anterior legs marked with black; ventral legs dingy flesh-colour tipped with brown hooks.

E. M. M. x. 214.

Rhodophæa suavella, *Zinck.*

porphyrea, Curt., St.

(Plate 12. fig. 14.)

Loc. Clifton, Norwich, Cawston, Horsford, Brandon, Southend, Epping Forest.

Generally distributed in the south of England in July.

The larva feeds in May and June on stunted sloe and hawthorn in silken galleries. It spins a cocoon in June, either on its food-plant or on the ground.

The ground-colour of the larva is chocolate-brown; head dark brown marked with brownish grey; plates on the second and anal segments polished black; ventral legs semitransparent; anterior legs spotted with black; on each side of the third and twelfth segments is an ocellated spot, brownish grey with a black centre; hairs dark brown. E. M. M. xii. 13.

Rhodophæa tumidella, *Zinck.*

tumidana, St.

(Plate 12. fig. 15.)

Loc. Plymouth, Exeter, Clifton, Portishead Woods, Pen-y-maes, Holywell, Askham Bog, Sandburn, York, Hastings, Hampstead, Southend, Folkestone.

Occurs in July.

The larva feeds in May and June on oak in a web. It pupates on the ground.

The ground-colour of the larva is purple, with white punctured lines; subspiracular stripe broad, pale brown marbled with white; head and dorsal plate brown, shining, with black freckles. Treit.

Rhodophæa rubrotibiella, *Fisch.*

tumidana, Schiff.

(Plate 12. fig. 16.)

Loc. Forest Hill, Folkestone, Isle of Wight.

Occurs in July.

The larvæ live together in a web on oak in June. Kalt.

Oncocera ahenella, *Zinck.*

æneella, Hb.

(Plate 13. fig. 1.)

Loc. Perth, South-east of Scotland, Devon, Almondsbury, Leigh Down (Somerset), Huddersfield, Merton, Brandon, Hastings, Pembroke (quarries), Deal, Riddlesdown.

This species occurs usually amongst *Hieracium pilosella* on rough ground in June and July. It is very variable in colour.

The larva feeds in May on the lower leaves of *Helianthemum vulgare* and *Artemisia campestris*, inhabiting a tubular passage. It occurs in sandy places.

A. Schmid.

GALLERIDÆ.

Galleria mellonella, *L.*

cereana, L.

(Plate 13. fig. 2.)

Loc. Devon, Leeds, Norwich, Thetford, Wootton, Hastings, Suffolk, Ireland, Folkestone, Deal.

Common in July and August.

The larva feeds on the wax in beehives. It pupates in a tough cocoon.

The ground-colour of the larva is dirty white with very pale tubercles; head small, heart-shaped, darker than the ground-colour; plate on the second segment honey-coloured. Treit.

Aphomia sociella, *L.*

♀ *colonella*, L.

(Plate 13. fig. 3.)

Loc. Scotland (common), Norfolk, Plymouth, Lamlash, St. Thomas, Bristol, Wallasey, Burton, Puddington, Ness, Colwyn, Brandon, Goole, Hastings,

Leeds, Richmond (York), Sheffield, Pembroke, Southend, Deal, Bromley.

In July and August.

The larva greatly resembles the last species; the ground-colour is yellowish brown; tubercles brown; plates on the second and anal segments brown; head red. It lives on wax in the nests of hornets and bumble-bees, inhabiting long cells. Treit.

Melissoblaptes anellus, *Schiff.*

anella, Gn., D. L.

(Plate 13. fig. 4.)

Loc. Yarmouth, Ireland, Deal.

Occurs in July.

The larva is said to feed, like the former species, in bees' nests.

Melissoblaptes cephalonica, *Sta.*

(Plate 13. fig. 5.)

Loc. York, London, Dover.

This species, evidently imported, is to be found in warehouses in the city in August.

Achræa grisella, *Fb.*

alvearia, Fb.

(Plate 13. fig. 6.)

Loc. Perth (abundant), Bristol, Holywell, Huddersfield, Leeds, Sheffield, York, Thetford, Hastings, Bury St. Edmunds, Liverpool, Ireland, Deal.

Occurs in June and July (May and September, Reaum.).

The larva resembles *Galleria mellonella*, but is smaller; it is bone-coloured, with a honey-coloured head. It lives from September to March in beehives, being often very destructive. In captivity it will eat nearly anything—wood, cork, &c. It pupates in a tough cocoon. Reaum.

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CORRECTIONS IN PLATES.

Plate 1. fig. 7, for *Shrankia* read *Tholomiges*.
„ 7. „ 5, for *phragmittelus* read *phragmitellus*.
„ 9. „ 7, for *pratellus* read *tristellus*.
„ 11. „ 5, for *picella* read *ficella*.
„ 13. „ 6, for *Ochrœa* read *Achrœa*.
„ 14. „ 6, *for* var. *atomalis* read *Scoparia atomalis*.
„ 15. „ 1, for *nunana* read *murana*.
„ 17. „ 6, for *zophrodactylus* read *zophodactylus*.

1. Madopa salicalis.
2. Hypena proboscidalis.
3. Hypena rostralis.
4. Bomolocha fontis.
5. Hypenodes albistrigalis.
6. Hypenodes costæstrigalis.
7. Shrankia turfosalis.
8. Zanclognatha emortualis.
9. Rivula sericealis.
10. Herminia derivalis.
11. Pechypogon barbalis.
12. Zanclognatha tarsiporralis.

W.Purkess lith. Harbert imp.













1. Zanclognatha grisealis
2. Herminia crubralis.
3. Aventia flexula.
4. Odontia dentalis.
5. Pyralis costalis
6. Pyralis farinalis.
7. Pyralis glaucinalis
8. Aglossa pinguinalis
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10. Cledeobia angustalis
11. Pyrausta aurata
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13. Pyrausta ostrinalis.












1. Rhodaria sanguinalis
2. Herbula cespitalis.
3. Ennychia cingulata.
4. Ennychia nigrata.
5. Ennychia octomaculata.
6. Agrotera nemoralis
7. Endotricha fl[illegible] mea
8. Eurrhypara [illegible]
9. Scopula alp[illegible]
10. Scopula lutealis
11. Scopula oliv[illegible]
12. [illegible]

Berys flavalis

12 Ulaiea crocealis

A Purkiss lith.

Hanhart imp.












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1 Ebulea verbascalis.
2 Ebulea sambucalis.
3 Ebulea stachydalis.
4 Spilodes sticticalis.
5 Spilodes palealis.
6 Spilodes verticalis.

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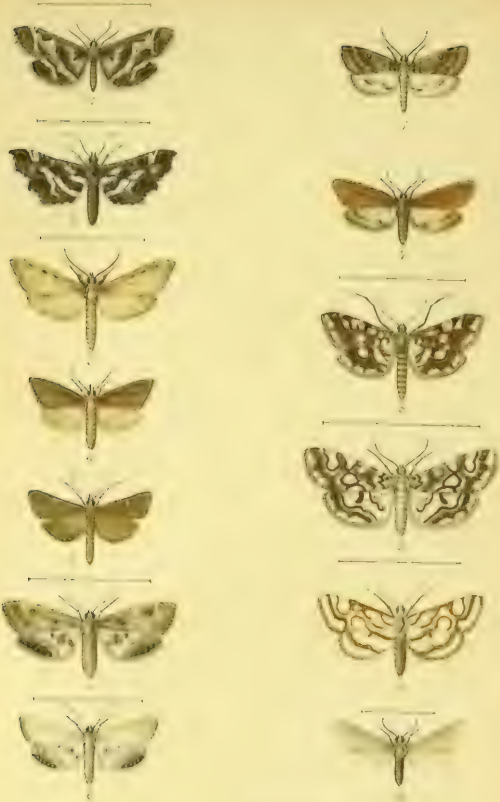
8 Pionea forficalis.
9 Orobena extimalis.
10 Orobena straminalis.
11 Perinephele lancealis.
12 Margarodes unionalis.



1 Diasemia literata
2 Diasemia ramburialis
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W Parkes lith Hanhart imp

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W. Purkiss lith. Hanhart imp.

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14. C. craterellus

N. Parkins lith. Hanhart imp.

1. Crambus horbuellus.
2. Acrobasis caelella
3. Anerastia lotella
4. Spiesschnia furrella.
5. Ithyia semirubella
6. Myelophila scribrum
7. Tracheonitis Fryerella
8. Myelois cirrigerella.
9. Myelois ceratoniæ
10. Nyctegretes achatinella.
11. Homœosoma sinuella
12. Homœosoma nimbella
13. Homœosoma saxicola
14. Homœosoma nœvella.














1. Homœosoma binævella.
2. Homœosoma senecionis.
3. Ephestia elutella.
4. Ephestia passulella.
5. Ephestia picella.
6. Ephestia ficulella.
7. Ephestia semirufa.
8. Euzophera pinguis
9. Euzophera cinerosella.
10. Cryptoblabes bistriga.
11. Plodia interpunctella
12. Ahspa angustella.
13. Gymnancyla canella
14. Phycis betulæ

1. [illegible]
2. Phycis [illegible] ornatella
3. Phycis [illegible] ornatella
4. Phycis ornatella
5. Dioryctria abietella
6. Nephopteryx spissicella
7. Nephopteryx rhenella
8. Nephopteryx genistella
9. Pempelia [illegible] rubella
10. Rhodophæa [illegible] rmsa
11. Rhodophæa [illegible] consociella
12. Rhodophæa [illegible] avenella
13. Rhodophæa marmorea
14. Rhodophæa suavella
15. [illegible] tumidella
16. [illegible] subnotibiella

1. Oncocera ahenella.
2. Galleria mellonella.
3. Aphomia sociella.
4. Melissoblaptes anellus
5. Melissoblaptes cephalonica
6. Ochroea griseila
7. Hypena obsitalis

1 Scoparia cembræ.
2 *var.* zelleri.
3 *var.* scotica.
4 Scoparia basistrigalis.
5 Scoparia ambigualis.
6 *var.* atomalis
7 Scoparia conspicualis.
8 Scoparia ulmella
9 Scoparia dubitalis
10 *var.* ingratella
11. Scoparia truncicolella

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1. Scoparia nunana.
2. Scoparia resinea.
3. Scoparia mercurella.
4. Scoparia cratægella
5. Scoparia phæoleuca.
6. Scoparia lineolea.
7. Scoparia angustea.
8. Scoparia alpina. ♂ ♀.
9. Scoparia pallida












1. Agdistis benetii.
2. Cnaemidophorus rhodo-dactylus.
3. *var* bertrami.
4. Platyptilia odo-dactyla.
5. Platyptilia isodactylus.
6. Platyptilia gonodactyla.
7. Platyptilia zetterstedti.
8. *var* tesmiadactyla.
9. Amblyptilia acanthodactyla.
10. Amblyptilia cosmodactyla.
11. Oxyptilus distans.
12. *var* lætus.

W. Purkess lith. Hanhart imp.


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1 Oxyptilus pilosellae
2. Oxyptilus teucrii.
3 Oxyptilus parvidactylus
4 Mimaseoptilus pterodactylus
5 Mimaseoptilus tephradactylus
6 Mimaseoptilus tephradactylus

7 Mimaseoptilus pterodactylus
8. Œdematophorus lithodactylus.
9 Pterophorus monodactylus
10 Leioptilus microdactylus
11 Leioptilus tephradactylus
12 Leioptilus tephradactylus

W.Parkes lith. Hanhart imp.


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1. Leioptilus microdactylus
2. Leioptilus brachydactylus
3. Acroptilia galactodactyla
4. Acroptilia spilodactyla
6. Acroptilia tetradactyla
7. Acroptilia pentadactyla
8. Acroptilia paludum
9. Alucita hexadactyla
5. Acroptilia baliodactyla.

W.Purkiss lith. Hanhart imp