A Microlepidoptera Demonstration

Microlepidoptera is a conventional but unscientific name applied to 36 out of a total of 59 families of moths which occur in the British Isles. The size of many of the species has made them difficult to study and sometimes impossible to identify accurately without the aid of a microscope. The adults of species in several of the families, for example, Nepticulidae, Coleophoridae and Elachistidae, closely resemble each other but their larvae show very specific, diagnostic, differences. The photographs represent 29 of the families concerned.

The number preceding each name follows "A Checklist of Lepidoptera recorded from the British Isles" (J. D. Bradley, 2000). This enables cross-referencing in "The Moths & Butterflies of Cornwall and the Isles of Scilly" (F. H N. Smith, 1997) for more detail about the species illustrated, all but a few of which are recorded in Cornwall. Although nomenclature and position in the systematic list may have changed since the earlier checklist (Bradley & Fletcher, 1986) used in the book, and also more recently (Bradley, 1998), the number allotted to each species remains unaltered. The size of the subject, as it appears in the photograph, follows the name. The figure in brackets after the family name is the number of species in the family which occur in the British Isles. The derivations of the family names are taken from "The Scientific names of the British Lepidoptera, their history and meaning", (A. M. Emmet: Harley Books, 1991).

F. H. N. Smith, 2008.

MICROPTERIGIDAE (5)

From the Greek *mikros*, little, and *pterux*, a wing. Adults, May & June, fly in sunshine. Head rough-haired; mandibles developed, for feeding on pollen. No proboscis.

1 ***Micropterix tunbergella*** (4.5mm)

ERIOCRANIIDAE (8)

The name literally means woolly-headed, i.e. rough-haired, as in the previous family. The larvae of six of the species mine the leaves of birch, amongst which the adults can be found in April and May, flying in sunshine.

6 ***Eriocrania subpurpurella*** (7 mm)

10 ***Eriocrania salopiella*** (5.5mm)

10 *E. salopiella* another view

NEPTICULIDAE (100)

None measures more than 7mm in span, so that when at rest with wings folded they are about half that size. Latin, *Neptis*, a grand-daughter, *Nepticula*, little grand-daughter, the fanciful name coined by von Heyden, a German entomologist. The characteristic larval mines – host-specific in the leaves of a wide variety of plants - are the most reliable means of identification. Not more than six species are associated with any one of the plants, which greatly improves the chance of a correct diagnosis.

42 ***Fomoria septembrella*** (2.5mm)

42 *F. septembrella* mines in St John,s –wort

49 ***Trifurcula eurema*** (2.5mm)

Life history of *T. eurema* in leaves of Bird's-foot Trefoil

Ovum on nearer leaf, & early mines

Larva within mine, in transmitted light

49 *T. eurema* completed mine

Cocoon, in transmitted light

Extruded pupal exuviae

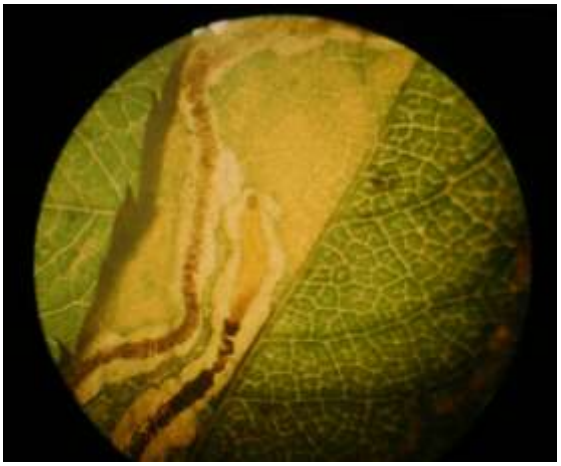
By coincidence, the ovum at the base of the leaf in these three photographs is that of the Common Blue butterfly *Polyommatus icarus*.

50 ***Stigmella aurella*** mine in Bramble

64 ***Stigmella continuella*** (2.25mm) Larva mines Birch

68 ***Stigmella salicis*** mine in Sallow

68 *S. salicis* mine in transmitted light



92 ***Stigmella anomalella*** microphoto of larva in mine in rose leaf

TISCHERIIDAE (6)

The larvae mine blotches in the leaves of the foodplant, and differ from other leaf miners by ejecting excrement through a hole in the mine. After C. von Tischer, a German entomologist.
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123 ***Tischeria ekebladella*** (5mm)

123 *T. ekebladella* blotch mines in Sweet Chestnut

123 *T. ekebladella* mines in transmitted light

125 ***Tischeria marginea*** (4mm) Larva mines Bramble

INCURVARIIDAE (5)

The name derives from the fact that the species have curved maxillary palpi.

130 ***Incurvaria masculella*** (7mm)

131 ***Incurvaria oehlmanniella*** (7mm)

132 ***Incurvaria praelatella*** (6mm)

ADELIDAE (15)

Greek *adelos*, unseen, "from the larval habit of concealing itself in a portable case".

141 ***Nematopogon schwarziellus*** (9mm)

141 *N. schwarziellus*

148 ***Nemophora degeerella*** (9mm)

150 ***Adela reaumurella*** (8mm)

150 *A. reaumurella*

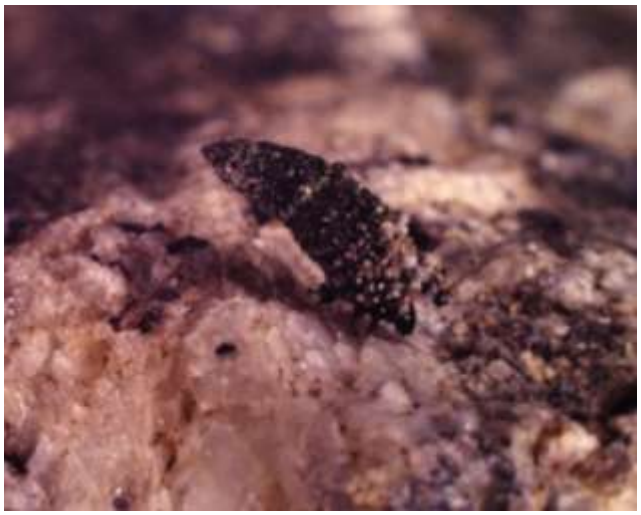
153 ***Adela fibulella*** (6mm) on Germander Speedwell, the larval foodplant

PSYCHIDAE (20)

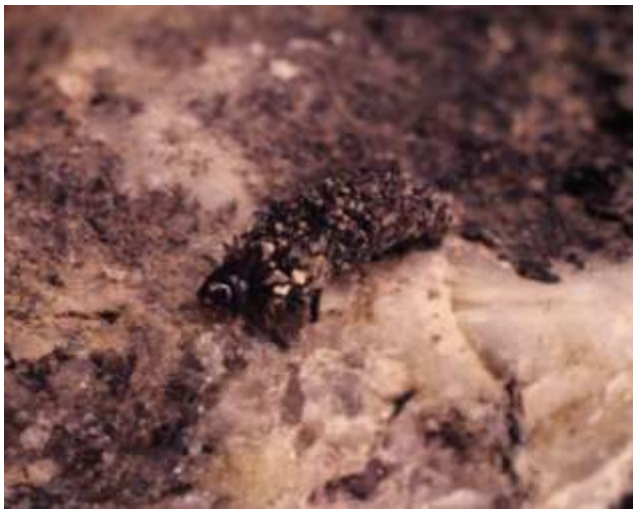
The name derives from the Greek, *psukhe*, the soul, "the soul being the spirit of man liberated from the impurities of the flesh", and refers to the fact that some members of the family reproduce by parthenogenesis, without male involvement.

184 ***Luffia lapidella*** male (6.5 mm)

184 *L. lapidella* apterous female, at tip of case (4mm, including ovipositor)



184 *L. lapidella* larva and case

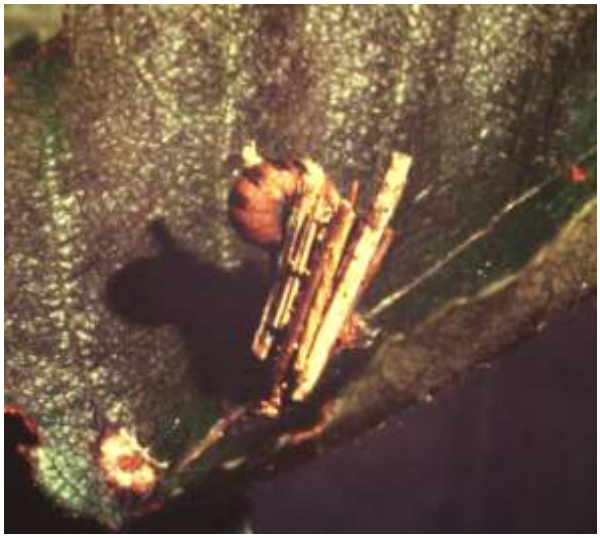


184 larva and case

184 larval case on house wall (c.6mm)

184, case with pupal exuviae of male

186 ***Psyche casta***, male. (7mm)



186 *P. casta* apterous female (3mm) on case

186 *P. casta* case on hazel leaf (c.10mm)

case on grass,

case on rocky surface, with pupal exuviae of male

TINEIDAE (61)

The larvae feed on birds' nests, stored products, feathers, wool, dead wood, lichens, ferns and fungi. The family includes several species of clothes moth, which is probably why, in 1758, Linnaeus gave the generic name *Tinea* (Latin: a destructive worm) to the group of species then known to him.

200 ***Psychoides filicivora*** (6mm)

200 *P. filicivora* larva feeding on sporangia of Polypody

203 ***Infurcitinea argentimaculella*** larval tubes in *Lepraria* (7 x 8mm approx)

216 ***Nemapogon cloacella*** (9mm)

225 ***Triaxomera fulvimitrella*** (10mm)

227 ***Monopis laevigella*** (13mm)

230 ***Monopis crocicapitella*** (8mm)

246 ***Tinea semifulvella*** (8mm)

246 *T. semifulvella*