Notes on some of the British Nepticulidae II

By A. M. Emmet

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Egg
Underside, away from a rib. Underside, away from a rib.

Mine
At first a narrow highly contorted gallery with coiled frass, not staining the leaf purplish. The gallery is relatively short leading abruptly to a large blotch which usually envelops and obscures the early mine. The frass in the blotch is brown and is well distributed.

Larva
Mines venter upwards. The larva is yellowish white when young, with large oval dark spots, broader in the lateral plane. When fully grown, its dorsal vessel is green. The dark ventral spots are linear and barely visible in the mine. Head light brown, thoracic plate inconspicuous.

Imago
Head ochreous yellow to Head black, cilia whitish. fuscous; cilia grey-whitish.

E. arcuataella has a wider distribution in Britain than E. rubivora and they seldom seem to occur in the same ground. Thus arcuataella is common in the chalk areas of Kent, where there is no trace of rubivora. E. rubivora is common in north Essex and Cambridgeshire, where I have never found arcuataella. Three localities come to my mind where strawberry grows under dewberry; in two of these (Kent and Oxfordshire) arcuataella occurs on the strawberry, but there are no Ectoedemia mines on the dewberry, while in the third (Essex rubivora occurs on the dewberry but there are no Ectoedemia mines on the strawberry. Leigh Woods, Somerset, is the only locality where I have seen both species together.

Thus the evidence of distribution, biology, imaginal markings and genitalia all indicates that arcuataella and rubivora are distinct species.

I shall now proceed to discuss species grouped under their host plants, as I did in my previous series of notes.
ACER spp. (Maples and Sycamore)

The British list includes three Acer-feeding Nepticulidae of the genus Etainia (Beirne, 1945), namely sericopeza Zeller 1839, decentella Herrich-Schäffer 1840 and sphendamni Hering 1937. Stainton (1854) was the first to mention sericopeza in our literature and he also described decentella over a century ago (Stainton 1867), though it was not detected in this country for another sixty-six years (Adkin 1933). The last to be recognised as British was sphendamni (Ford 1948), but the differences between sphendamni and sericopeza in their biology and imaginal markings have never been expressed in the English language. Meyrick (1928) wrote before sphendamni had been discovered or named, while Ford (1949) includes sphendamni as an addendum (species No. 1346a), but wrongly ascribes to it the same life history as sericopeza—wrongly in as much as his description of serico- peza is incorrect for that species though accurate enough for sphendamni. The notes which follow will attempt to clear up our misconceptions regarding the early stages and will give a dichotomous table for the recognition of the imagines.

(1) Etainia sericopeza Zeller. The discovery of the interesting life-history of this species was made by the late A. G. Carolsfeld-Krausé of Denmark and, in particular, by Herr Eberhard Jäckh of Bremen, who has been kind enough to send me a copy of his valuable paper on the subject (Jäckh 1951). The notes which follow are based mainly on Jäckh's article, but also in part on Hering (1957). I myself have never encountered sericopeza and it is possible that it does not occur in Britain.

The foodplant of sericopeza is Acer platanoides Linn., the Norway maple. The moths of the first generation emerge in May and lay their eggs near the tips of the keys. The young larva mines its way in a more or less direct line along the wing into the seed-capsule where it eats out a cavity. The mined area turns black (Goureau in Tutt 1889). Sometimes there is a dearth of winged seeds and the eggs are laid on the petioles which are mined by the larvae; however, the majority of these larvae can only partially develop on this pabulum and so they perish. When mined, both the keys and the petioles fall prematurely to the ground. The larvae spin their cocoons on the keys (Goureau).

The resulting moths emerge in the summer and lay their eggs in August and September at the base of the leaf stalks. The August larvae feed for a time in the petiole, but this part of the plant seems to suit them only when they are young, for they soon mine along the bark and enter a bud. When this has been eaten out the larva again proceeds along the bark to another bud, where it completes its growth in the spring. Affected buds are aborted, and such a condition may indicate the presence of a larva. When full-fed, the larva quits the bud and pupates probably on rubbish in the ground. Larvae hatch-
ing in September do not feed in the petiole, which is becoming too hard by that date, but at once mine along the bark into a bud.

(2) *Etainia sphendamni* Hering. The food plant is *Acer campestre* Linn., the field maple. In a favourable season there are three generations in the year. The eggs are laid on the wings of the keys, and after some initial uncertainty of direction, the young larva mines inwards and enters the seeds, where it feeds in the same manner as the first generation of *sericopeza* in the seeds of *A. platanoides*. As the larvae may be found in June, August and October, they must be indifferent to the degree of ripeness of the seeds. When full fed, the summer larva leaves the seed-capsule and spins its cocoon at the tip of a key (seldom the one which was mined) or on the upper surface of an adjacent leaf. The October larvae descend to the ground when full-fed and over-winter in hibernacula. These they leave in the spring and crawl back up the trunks to spin their cocoons on the bark.

*E. sphendamni* never feeds in the buds or mines the bark; the tenanted keys do not fall prematurely and they are not blackened.

(3) *Etainia decentella* Herrich-Schäffer. The foodplant is *Acer pseudoplatanus* Linn., the sycamore. The life history of the first generation is unknown (Hering 1957), but that of the second generation resembles the October generation of *sphendamni*, except that, according to Hering, the larva feeds exclusively in the wings of the keys and does not enter the seeds. I have never heard of mines being found in this country, but moths have been reared from cocoons found on the sycamore trunks in spring — though parasites are more likely to emerge, as I know to my cost.

Thus it is seen that our three species of *Etainia* are host-specific to three different species of *Acer*. Our earlier writers confused *sericopeza* and *sphendamni*. Thus Tutt (1899), who had French and English sources for his description of ‘*sericopeza*’, was describing that moth when he was quoting from Goureau but *sphendamni* when quoting from Warren. The inconsistencies in his narrative are thereby explained.

There is no doubt that *sphendamni*, feeding on field maple is our common species, and it may well be that *sericopeza*, feeding on Norway maple, does not occur in Britain, for the Norway maple is not native to this country, though it is not infrequently planted in parks and gardens. The best way to search for *sericopeza* would be to look for fallen and blackened keys under Norway maples in mid-June. So far I have failed to recognise British *sericopeza* in the collections I have studied.

The imagines of the three species are very similar, but may be distinguished by the aid of the following key.

1. Head and collar black. Sub-basal dark costal markings not reaching the dorsum. Male hindwings with a patch
of dark androconial scales near the base on the upperside

— Head ochreous yellow to ferruginous. Sub-basal dark fascia reaching dorsum. Male hindwings without androconial scales on the upper side ............................ 2

2. Collar ochreous whitish, paler than the head markings of the forewings yellowish white .................... sericopeza

— Collar brownish, darker than the head, markings on the forewings darker yellowish white ................ sphendamni

[N.B. — Jäckh states that the sub-basal dark fascia is broader than the pale fascia immediately beyond it in sericopeza but narrower in sphendamni; this does not seem to apply to British specimens.]

In addition to the seed and bud/bark-feeding species we have two Nepticula species which mine the leaves. In my previous note I have already written about Nepticula speciosa Frey, which feeds on sycamore (Ent. Record 83: 77). Its range seems to be spreading apace in England. Meyrick (1928) could only record it from Hampshire: in my previous note I gave further localities, but they were all south of the Thames; now I have reared it from Cambridgeshire (Chippenham Fen) and (in company with others) recorded the larva from Suffolk (Thorpeness).

The other leaf-miner is Nepticula aceris Frey, whose mines have hitherto been found only on Acer campestre in Britain, but according to Hering (1957) it occurs on various species of maple. This moth has what may be a unique distinction: it holds a legitimate place in the British list without ever having been seen, alive or dead, in this country! Mr S. N. A. Jacobs found two vacated mines near West Malling in 1949 and I found three such mines at Lullingstone in 1971; these localities are situated about ten miles from each other in Kent. I re-visited Lullingstone on several occasions in 1972, but drew blank in my search for further evidence of N. aceris.

BETULA spp. (Birch)

I have supplementary notes on three species.

(1) Stigmella betulicola Stainton. For some reason I omitted to state in my previous notes that the larva of betulicola has a chain of ventral spots which are especially conspicuous on the thoracic segments; the larva mines venter upwards. This character is useful for distinguishing tenanted mines of betulicola from those of S. luteella Stainton.

(2) Stigmella distinguenda Heinemann. Johansson (1971) uses the following nomenclature: —

luteella Stainton 1854 (distinguenda Heinemann 1862) distinguenda Heinemann, sensu Klimesch 1948

From this we can deduce that Heinemann’s type specimen of distinguenda has been examined and found to be luteella and
that the species described as British by Wood in 1894, and ever since referred to by us as *distinguenda* is in want of a name. How tiresome! For the present, though, we can still call it *distinguenda*.

This still appears to me to be a very scarce species, occurring locally only in small numbers. A new locality constituting an extension of its recorded range, is the Essex Naturalists’ Trust reserve at Fingringhoe Wick near Colchester. We can only hope *distinguenda* has survived the fire there occasioned by a farmer’s carelessness when burning off his stubble.

I have already expressed puzzlement at failure to find an expected second generation of *distinguenda* in Kent (Ent. Record, 83: 137). I have since noted that Petersen (1930) gives it in his list of univoltine species, quoting Spuler as his authority. Though I have found a tenanted mine as late as early October, I am now inclined to regard it as one of the species with a long period of emergence, but a single generation. Consequently the larvae, like those of the univoltine *speciosa* Frey, may occur from July till October.

(3) *Ectoedemia mediofasciella* Haworth 1828 (*woolhopiella* Stainton 1887) is another of our rare Nepticulids. Meyrick (1928) gives the range as “Berks, Oxon, Hereford, Carnaervon, local, not recorded elsewhere”. Consequently, when in August 1972 I came across *mediofasciella* relatively commonly in two separate localities in the Lake District, I thought I had made a discovery. However, reference to Tutt (1899) revealed that it had been found in adjacent localities nearly a century ago by Threlfall and Hodgkinson: their localities were Grange (Lancashire) and Arnside and Witherslack (Westmorland), while mine were at Cartmell (Lancashire) and Threlkeld (Cumberland). I had a day’s collecting at Arnside, but could find no trace of its continued presence there.

Meyrick omitted these early records of *mediofasciella* because he knew little about the Nepticulidae and was suspicious of those who did. He liked to ‘lump’ species together if they were at all similar, regardless of their life-history. Thus in his first edition (1895) he treated *‘woolhopiella’* as a synonym of *argentipedella* Zeller. In his second edition he conceded that it was distinct, but discarded all records except those of Wood and Waters. His statement “not recorded elsewhere” is equally fallacious, since *mediofasciella* has been found in a number of localities in northern and central Europe.

Mistakes also occur in the description of the earlier stages, since writers prefer to reproduce the statements of famous general entomologists rather than those of the less well known specialists. Thus Stainton (1887), Meyrick (1928) and Hering (1957) all say that the larva is green. On the other hand Wood, who discovered the species, says (in Tutt 1899) “It is yellow—indeed a deep yellow—the greater part of its life, but becoming paler when it is practically adult; it borrows something of a greenish tinge from its surroundings, though its true colour
is still yellow, as can be ascertained by removing it from the mine”. I made the following description on 13.viii.1972, from full grown (not adult!) larvae in their mines, and one which had just left its mine for pupation. “Glossy pale yellow with an obscure chain of small dark ventral spots which can only be seen faintly in the mine; head yellow brown with jaws and cephalic ganglia somewhat darker”. On the same day I described the young larvae as follows: “Deep yellow, with a chain of very large, blackish, ventral spots; these spots are oval with their broader axis in the lateral plane (i.e. at right angles to the line from head to anus). The larva mines venter upwards”. The dark spots are similar to those carried by Ectoedemia quinquella Bedell and are shed in the same manner. On one mediofasciella larva I counted eleven, on another eight, and on a third seven spots. In the case of this last larva I could detect one of the discarded spots lying at the edge of the track of frass. By the time the larva leaves its contorted gallery and starts blotch-feeding, all these dark spots have been left behind.

On 29.viii.1969, I picked a birch leaf at Ballinahinch, Co. Galway containing a vacated mine which I provisionally determined as that of mediofasciella. The mine was old and discoloured, and as there was an element of doubt in my mind, I did not then record it. Now that I am familiar with mediofasciella, my doubts have been dispelled, and I can with confidence confirm the record and pronounce Ectoedemia (Dechiria) mediofasciella Haworth (woolhopiella Stainton) to be an addition to the Irish list. It also occurs in Scotland: on 30.vii. 1927 Mr E. C. Pelham-Clinton found three mines (two vacated and the third containing a dead larva) at Tongue, in north Sutherland.

So it seems that mediofasciella is widely distributed throughout Britain at a very low level of density, but from time to time in local abundance. In conclusion let me add that in September 1972 I made a pilgrimage to ‘woolhopiella’s’ eponymous village in Herefordshire, but drew blank. Indeed, there was little sign of insect life at all because, as a local game-keeper told me, the farmers had overdone their spraying.

Carpinus (Hornbeam) and Corylus (Hazel)

We have two neps on these foodplants, Nepticula floslactive Haworth and N. microtheriella Stainton. The adults are quite distinct but the larvae and mines can easily be confused. The following notes may help readers to separate the two.

(To be continued)