

## ***Etainia sericopeza* Zell. (Lep., Nept.).**

### **A brief outline of its biology.**

By

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As there is a great confusion in literature regarding the biology of *Etainia sericopeza* Zell., feeding upon *Acer platanoides* L., the author should like to give a brief outline of the life of the said species, of which he has made a special study for about ten years.

In its annual cycle *E. sericopeza* goes through three generations, the first of which is derived from the hibernating larvae.

In years of average climatic conditions, the vanguards of the first generation occur about the 10th of May, but not till the 1st of June does the generation achieve its maximum, which remains nearly constant for about three weeks, whereupon it abruptly declines to zero in a few days.

The following second and third generations are to some extent confluent, with remarkably short-lasting maxima in the last week of July and in the week about the 1st of September; at the middle of this month the last imagines become extinct.

Some of the larvae of the second generation develop into the third generation, and some have their ecology altered, which leads to hibernation.

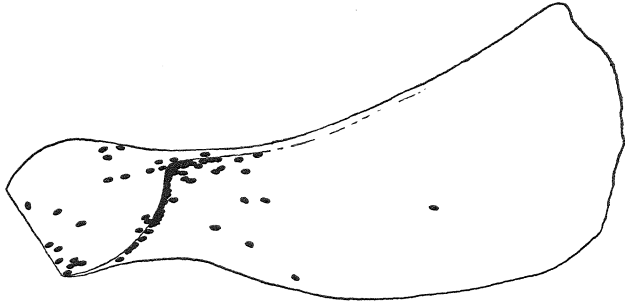
The majority of the larvae of the third generation are led to hibernation, too, by altered ecology, while the rest, with unchanged ecology, die out. The reason why these strange fissions in ecology take place, will be explained later on.

The females of the 1st generation do not start oviposition, till the samarae are full-sized, which is the case

about the 8th of June, as no Nepticulid (with one exception) oviposits upon organs being in growth.

In literature it is always mentioned that the ovum is placed near the end of the wing of the samara, from which place a mine runs towards the pericarp. This information is, however, not quite right, as shown in the figure showing the placing of 100 ova in a samara.

This means that of one hundred mined samarae, but a



The placing of 100 ova of *Etainia sericopeza* Zell. put down upon a single samara.

very few will show a mine in the wing; it does not mean, however, that the mined samarae do not call the attention of collectors, it only means that attention should not be paid to wing-mines, but to the discoloration of the pericarps. The mine running to the entrance to the seed-cavern, which usually is made between the two adjoining pericarps, and the exit-mine, produced by the larva after the devouring of the seed, discolour the samara with a very conspicuous brownish purple.

Later in summer the inner wall of the pericarp gets hard, and renders it impossible for the larva to penetrate into the seed-cavern, and the feeding must be restricted to a mining in the outer soft wall; this in no way, however, incommodes the larva, which develops quite normally.

During the summer samarae run short, and about 1st of August the second generation place many ova upon the broad bases of the leaf-stalks. Here the larva makes a rather extensive mine, discolouring the base in the same way as mentioned about the pericarps.

Later on the larva leaves this mine through the inward side of the leaf-stalk, opposite to the bud. Its next action is an utterly unique one for a Nepticulid larva, as it now, advancing around the base of the bud, cuts the basal part of the scales, leaving them as a dead cap, loosely covering the leaves in the bud.

Having finished this, the larva devours the contents of the bud and penetrates into the green bark of the twig, where an irregular mine is produced, partly encircling the twig, partly running up to 20 mm. along it. Here the larva hibernates, but feeding is taken up during mild spells in the winter. In December the larva measures 1.5 mm.

The ova, which are placed upon the samarae, develop quite normally into the third generation, which places nearly all ova upon the stalk-bases, as only few samarae are left; but about the 1st of September the bases of the stalks are so heavily sclerotized that the tiny larva is unable to make a feeding-mine; it therefore penetrates into a short, straight mine leading directly to the bud, through which it proceeds, partly by mining, partly by slipping between the leaves, down to the twig, in the green bark of which it behaves in the same way as the August larva. In December this larva measures just under 1.0 mm. In the spring it returns to the bud, the leaves of which are now completely devoured; the scales are, however, spared, and this makes the bud look very conspicuous, as, though it grows to a remarkable length, it will never open.

The larvae, originating from ova placed upon the last samarae, may be found in the decaying fruits, even in

the first week of October, when they die out, without being able to pupate.

Jäckh, quoted by Hering, 1957, says that the larvae of the 1st generation mine flower-buds and stalk-bases.

Flower-buds are, however, consistently rejected by the females, so Jäckh's information must be incorrect; in all probability he has mistaken the said enlarged leaf-buds for flower-buds, because of their size. On the other hand, his second information sounds really credible, at least as regards the earliest eclosed females, as these occur a month before oviposition upon the samarae will be possible. The present author has had his attention directed towards this possibility, but in spite of a very close examination it could not be proved in Danish material.

The larvae leave their whereabouts from the middle of April to the first days of May. The September-larvae leave the twigs directly through the open ends, as the dead caps of scales have fallen off long ago.

The August-larvae make frayed exit-apertures through the scales of the bud, through the bark of the twig, or even through a neighbour-bud not otherwise damaged.

The well known rosy-red cocoons are found on the trunk of the tree, but there are only a few of those present, the rest are to be found on buds well aloft, or more often between rubbish on the ground, and these escape notice by being brown.

The freshly spun cocoon is white, but turns rosy-red by being exposed to sunlight; if being placed in deep shade, but exposed to moisture, it turns brown, and if exposed to both sun and moisture, it gets a vivid red-brown colour, as on buds where the evaporation from the tissues affords sufficient moisture to produce the brown colour, while the leafless trees do not prevent the action of sunlight. In spring, when the air is rela-

tively dry, the cocoons on the trunk keep their rosy-red colour, while in the moist summer all cocoons are brown.

The damage done to the tree by the bud-feeding larvae is not so great as one would expect, and is highly surpassed by similar damage, done by Tortricid species. On the other hand, the damage done to the procreative powers of the tree is total.

The reason why *Acer platanoides* L. is not more numerous in Denmark, where it thrives so well, may possibly be sought in the action of the Nepticulid.

*Etainia sphendamni* Her., feeding on *Acer campestre* L., has not been closely studied by the author, but, thanks to the late Mr. J. P. Kryger, the author has been able to examine a large material of samarae, buds and twigs of the tree, and there is no doubt that the biology of the two Danish *Etainia* species is the very same.

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### Anmeldelse.

Hans Scherfig: **Dammen**. København (forl. Sirius) 1958. 110 pp. Pris kr. 12.50.

Dammens verden er mere forunderlig end de fleste aner. I nærværende bog fortæller Scherfig om de iagttagelser, han i årets løb har gjort i hans egen dam, suppleret med udpluk af hans omfattende læsning af videnskabelig litteratur. (At han ad sidst nævnte vej har viderebefordret enkelte misforståelser, kan man ikke bebrejde ham). Forfatteren nærer en dyb kærlighed til naturen, og han forstår at bruge sine øjne. Bogen er fortalt i en tiltalende saglig og nøgtern tone — bortset fra nogle små polemiske udfald af politisk og litterær art. Men dem kan man jo gå let hen over, hvis man ikke sympatiserer med dem. Den lille bog er fornøjelig læsning, og den kan utvivlsomt inspirere andre til selv at gøre deres iagttagelser i naturen.

Anker Nielsen.

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