

The Effect of Mild Winters on Some British Autumn and Spring Flying Lepidoptera

By D. W. H. FENNELL*

The mild winter of 1974/75 had a considerable effect on the flight period of some of our Lepidoptera which emerge in the cold months of the year. For example, here in the South of England, *Conistra ligula* (Esper), which is not usually seen after the middle of December, was still coming to a light trap in the last week of January; whereas *Apocheima pilosaria* (D. & S.), which normally emerges in the first mild spell of January or February, but certainly not before daylight hours are lengthening, appeared as early as 12th December.

I have sometimes wondered what happens to such species in more southerly parts of Europe, where mild winters are a normal feature of the climate, and I had expected that those species which emerge with us in the autumn, oviposit and die in the same year, would probably do the same further south, perhaps persisting late into the winter; and that those which hibernate with us, flying again and ovipositing in the spring, would probably maintain this habit, but hibernate only uneasily or not at all. Spring emerging species might logically be expected to appear a little earlier just as in Scotland, compared to southern England, they appear later.

I have recently been fortunate to spend two short winter periods in the extreme south of Spain in a latitude more southerly than any other part of Europe except the tips of Sicily and Greece. The locality is the foothills behind San Pedro de Alcantara in the Province of Malaga, about three miles inland from the sea in the Marbella plain, and about half way between Malaga and Gibraltar. On each occasion I ran a 6 watt actinic tube on a Heath trap throughout the period.

The first visit was 17th-20th December, 1972. Captures included 16 resident British species, of which those which fly here only in the autumn were: *Eupithecia phoeniciata* (Rambur), *Aporophyla nigra* (Haw.), *Allophyas oxyacanthae* (L.), *Polymixis flavicincta* (D. & S.) and *Agrochola lychnidis* (D. & S.). Three of the commonest species seen on that occasion were *Idaea seriata* (Schranck), *Gymnoscelis rufifasciata* (Haw.) and *Chesias rufata* (Fab.), none of which are cold season moths in Britain. Both in the natural vegetation and in gardens *Genista* species are common in the area, so that a representative of the genus *Chesias* was not unexpected; what was surprising was that it should have been *rufata* rather than *legatella* (D. & S.), which flies in October in Britain. The really amazing captures, however, were two specimens each of *Menophra abruptaria* (Thunb.) and *Xylocampa areola* (Esper). The latter does sometimes respond to mild weather at the beginning of the year in Britain—I recorded one on 2nd February in 1975—but *abruptaria* is out in April and May here, and I would never have expected to see it towards the end of the year.

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My second visit was 31st January to 7th February, 1976. On this occasion (seven nights trapping against three in 1972) the list included 22 resident British species. Of those British autumnal species taken on the December visit only *A. nigra* and *A. lychnidis* were seen again, both getting very worn; in addition there were examples of *Conistra vaccinii* (L.), *Caradrina clavi-palpis* (Scop.) and *Nycteola revayana* (Scop.). This time the surprise was a fresh specimen of *Lithophane leautieri* (Bois.), which must either hibernate there after an autumn emergence and fly again in the spring, or emerge at favourable opportunities during the winter. The three species in my second December list—*I. seriata*, *G. rufifasciata* and *C. rufata*—were all still common and in many cases fresh, evidently also emerging on suitable occasions throughout the winter; and the two surprises of the December list—*M. abruptaria* and *X. areola*—were seen again, the latter now commonly. The only additional British spring species to appear was *Colostygia multistrigaria* (Haw.), but this may have been due to the fact that the spring rains only began while I was there, too late for me to see anything of species emerging as a result of their arrival.

It seems therefore that many of species which live in southern Europe as well as in Britain are on the wing throughout the winter in the mild regions, and that it is the harshness of our climate which has caused them here to divide into autumn and spring fliers. I had always imagined that, as with many plants flower development can only take place when the rate of increase or decrease of daylight hours is suitable for them, so there would be a mechanism which would inhibit a spring flying moth from emerging in the autumn, and *vice versa*.

My faith in this theory was shaken, however, by the records of *A. pilosaria* in Britain in 1974 before 21st December, the shortest day; and from my Spanish records it seems clear that there is no reason why, if the winter climate in Britain continues to become milder, we should not see some of our early spring species, such as *X. areola*, appearing in the autumn and flying through the winter, hibernating perhaps only sporadically or not at all. Our autumn species, too, would persist until the spring as *A. nigra* and *A. lychnidis* do in the south of Spain. *Agrochola macilenta* (Hübner) comes to mind as a species which might do this, as it remains on the wing in mild winters in Britain long after *A. lychnidis* is over. It was still fairly common in Herefordshire in early December 1967 (Fennell, *Ent. Rec.*, **80** (1): 28), so that perhaps it can already extend its flight period into the second half of our winter.

Notes and Observations

THE VOLTINISM OF *PHYLLONORYCTER ROBORIS* (ZELLER) AND *P. CAVELLA* (ZELLER). — In my recent paper on the oak-feeding species of *Phyllonorycter* (*Ent. Rec.*, **87**: 240-245), I made the tentative suggestion that *P. roboris* might be univoltine and Mr.



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