

Where did they come from? *A. iris* is not a common insect at any time, even in its favorite haunts. Evidently they were strangers—emigrants—they had crossed the sea from their far off home in Germany, to be knocked to pieces in London streets—*sic transit gloria mundi*.

4. Holding over or retardation of development is one of those curious phases of insect economy which has never been satisfactorily accounted for. It is a well known fact among English Entomologists that the Death's-head moth (*Acherontia atropos*) is very apt to remain two or three years in the *pupa* state, therefore they subject them to heat in order to hasten their development. But even with this help, some of them will still remain in *pupa* for one or two years. At a meeting of the Entomological Club of the American Association for the Advancement of Science 1876, "Canadian Entomologist," v. viii p.p. 182-183.

"Dr. Morris asked if any of the gentlemen present who were in the habit of raising *borer*, had made observations in reference to the length of time the development of the perfect insect may be retarded. He stated that three or four years since he had placed a number of cocoons of *S. Cynthia* on a shelf in his house, and that after lying there all that time, some of them had this year produced the perfect insect. Dr. Hagen referred to an instance related by Kirby and Spence (7th Edit. p. 121.) where a beetle (*Blapsis splendens*) was ascertained to have existed in the wood of a pine table more than twenty years."

At p. p. 138-139 vol. ix., Canadian Entomologist, J. A. Moffatt writes:—

"On the 24th September, 1875, I took a great many large caterpillars of a reddish buff colour, with a dark dorsal stripe, feeding on the willow. They soon went down to the soil and spun themselves up in hard brown cocoons, when I put them away for the winter. In the spring of 1876, I brought them to the heat, and after waiting some time and nothing appearing, I opened one of them and found the caterpillar alive and as fresh in colour as when it first spun up. In this condition they continued until the fall, when I again put them away for the winter. In the spring of 1877, I again examined them and found them fresh and with signs of life, but as the season advanced, I opened some of them and found them dead, and the remainder having assumed a shrivelled look, I laid them aside as hopeless. On the 17th June, my attention was attracted by a scratching noise, which I found came from these cocoons which were now reduced in number to six. On lifting, I found one of them rattling and shaking with great vigour; I returned it to the box and waited three days; when nothing appearing, I broke it open and a fully developed fly walked out in a very feeble condition, its length was 1 inch; expanse 1; head, thorax and legs black; antennae and feet yellow; abdomen brown. A yellowish spot between thorax and abdomen; wings light smoky."

From the foregoing, it may be deduced that although a certain number of *larva* may be subject to the same conditions, yet that the result will not be the same individually; as

seemingly each has its own constitution and measure of vital impetus, and no external conditions (short of accident or actual destruction) will cause divergence therefrom; and in this we see a wise provision of nature, as, if all the brood of these large and conspicuous insects were to emerge at one time, their chances of extermination would be much increased. But by a portion holding over and only a sufficient number being developed to continue the species, without becoming unduly conspicuous, a reserve is maintained for any eventuality. It is remarkable that this peculiar property is only possessed in a marked degree by the Sphingidae and Bombycidae.

5. Occasional visitants are those which by force of winds are blown upon our shores. Instance that magnificent insect (*Chrysocampa neri*) which has been taken in England at long intervals, and its *larva* at still longer; but from the fact of its having been taken in both the *larva* and *imago* states, it must rank as a British insect. There is no doubt that it flies across the channel, as it is always taken on the south or south-east coast. As the French variety of the common goldfinch, (*Fringilla carduelis*) in the spring and fall, flies across the channel to the same coast to feed and returns on the same day, there can be no reason why so large and strong winged an insect as *C. neri* should not accomplish the same journey, especially when attracted by light; but it must always remain a rare insect; its natural food-plant (*Nerium oleander*) being well nigh unattainable, although it will feed on the vine. Having now brought this article to a close so far as my data and space will permit, I must leave it in the hands of others to furnish their quota of information on this abstruse subject; being a firm believer in the Caxtonian aphorism—That every man of sound brain, whom you meet, knows something worth knowing better than yourself.

RICHARD SHIELD.

Montreal, April, 1883.

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