

Batesian mimicry in *Anarta myrtilli* (L.) (Lep.: Noctuidae)?

On 29 June 2014, I was collecting with my father on an area of heathland near the Flanders Moss National Nature Reserve, to the west of Stirling in Scotland. The day was predominantly rather cloudy and although several *Coenonympha tullia* were on the wing during sunny intervals, diurnal Lepidoptera were few and far between. It was during one of these spells of sunshine that I spotted what I initially thought was a species of bee, flying quickly between the flowers of the heather *Calluna* spp. However, I felt there was something slightly unusual about this insect, vaguely reminiscent of the day-flying Sphingidae I have seen in abundance in the Mediterranean. It was not until I managed to net it that I realised my mistake and identified it as the moth *Anarta myrtilli*. An error in identification at ordinal level is not something one should be proud of, but my feeling of silliness was slightly lessened by my father remarking “*Are you sure that’s not a bee?*” Clearly, it was convincing in its similarity.

Having since considered this in more detail, I have come to the conclusion that there are in fact some areas of striking similarity between an individual *A. myrtilli* at flight and a large species of stinging Hymenoptera, such as a bee or wasp. The mode of flight is perhaps the characteristic which renders the greatest similarity. The moth has a sort of wobbly, zigzag flight where it appears to home in on target flowers, gradually reducing the width of the ‘wobble’ in its flight as it approaches, before slowing down, feeding and then moving off quickly to another flower. This is very similar indeed to the slow and equally wobbling flight of, for example, common *Bombus* spp. Furthermore, *A. myrtilli* appears to beat its wings with a bee-like rapidity, which acts to make its true morphology difficult to discern on the wing and has the effect of producing an apparent contrasting black/pale colouration.

These features seem to have combined to produce a sufficient resemblance to a species of bee or wasp that both my father and myself could have been fooled, albeit temporarily, despite us both having varying degrees of entomological experience. We are led, then, to ask whether this similarity is a simple coincidence, and that perhaps others would not even have seen it, or an actual incidence of Batesian mimicry, where an otherwise harmless species mimics a harmful or distasteful one to deter predators (in this instance, most likely birds). I think it is possible that both of these are to some extent true. It is easy to imagine an initial, passing and coincidental resemblance being amplified over time by the action of natural selection to confer greater protection. But is the guise sufficient to fool a potential predator? The fact that both of us were taken in by it makes me think this likely, and it must be borne in mind that protective resemblances need not be perfect - a passing similarity which disguises the moth’s true identity even one instance in a hundred would still be subject to a significant selective pressure.

The possibility that the various characteristics described here are an actual instance of mimicry seems to me to be a very real one and, were this the case, it would mean that this species possessed three distinct lines of defensive colouration and behaviour;

it only flies during periods of sunshine and therefore its anterior wings are cryptically coloured in dull, earthy red-browns for when it must lie at rest among the heather; the posterior wings are coloured bright yellow and black and can be concealed while at rest and suddenly exposed if threatened, to startle a predator before the moth attempts to escape (so called 'flash colouration'); and, in its appearance and manner of flight it mimics a bee or wasp to deter potential predators while feeding and flying. I have hitherto not encountered any other members of the genus *Anarta* and it would be interesting to find out if these species were similarly deceptive, as they are also day-flying and this mimicry, if it is indeed that, would be necessarily restricted to such insects. I would be most interested to hear if others had also been deceived at some point by this species, initially mistaking it for a bee or wasp.

J. C. WEIR

32 Paul Drive, Airth, Falkirk, Stirlingshire FK2 8LA

(Email: jweir007@btinternet.com)

Graham Howarth

Older readers, in particular, will be saddened to hear that Graham Howarth passed away on 8 April 2015 at the age of 99 years. I have not been able to determine the number of years that he has taken this journal, but have been informed most reliably that he had completed 84 years as a member of the British Entomological and Natural History Society (formerly "the South London") and has been honoured as a Fellow of the Royal Entomological Society for no less than 76 years. We understand that an obituary will be published within the pages of the *British Journal of Entomology & Natural History* and we commend our subscribers to that publication.