# A Discussion on Cornish Aberrations of the Large Blue, *Phengaris arion* (Doherty, 1891) and Common Blue, P*olyommatus icarus* (Rottemburg, 1775) and Comments on Nomenclature.

The Large Blue takes its revised genus name (*Phengaris*) from William Doherty's description of it in his treatise 'New and Rare Indian Lycaenidae' which can be found within the Journal of the Asiatic Society of Bengal Vol. 60: Part 2, No.1 (1891) - page 36. Doherty explains that he has named the genus after the Modern Greek phrase 'a daughter of the moon' (μια κορή του φεγγάρι - mia kóri tou fengári). 'Fengári' being the Modern Greek word for moon. You can read about it in this link: Phengaris.

However there has been much debate about adopting the genus name. See the introduction in this link: Maculinea or Phengaris. which states, 'Although *Maculinea* van Eecke, 1915 (Lepidoptera, Lycaenidae) has been synonymised with *Phengaris* Doherty, 1890 (see: Fric et al. 2007, Pech et al. 2007, Kudrna and Fric 2013) we continue to use the well-established generic name here, since (i) the case is still undecided by the International Commission on Zoological Nomenclature (ICZN 2012) and strong arguments for the precedence f *Maculinea* over *Phengaris* have been made (Balletto et al. 2010, and comments on this case); and (ii) Ugelvig et al. (2011) have shown that *Maculinea* represents a monophyletic sub-clade and we agree with their conclusion: "*We recommend that the nomenclatural debate is delayed until irrefutable evidence is provided*"'.
Incidentally this article is recommended in its own right for further study of the *Maculinea alcon* group.

The Common Blue genus (*Polyommatus*) is derived from the Greek word pollá meaning 'many' and mátia meaning 'eyes' (Greek: πολλά μάτια) - describing the many ocelli adorning the underside of the wings.

Whilst on a transect at Dannonchapel, N. Cornwall in June 2005, Lee Slaughter and I witnessed a rather small and dark aberration of the Large Blue butterfly whose larvae were first introduced there on the 19th July 2000. The forewing looked rather like the aberration *supra-impunctata* and the underside a very dark looking aberration - *unipuncta Courvoisier*, 1907. (See photos below). Although, when first reported in Cornwall Butterfly Conservation's The Butterfly Observer issue 33, it was thought to resemble ab. *supra-impunctata* Oberthür, 1896 + *marginata* le Chamberlin.

Records taken during the early and middle part of the last century and held in the Natural History Museum suggest that aberrations of the above type appear to be common in specimens taken from Bude and Millook and generally in N. Cornwall. The western coastal climate and other environment conditions may be a factor in this. It is known that the expression of aberration through temperature shock is a graduated process and low (or high) temperatures in the last 24 hours of the final instar of the larva and the first 48 hours of the chrysalis stage assist in various extremes of aberration in the adult. This is especially so in much studied species such as the Small Tortoiseshell (*Aglais urticae (*Linn., 1758). Could this answer the question why these darker and more striking aberrations of the Large Blue were found here in the cooler climate of N. Cornwall?

However, because the larvae of the Large Blue is a predator of the larvae of the ant species *Myrmica sabuleti*, they should be subject to nest temperatures which remain fairly constant or kept within certain well defined constraints – a requirement for *M.sabuleti* brood rearing. Being underground one would not expect temperatures in *Myrmica sabuleti* colonies, close to the brood, to be so variable, or in some cases so low as to produce such aberrations in the adult butterfly. Certainly all specimens within any given colony would have emerged from such a well controlled temperature environment - so why are there so many aberrations, atypical of the species elsewhere? A perplexing subject indeed as it would be extremely difficult, under controlled experimental conditions, to control the temperature of *Myrmica sabuleti* colonies containing Large Blue larvae, to prove the point!

Genetically, we have to remember that the introduced race was originally sourced from the island of Öland in Sweden and therefore marginally different from the original English sub-species. It was considered that conditions on the Swedish Island closely matched the environmental conditions generally met with by the extinct English sub-species and that is why this race was chosen for re-introduction to the British Isles.

## Common Blue Aberration.

I first noticed an aberrant male Common Blue nectaring on Buddleia in my garden in St. Austell back in 2014. It was totally devoid of any orange scales on the underside (see photo below). As far as I could see, there was only one reported incidence of this at this link: Common Blue aberration and was observed at Murlough Bay, N. Ireland.

As already discussed, cold conditions are associated with more melanised adults at higher altitudes and latitudes (reviewed in Clusella Trullas et al., 2007; True, 2003). A scholarly article about this and concerning structural, as opposed to pigment colour changes, due to controlled temperature stress may be found here: Scientific Reports (nature.com)

**Large Blue, *Phengaris arion*, Dannonchapel, N. Cornwall, 21st. June 2005 with ventral forewing partially exposed. Photo © P.H. Boggis.**

**Large Blue Blue, *Phengaris arion*, Dannonchapel, aberration - *unipuncta Courvoisier*, 1907. N. Cornwall, 21st. June 2005. Photo © P.H. Boggis.**

**Large Blue, *Phengaris arion ab.unipuncta Courvoisier,* 1907, N. Cornwall, July 1902 – V. E. Shaw. Natural History Museum.**

**Aberrant Common Blue nectaring on Buddleia, St. Austell, 23rd. June 2014. Photo © P.H. Boggis.**

**Large Blue ovipositing on Thyme, Dannonchapel, N. Cornwall, 28th June 2005. Compare hindwing with aberrant above. Photo © P.H. Boggis.**

**Large Blue with uppers showing – Dannonchapel, N. Cornwall, June 2002. Photo © L. Slaughter by kind permission.**

**Dannonchapel Valley, N. Cornwall looking North East – taken from the coast path.**
**Photo: © L. Slaughter.**

~ Phil Boggis – 2nd January 2022