

The capacity for dark colouring is now known to be in each moth; and its caterpillar can detect twig colour through its skin, changing colour to match.



RECLAIMING THE PEPPERED MOTH

THE PEPPERED moth (*Biston betularia*) is often regarded as one of the icons of evolution. These speckled moths come in two predominant forms: light and dark.

During the industrial revolution in the mid-nineteenth century, parts of England were notorious for air pollution. The pollution was so bad that it darkened tree trunks, both by killing the light-coloured lichens on their bark, and through directly blackening the trunks with soot. Eventually, somebody noticed that the dark variety of moth had become more common than the light variety.

Evolutionists claimed this was because the light-coloured moths stood out against the darkened tree trunks and thus were more easily seen (and eaten) by birds.

The phrase ‘industrial melanism’ for this was born, and peppered moths soon gained the reputation of being a showcase example of evolution by natural selection in action. In 1973, H.B. Kettlewell tried to demonstrate this by filming how birds preferred to pick off lighter-coloured peppered moths on tree trunks. Kettlewell later pronounced that if Darwin had seen this, “He would have witnessed the consummation and confirmation of his life’s work.”¹

Natural selection is *not* evolution!

Many evolutionists are blind to the fact that merely changing the ratio of the light- and dark-coloured moths is *not* evolution. At best, it would be an example of *natural selection*. However, as the famous evolutionist Stephen Jay Gould (1941–2002) pointed out, “Natural selection ranked as a standard item in biological discourse” among the pre-Darwinian creationists.² In other words, natural selection is not proof of evolution, neither is it in conflict with creation.

Natural selection is better defined as *differential reproduction*: the ability of some organisms to leave behind a higher number of offspring based on how well suited they are to a given environment.³

But all this means is that the genes carried by these individuals will be better represented in the next generation while other genes will become less common.

In the end, selection works by *removing* genes from the population. This is the opposite of what is required for evolution, since evolution requires the creation of brand-new genetic information that codes for new complex biochemical processes. For all these reasons, peppered moths cannot be used as evidence for evolution.

Fraudulent photos

To the embarrassment of many evolutionists, after several decades, it was

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discovered that the videos and photos taken by Kettlewell were actually fraudulent.⁴ Peppered moths do not rest on tree trunks during the day. They actually hide under leaves and limbs in the tree canopy. When they do rest on the trunk, it is usually high up on the tree in a shaded area beneath a limb. The pictures and videos used to ‘prove’ evolution were actually of dead moths that were glued or pinned to tree trunks near ground level. The experiment did at least tell us that birds can more easily find food items that stand out from the background colours and patterns, but that is not very surprising.

Lamenting on the loss of one of their favourite examples of ‘evolution’, noted evolutionary biologist and vocal atheist Jerry Coyne commented on the fraud: “Until now, however, the prize horse in our stable of examples has been the evolution of ‘industrial melanism’ in the peppered moth.” He even likened his own reaction to the whole debacle to how he felt when he first found out that it was “not Santa who brought the presents on Christmas Eve.”⁵ Yet, in jest, he lamented that the moths were “not yet ready for the glue factory” because he still wanted to hold onto them.

However, even though this fraud has been exposed for some time, peppered moths are still cited in textbooks today as evidence for evolution.⁶ Evolutionists say that even if it was wrong to use the dead, glued moths as evidence of live moth behaviour, it does not negate the fact that the environment contributed to a change in the ratio of dark to light-coloured moths.⁷ But as we have already pointed out, changing the ratio is not evolution, even if accomplished by natural selection.

Colour differences are designed

Recent research now shows that the situation is in fact far worse for the evolutionist.

A 2016 paper in *Nature* demonstrated that the dark colour in peppered moths is not a product of random mutation. Rather, it appears that a stretch of moveable DNA (a *transposon*) is responsible for the colour variation.⁸ Transposons are stretches of DNA that are able to move around between various places in the genome. This allows organisms to generate variation within their ‘kind’; most creationists believe this is a God-designed system that permits different species to adapt to a range of environmental challenges.

In this case, a certain transposon⁹ inserting itself into one particular place in the moth genome is responsible for the dark colour. Researchers found that ~95% of all black peppered moths, but none of the light-coloured variants,



carried this stretch of DNA in that position. This inserted segment is large and complex, consisting of 21,925 DNA ‘letters’. So it appears that the expression of the dark trait is due to a complex and well-designed section of code, not a ‘simple’, random mutation.

Most peppered moths (dark and light) have this mobile genetic code written somewhere in their DNA, but when the code gets inserted in the right place in the genome, it expresses the dark colouration. We do not know what makes this transposon move around into a given location. If it is random, natural selection may still have played an important role in favouring the ‘dark’ outcome of this ‘industrial melanism’. But for all anyone knows, there *may* be an environmental trigger, such that more dark trunks means more dark moths are born which would otherwise have been light-coloured.

Caterpillars ‘see’ their surrounding colour with their skin

Peppered moth larvae are in many ways even more interesting than the adults. These caterpillars also make use of camouflage to avoid predation by birds, but they do this in a different way. It turns out that peppered moth caterpillars are able to change their colour over the course of a few weeks to mimic the colour of the twigs they are on.^{10,11}

In addition, researchers have discovered that these caterpillars can actually detect the twig’s colour through their *skin*. In this particular experiment, the eyes of half the peppered moth caterpillars were painted so that they were not able to see anything. Given a choice, in 70–80% of cases, these caterpillars chose to climb onto rods that matched their current body colour—even though half of them had covered eyes (see fig. 1). Peppered moth caterpillars not only change their colour to adapt to



Fig. 1: In each pair of caterpillars, one of them has had their eyes painted over. Yet they still take on the colour of the stick they are on. This suggests they can detect the colour through their skin!

(Photos from Eacock, A. *et al.*, Ref. 12)

their environment, they even modify their behaviour to ensure the environment is more to their advantage.

The researchers reported that, “A whole suite of visual genes, expressed across the larval integument [skin], likely plays a key role in the mechanism.”¹² Clearly, then, this ability cannot be attributed to natural selection acting on a random mutation. What we are witnessing is a complex mechanism that God engineered into these amazingly complex little creatures.

Summary

Peppered moth larvae are programmed with a whole suite of genetic factors that allow the caterpillars to detect changes in the environment (coloured twigs in this case) and slowly change colour over time to adapt to their respective environments. Likewise, the cause of the dark colour of adult peppered moths is inconsistent with the evolutionary idea of random mutations.

We do not yet know if there is a link between the caterpillar colour and the adult colour, but we do know that there are designed systems in place to effectively change the animal’s colour at an early life stage. This flies in the face of the claim that peppered moths are an excellent example of evolution. Instead, as it turns out, they attest to the wonders of an intelligent Creator of the highest order. ■

References and notes

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