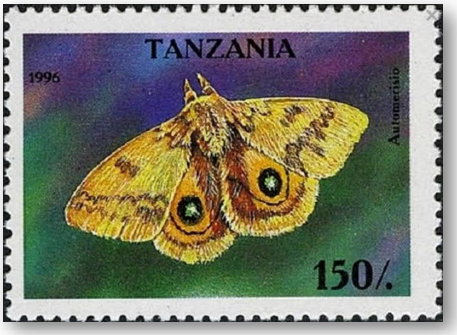
Copying nature can be helpful

The peacock butterfly scares enemies with its big eyes (Liechtenstein 2011)

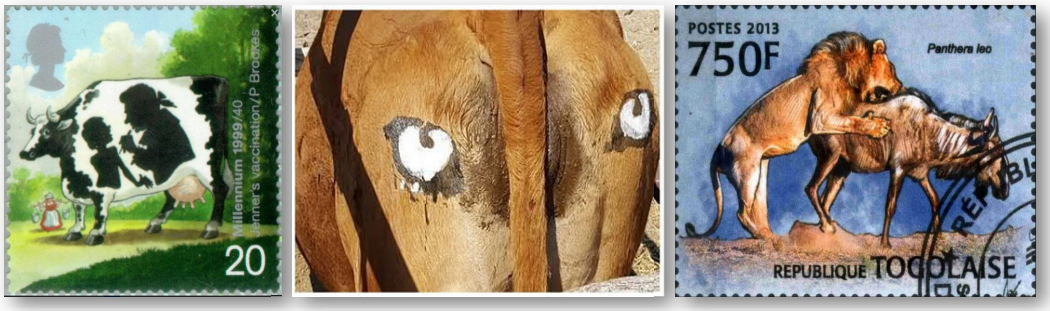
Recently I read an article in a magazine about a clever farmer in South Africa, the content of which I would like to share with the reader, however, I must elaborate a little further: in nature we always find eyes built into a living being in some form. Some animals have several of them, let us think of insects for example: the peacock butterfly [*Inachis io* LINNAEUS] or the South and Central American *Automeris* species [e.g. *A. io* FABRICIUS] have drawings on their wings in addition to the two sensory organs on their heads. The peacock has another four eyes drawn on the wings, while *Automeris* species have only their two on the hind wings. We can spot the peacock butterfly in the sunshine on the summer lilac and observe it without much effort: The underside of the wings is marbled black and when the wings are folded, the animal is barely visible - depending on its position. If the butterfly wants to get sunshine to maintain or reach flight readiness, it unfolds the wings so that the body is illuminated by the warming rays of the sun. Thus, while easy to spot, the butterfly signals to its enemies, such as other insects or birds:Attention - I have big eyes and I am stronger than you, leave me alone. The moths of *Automeris* species, whose caterpillars are poisonous [see Lepidopterism], have marbled inconspicuous forewings, which in resting position cover the hind wings armed with the eyes. If the animals are alarmed, they move the forewings forward and now enemies can admire the large eyes and turn away from the animal, because as said, eyes convey danger. Similarly, we perceive the colors yellow and black [hornets, wasps...] - hard to believe that the two colors were once fashionable for ladies during one season; or the color red, which we basically perceive as danger or warning on traffic signs. Orderlies are European moths that work with the same principle as Automeris species, just with the startle colors purple, red, yellow and blue.



Automeris species have the eyes only on the back wings, which become visible as soon as the front wings are moved forward (Tanzania 1996))

Order ribbons have no eyes on the back wings, but these are brightly shining (Jersey 2006)

A South African farmer has now transferred this strategy to his cattle in a picturesque way, because every year predatory cats tore a few of his cows: on the rear end of the cows he painted large eyes in bright colors and from then on the cats left his cows alone. This observation has now been scientifically studied and confirmed. A great trick: leveraging nature with natural means – completely without chemicals and without killing.



Cattle painted with eyes - not E.Jenner - are less likely to be killed by lions and leopards (United Kingdom 1999; for photo, see Radford et al., Togo 2013).

Literature:

- Wikipedia
- Radford et al., Artificial eyespots on cattle reduce predation by large carnivores (2020) Communications Biology volume , Article number: 430