

JOTTINGS ON PROTECTIVE COLOUR IN ANIMALS

by

L. F. DE BEAUFORT

I have often been puzzled about the remarkable change of colour in the roedeer, a species that I can watch almost daily from my house. In the winter the greyish brown coat can hardly be distinguished against the dull, brownish shrubby wood, at the border of which they come to feed. The only visible part of the animal is the white patch on their hindquarters. It is known that this patch is a guiding mark for the young to follow their mother. Some years ago a roedeer calf followed a boy on a bicycle with a white mudguard even to the boy's house. We may take it that also adults follow the leader by this mark. In the summer, on the contrary, the bright reddish coat makes the roedeer very conspicuous against the bright green background. I know how dangerous it is to speculate on the meaning of colour in animals, and I agree that in many cases no explanation is possible as the colour, so striking for the human eye, may have no significance for the animal and its environment. However, I dare to suggest a hypothetical explanation of what use the red colour can be to the roedeer, and to many other deer too.

Roedeer have no enemies in western Europe, with the exception of dogs and men (especially when driving motorcars!), but formerly here and still in other parts of Europe and Asia lynx and wolf are their predators. Now it is known that Carnivora as well as most other mammals, with the exception of the Primates, are more or less colour blind and hence that for them a bright red object on a bright green background will be much less conspicuous than a dark brown on a bright background. The white patches on the hindquarters of the roedeer are somewhat less developed in the summer coat, but still conspicuous and as we may take it that the deer too are colour blind, the presence of these patches is as important in the summer as it is in the winter.

The objection could be made that wolves hunt on scent and not on sight. However, once within eyeshot, the deer will sooner see the wolves than these can see their prey. The lynx have quite another way of preying. From a tree they jump down on their prey and this will not be easy when the animal that they want to attack is almost invisible.

In a quite different case, I observed this pattern of one colour serving for protection and a patch of another colour as a guiding mark. When looking into the very clear water of a bay on the island of Waigeu, N.W. New Guinea, many years ago, I noticed a number of black dots, all moving slowly in the same direction. At first I had no idea what they could be, but by disturbing the water I saw that they were the dark spots on the base of the dorsal and caudal fins of absolutely transparent fishes. It is to be regretted that I made no note of this observation and I cannot remember to what species these "invisible fishes" belong, but probably they were a shoal either of *Hemirhamphus* or of *Ambassis*. In any case we may take it that for predators outside the water, such as herons and kites, these fishes were invisible, whereas the black marks served to keep the shoal together. Whether their transparency gave them also protection against predators in the water, especially against those swimming below the shoal, I cannot say.