THE THEORY OF PROTECTIVE COLORATION IN ANIMALS

(These Wildlife Stories are Written by William L. Finley, Sc. D. and Ed. F. Averill)

In the business and social world, a change of garment may be largely a matter of style. In the world of wild folks, it is more likely a case of expediency and necessity. The protective coloration of animals is a theory that has been more or less accepted by naturalists since the time of Darwin. In the world of nature where the fittest survives, the keenest has out-lasted his competitors. Therefore, it has been contended that where one creature preys upon another, those tints that have been acquired by natural selection have come to be the most useful in concealing the weaker from the stronger.

It is very likely that more has been loaded on this theory of protective coloration than it can carry. That there is some measure of truth, no one can deny. But it is safe to say that the whole scheme of nature is so intricate and involved that we do not know the real cause behind so many effects.

In the Arctic region the long nights and the absence of light may have a good to do with the loss of color. If Mother Nature's idea was to protect the ptarmigan and snow-shoe rabbit by a changeable dress according to seasons, why does the weasel, Arctic fox and snowy owl take on the same white clothes in winter as the ptarmigan and hare, upon whom they prey? As far as protective coloration is concerned, these creatures of toothsome flesh may just as well retain one color of dress because the law that favors them also favors their most deadly enemies.

A bird is protectively colored when its plumage blends

into the surroundings and the himself knows instinctively the value of the imitative tints. This seems to be most vivid in some of the grouse families of the North.

When in the Mt. McKinley country in Alaska years ago, we were climbing one of the high ranges looking for a chance to photograph mountain sheep. The slope was mottled with white patches of snow bedded in the dry grass. I saw nothing to indicate life along the side of the mountain until suddenly a few feet ahead something moved. There as plain as day was a rock ptarmigan in its mottled fall plumage, partly white and partly brown and gray, and the assimilation very marked. It was so evident that as my eye swept along the slope, I did not detect another bird until one moved, and then another. I was literally in a flock of fifteen birds.

Upon my approach, the birds were evidently upon their guard and settled motionless into their surroundings. It is difficult to say that they were acting on the theory of protective coloration, but they did know that they were hidden if they froze. Color deceives the eye, but movement reveals the form.

A little later as I was watching the same flock feeding along the hillside, I heard a low warning note given by one of the ptarmigan. Every bird crouched and was as still as death. I looked up and saw a hawk sailing overhead. Not a single bird below was visible to the keen eyes of the hunter. As long as the hawk was in the air, the warning note and the freezing of the whole flock continued.

This is a wide treeless country. It seems a remarkable adaptation that the ptarmigan is gray and brown in summer. Toward

fall white feathers appear gradually and the bird has a mottled coat. Later when the whole country is covered with snow, the ptarmigan slips on a pure white dress. The plumage changes so aptly with the seasons that the bird undoubtedly takes advantage of these changes as a protection from its enemies.

I have seen little sandpipers patter over the sand and into the shadow of grasses and drop motionless, fading completely from my eyes. It is the same with a baby grouse or quail crouching in the dry grass or dead leaves, where their mottled brown bodies were perfectly imitated.

A grouse will fly up and seem to take advantage by hiding in the green foliage of a tree when its plumage is distinctly different in color. It knows instinctively that motion is caught quickly by the eye of an enemy. In this case it is not so much the blending of colors. Freezing or perfect stillness is the strongest essential to safety.

One day I was watching a flock of bushtits feeding in an alder. The midgets have a constant talkative note as if they were always saying something. This gossip is not so much for conversation as to keep the whole flock together. As I stood near, three or four birds were within a few feet of me. One of the parents in the next tree began a shrill quavering whistle, and instantly it was taken up by everyone of the band. The two tiny birds near me, as well as all the others, froze to their perches. Had I not known, I couldn't have told just where the whistle was coming from, it sounded so scattering like the elusive grating call of the cicada. Then I saw a hawk sweeping slowly overhead. The confusing chorus lasted as long as the hawk was in sight; nor

did one of the little bushtits move a feather, but just sat and trilled in perfect unison. It served as a unique method of protection. The whole flock had learned to act as a unit. It would have been hard for an enemy to tell where a single bird was, the alarm note was so deceiving. They were motionless and their clothing harmonized perfectly with the shadows of the foliage.

As a protective method, a wild creature with many enemies could hardly figure out the theory of protective coloration, but instinctively he knows that his safety depends upon "freezing."