

REACTION OF THE MOURNING DOVE TO COLORED EGGS

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THE Mourning Dove, *Zenaidura macroura* (Linn.), has a nest fidelity which is probably not excelled by any other of our wild birds. Little can be done to the eggs or young short of actual destruction which will discourage the parents. Early in the nesting cycle, when eggs are fresh, the bird incubating during the day, usually the male, may be frightened from the nest and will remain away as long as an hour, but after incubation progresses this time shortens until the return is a matter of minutes. If one sex is frightened from the nest, often the other will be the first to take over the incubation or brooding duties. Only when the birds are flushed from the nest at night do they make no effort to return. In the process of observing nearly four thousand nests in Iowa and Nebraska over a period of five years, from 1938 to 1943, and in the handling of twelve hundred eggs and nearly two thousand young, no nest desertion that could be attributed to the observer has been noted.

Mourning Doves make but little effort to protect a nest containing eggs from predators other than by striking at the marauder with their wings. When young are in the nest, both parents will fight Blue Jays or other predators in order to save their nestlings. During exceedingly hot weather a flushed dove will quickly return to an exposed nest, such as one on the ground, in order to protect young or eggs from overheating. That the parent performs the broken-wing ruse is common knowledge.

In order to test the staying quality of the dove in this matter of nest disturbance it was decided to color eggs with various tints. Children's ordinary water colors were used and eggs of different nests in the wild were colored all hues of the rainbow.

At the time of laying, the eggs have a creamy white color with an orange tinge. The orange tinge results from the translucence of the shell which permits the yellow of the yolk to show through. As incubation progresses, this color gradually turns to a dead white. By the end of incubation the eggs are a grayish white as a result of the parents' walking over them with dirty feet. Following a rain, the eggs will be stained clay color or black depending upon the kind of mud through which the parents have walked. This accumulation of dirt is gradually rubbed off by the breast feathers, but the shell never becomes really clean again. The shell of an egg has a soft, irregular surface at the time of laying, but during incubation this is worn off so that the shell becomes shiny and smooth. Sterile eggs become almost gray as they

are further incubated. As one becomes acquainted with these normal colors of dove eggs, it is possible to tell within a day or two the length of time a nest has been active.

It was known that a dove would incubate the blue eggs of a Robin while incubating her own and not be perturbed by this additional color. Captive doves had shown fear of brilliant reds, but little is known concerning color perception in this species. It was hoped that by coloring eggs, something of the birds' color perception might be learned.

Experiments were as follows. In a low nest in an apple tree, one egg was painted yellow and the other left white. The bird did not return immediately, but later came back and continued incubating. In a nest in a hackberry, one egg was colored bright green and the other left white. When the parent returned forty minutes later, it alighted above and looked at the eggs. Then it jumped down beside the nest and examined them again. Finally it settled to incubating as though nothing were wrong. Green and yellow are not such startling colors, but surely red would appear as blood and look as though the eggs were damaged. In a nest in a lilac bush, one egg was colored blood red and the other left white. This dove returned in three minutes and incubated the eggs without hesitation. These eggs hatched, the young were banded, and a later brood was raised in the same location. In another nest in an apple tree, both eggs were painted bright robin's-egg blue. The bird returned in fifteen minutes and incubated them. In a nest in an elm tree, a very fresh egg was found and dyed black. The bird returned half an hour later and during the day laid a second egg. Only one of the two eggs hatched and this proved to be the black one. Apparently the dye itself had no effect upon the eggs.

Since the coloring of only one egg did not seem to bother the birds, another test was made by dyeing both eggs, each a different color. In a nest in a hackberry tree, one of the eggs was painted orange and one blue. The parent incubated them. In a nest in a red pine, one egg was painted bright red and the other dark green. All of these colored eggs hatched and the young were banded. At another time, a single egg was found in a nest in a small hackberry and it was colored black and yellow with a white band left in the middle. The bird did not return immediately and the egg was found, later in the day, destroyed by some other bird. In another nest, one egg was colored red, white and blue, the other brown. These also hatched. Finally, both eggs in a nest were striped yellow and black with a white band in the middle, thereby duplicating the egg that had been destroyed, and these hatched.

It seems evident from these observations that the Mourning Dove will incubate its eggs regardless of their color. Since no color nor combination of colors caused nest desertion, we have no conclusive evidence whether the bird is color blind or not. Observations of eggs in other nests determined that any sort of damage to the eggshell, such as slight cracks or even small punctures, will cause nest desertion, although this rule is not universal. In many instances a punctured or cracked egg is simply removed by the dove and the other continued to be incubated. The fact that in many cases the returning birds examined the eggs before incubating them would seem to indicate that they noticed that a change had taken place, but the desire to incubate overcame any suspicions aroused by the egg color. There is much evidence from observations of captive birds that condition of the egg is determined through touch. The breast feathers have a tactile sensitivity so that they can determine the weight and structure of the egg. A puncture in an egg is apparently noted first through the stimulus of irregularity. When a dove settles down to incubate a punctured egg, it will quickly arise and examine the egg by turning it over with its bill. If, after several attempts, the egg does not 'feel' right, it will be pushed aside or even carried away. It may be concluded that the color of a dove egg is of less importance to the bird than the structural condition.

SUMMARY

Eggs in Mourning Dove nests were dyed with water colors in a variety of hues. In no instance did the color or colors of the eggs interrupt incubation or inhibit hatching. The presence of punctures or breaks in the eggs produces a greater response in the bird than the color, and may interrupt or stop incubation.

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NOTES ON VERACRUZAN BIRDS

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ORNITHOLOGICAL material from Veracruz, accumulated in 1941 and 1942 by field parties from the Department of Fish and Game, Agricultural and Mechanical College of Texas, add to the knowledge of the birds of that Mexican state. In view of the fact that little has appeared in print in the last two decades concerning the summer birds of that region, it seems appropriate to place on record the results of our work.