

EGG-LAYING RECORD OF A CAPTIVE MOURNING DOVE

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On September 12, 1925, in Norman, Oklahoma, we took two well-grown Western Mourning Doves (*Zenaidura macroura marginella*) about 12 to 14 days old from their nests. By the 15th they had learned to feed themselves on a mixture of bread, milk, seeds and gravel; later they were given canary bird seeds, kaffir corn and chick feed. They were kept by themselves in an outdoor cage 4 by 6 by 10 feet in size, 10 feet from our sleeping porch. Wild Mourning Doves first appeared on our grounds in 1926, on March 19, and were heard and seen occasionally thereafter.

The begging note was not heard from these young birds, but for the first ten days a high-pitched musical *whee-up* was used. From September 21 for two months the doves uttered a low-pitched *putt*. The alarm note *oo* appeared October 11; it was occasionally heard throughout the winter and also on May 20, when a cat passed by.

Until March 18 the birds showed no evidence of sex activity, but on this date one of them, L, gave a faulty *coo* and was seen charging the other, R; it was not until April 13 that his *coo* or perch song (see Craig, 1911) became entirely normal. Five days later he grew restless, evidently trying to indulge in nuptial flights, a frustrated activity he continued until released, but one never exhibited by R. Late in the afternoon of April 3, a box was placed near the front of their cage, 3 feet from the floor. At 7 o'clock the next morning L was in the box giving the nest call, *coo-roo*, in the correct attitude with head down, tail up and wings flipping. R soon settled herself in the box and gave a similar note. L searched for nesting material, picked up twigs and dropped them again. It was not until 9:30 that he brought one to the box. At 10:25 he got a piece of grass and stepped on his mate facing her tail instead of her head; the grass was dropped to the floor. The next piece he put on her back. R then descended, got a bunch of dead grass and placed it in the corner of the box; L manipulated it, took it to the floor and left it there. By April 6 they had learned the nest building routine, the female staying in the nest, the male bringing material, stepping on his mate's back and laying the piece before her for her to arrange. The next day, however, he carried materials away as well as bringing them up. After six mornings devoted to nest building the results were meager indeed.

April 10 at 5:45 p. m., R laid her first egg, standing erect during the process. She incubated it to some extent, but L did not. The second egg was laid during the morning of April 12. The next morning not a scrap of material was in the box. L's impulse to incubate did not function at all and his nest building behavior, after being perfected, degenerated. The result was a succession of eggs from R at a rapid rate, since L insisted on continually beginning the cycle over and over again. Not only did he fail to incubate, but he refused to allow R to do so, pulling out her feathers until she gave up the attempt. We moved the box to a higher, more secluded place, but it made no difference. The male's sole interest lay in nest calling (on April 13 he gave 70 nest calls in 12 minutes), a little carrying up and down of materials, and copulation.

The first attempt at copulation was seen April 4; L mounted with no preliminary ceremonies, but slipped off. April 5 there was some caressing, a little preening inside the wing, but no billing; after mating, the male gave the copulation note with bill wide open, *hoo hoo hoo hoo*. April 7 the process was the same except that now they included billing among the preliminaries. On April 13 the female

as well as the male gave the copulation note and thus the ceremony was complete; yet it was always gone through in abbreviated form in comparison with what I have observed in wild Mourning Doves.

In the fall of 1919 we raised two male Mourning Doves in captivity (Nice, 1921); the following spring no wild doves were heard on our grounds. The older of these birds gave an imperfect *coo* on February 7, and it was not until the 18th that he uttered the complete song; the younger cooed properly from his first trial, March 19. Thus the *coo* was faulty for some time in the two young males that had not heard it from other doves. Twice I have heard wild doves with slightly abnormal songs.

Craig (1914, p. 131) found with male Ring Doves reared in isolation that "the various notes uttered by this species, and all accompanying expressive movements, developed in perfect form." It would appear that the song of this dove is a simpler affair than that of the Mourning Dove. No mention is made of nest building, but all three birds when brought into contact with females experienced considerable difficulty in learning the copulation procedure.

Of the behavior patterns connected with reproduction the following functioned from the first in our pair of young birds: nest calling and its attendant attitudes in both birds; probably nest building in the female; charging the female, and the impulse to nuptial flight in the male. Other patterns were uncertain at first, but were performed passably well after considerable practise: the copulation ceremony with both birds; brooding in the female; the perch song, and nest building in the male (his part being more complicated than that of the female).

In 69 days R laid 9 sets totalling 15 eggs. The dates of laying were: April 10, 12; 18, 20; 26, 28; May 5, 7; 13, 15; 25; June 1; 9, 11; 18. The sixth, seventh and ninth sets consisted of single eggs. The numbers of days between complete sets were 8, 8, 9, 8, 10, 7, 10, 7. On June 21, disgusted with L's idiotic behavior, we set the birds free, hoping that R would find a sane husband.

How many eggs is a Mourning Dove capable of laying? Beam (1925) reports 5 broods being raised in one nest in Ohio from April 7 to September 26, but it is possible that the last two broods were the product of a second pair. Another Ohio pair raised five broods in an old Robin's nest from the middle of March to September 1 (Roads, 1931). Whitman (1919) tells of a captive bird that laid 6 sets from March 8 to August 1, raising 3 broods, and of another that laid 7 sets from March 24 to August 20, only one brood being successful. The prize-taking record is that of a pair of young birds in an aviary in California (Woodward, 1929); 13 sets totalling 26 eggs were laid from January 25 to August 30, 4 young of 3 broods being raised. It is unfortunate that we did not realize at the time, the importance of the experiment being staged by our pair where a female was kept laying at full capacity, as it would have been of much interest to have learned the limits of her fecundity.

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Columbus, Ohio, April 20, 1931.