

birds. The rubbing of the ant on the under side of the wing is, however, regarded as the 'typical' anting gesture and the belief is expressed that, as another writer has already suggested, the purpose of anting may be the irradiation of certain fluids for the production of vitamin D; the behavior patterns of anting and sunning appear to be complementary.

LITERATURE CITED

CHISHOLM, A. H.

1944. The problem of "anting." *Ibis*, 86: 389-405.

GROFF, MARY EMMA, AND BRACKBILL, HERVEY

1946. Purple Grackles "anting" with walnut juice. *Auk*, 63: 246-247.

IVOR, H. R.

1943. Further studies of anting by birds. *Auk*, 60: 51-55.

KELSO, LEON

1946. Bioelectronic observations (V). Irradiation, Vitamin D, Preening, and Anting. *Biol. Leaflet No. 35*: 1-2.

NICE, MARGARET M.

1945. Cowbirds anting. *Auk*, 62: 302-303.

NICHOLS, CHARLES K.

1943. 'Anting' by Robins. *Auk*, 60: 59-60.

PARKS, G. HAPGOOD

1945. Strange behavior of a Bronzed Grackle. *Bird-Banding*, 16: 144.

VAN TYNE, JOSSELYN

1943. 'Anting' by the Robin and Towhee. *Auk*, 60: 61.

4608 Springdale Avenue  
Baltimore 7, Maryland

---

THE LAST PASSENGER PIGEON

BY WILLIAM C. HERMAN

THE passing of the last Wild, or Passenger, Pigeon at the Cincinnati Zoological Gardens on September 1, 1914, was an event noted by ornithologists throughout the world. The story of the total extinction of this wonderful American bird is one of the tragic chapters in the history of American ornithology; and its effect is even more far-reaching. It seems incredible that a species which was found over such a large territory in such enormous numbers could be completely destroyed.

Scarcely any other wild bird has attracted so much attention as the Passenger Pigeon, partly because it existed in such large numbers, and because its final extinction was so rapid. Volumes have been written on it and one feature always mentioned was that the birds congregated in large companies during the entire year—nesting, roosting, and feeding together. Flocks of a billion or more were recorded by reliable

observers. It was not able to exist in small numbers, such as a pair or two in a place, since apparently under such circumstances the desire for breeding ceased to exist.

A long time passed between Jacques Cartier, who was the first white man to mention "the turtle doves and wood pigeons" in 1534, and the death of the last survivor of the Passenger Pigeon in 1914. Thus its history is now complete. The man who, better than anyone else, is qualified to contribute the picture of the final act of this great tragedy is Mr. Sol A. Stephan of the Cincinnati Zoological Gardens in Cincinnati, Ohio [now still living at the age of 97] and from him the present writer obtained much of the information here presented.

Mr. Stephan took charge of the Cincinnati Zoological Gardens in 1878, previous to which time the Zoo had Wild Pigeons on exhibition and had had some success in raising them in captivity. At that time there were four pairs in the aviary which had been purchased in a western locality at a cost of \$2.50 per pair; and others were added to this number. At this early date, Wild Pigeons were still to be found in large numbers, and some had visited the beech trees on the grounds that later were taken over by the Cincinnati Zoo. Even at this time Mr. Stephan realized that the Wild Pigeon was becoming scarce. As far back as 1857 a bill to protect it had been proposed by a committee of the Ohio Senate, but no action was taken. As prices became higher, Mr. Stephan became very anxious for the preservation of the species, and he determined to breed the birds in captivity in order to have them for purposes of exhibition. Their habits were carefully observed, with special attention to the diet. He learned that they thrived best on a mixed food of cracked corn, wheat, crackermeal, cooked liver, and eggs. While recent discoveries have been made in the feeding of birds and mammals in captivity, the diet used by Mr. Stephan seemed to be adequate.

The cage in which the birds were confined was a large one, 10 x 12 feet square, and 12 feet in height, which was sufficient to allow the birds to fly at will. They were kept here during both summer and winter, and at no time during their confinement had they any disease. Everything was done to encourage them to mate. Proper nesting material, consisting of straw and small twigs from the beech, was supplied, and there were placed in the cage little branches of beech trees on which the birds could place their nests. Nest building began usually early in April, and the crude nest, about 9 inches in diameter and requiring commonly three or four, occasionally six, days to build, was typical of the pigeon family. So frail was it that one could easily see through it. Both male and female labored in its construction. The birds laid only a single white egg, and had but one brood a year.

The incubation period was usually about two weeks. This might vary by reason of weather conditions, but if the eggs were not hatched in about this time, the nest was deserted. Frequently some of the eggs were infertile, probably a greater proportion than of those of birds not in confinement. Both male and female took part in the incubation, usually the male by day and the female at night, with great regularity. The notes uttered by the bird at this time were a short *coo-coo* in distinction from the usual call note of *kee-kee-kee*.

The young remained in the nest about 14 days, and were fed by regurgitation, in the usual pigeon fashion, a milky food given by both male and female parents. The skin of the young in the downy state was of a dark slate color. The adults normally molted in September, and in a few weeks had a new plumage.

In captivity, the Wild Pigeons became very tame, and when the keeper entered the cage to clean it or feed the birds, they would frequently alight on his shoulder. They also were very quiet and did not fight each other. Mr. Stephan managed to rear altogether about 14 Passenger Pigeons in captivity, and their average life in confinement was from 10 to 15 years. Finally but two birds were left, a male and a female.

When other zoological gardens learned that the Cincinnati Zoo had the only remaining pair, they offered prices which rose from \$100 to \$1000 for the pair. At this time Mr. Stephan was not anxious to dispose of such a valuable asset and wisely kept them, for they attracted ornithologists and other scientists from distant parts. The female of this last pair had been hatched in the Cincinnati Zoo in 1885, and was named 'Martha,' in memory of the wife of a friend of Mr. Stephan. This female pigeon became the last survivor of the billions that in flights once darkened the sky.

Martha and her mate built but one nest, and the lone egg that she laid in this proved to be infertile. Since both birds of this last pair were so old that it was apparently impossible for them to rear any young, eggs from Martha were placed under incubating Rock Doves (domestic pigeons), in the hope that the latter might hatch and rear the young to maturity. This failed because the eggs were infertile.

Two cousins of the Passenger Pigeon, the Mourning Dove and the Band-tailed Pigeon, occupied neighboring cages in the Cincinnati Zoological Gardens. The former bred in captivity, but the Band-tailed Pigeon did not. To exhaust every possible means of perpetuating the strain of the Passenger Pigeon, attempts were made to breed the latter with Rock Doves, Mourning Doves, and even Band-tailed Pigeons, but all to no avail.

Finally, the male of this last pair, after living in captivity for 26 years, died. Martha lived on; but later she became unable to fly as well as previously. Her perch had to be placed nearer to the ground in order to enable her to reach her roosting place. She was now 29 years old, an unusually old age in captivity. On the first day of September, 1914, at one o'clock in the afternoon, Martha was found lying on the ground, an inert mass.

The last Passenger Pigeon had gone like the 'Last of the Mohicans.' Nevermore was man to see any of the species in life. A reward of \$1000 was posted for a nest found with a fresh egg. Many persons sent in eggs of the Mourning Dove and those of the Band-tailed Pigeon, but not one of the Passenger Pigeon was ever afterward discovered. Thus passed one of the most interesting American birds.

The body of Martha, with a number of the larger feathers that had been saved when the bird was molting, were well packed in ice and sent to the United States National Museum in Washington, D. C. Mr. William Palmer, the taxidermist, removed the skin. Dr. Robert W. Shufeldt made an anatomical dissection and published a description of this (Auk, 32: 29-41, pls. 4-6, 1915), giving the cause of death as advanced age.

Martha is now on exhibition in the United States National Museum, a sad reminder of the once great glory of her vanished race.

---

### AN EARLY ILLINOIS RECORD OF "CORY'S LEAST BITTERN"

BY CHARLES KNAPP CARPENTER

ON June 1, 1909, I had the good fortune to take an odd example of "Cory's Least Bittern"—probably the first of two ever to be taken in Illinois. Now, thirty-seven years later, I am sending the belated news to the readers of *The Auk*. Possibly this long delay may make it more interesting now when it can be put over against the complete, though brief, history of this debated form as it is written upon the pages of *The Auk* over a period of about thirty years.

At the time of the capture of my bird, I was pastor of the First Methodist Church in Aurora, Illinois, and did my golfing with a camera over my shoulder, with a marsh for a golf-course and a suit of old clothes to protect me from the stagnant waters. A few miles west of Aurora, the Rob Roy Marsh was one of my favorite courses. It was less than 100 acres in extent but afforded perfect nesting conditions for numerous marsh-birds. Among the numerous nests were some thirty of the