

AN INCUBATING WOODCOCK.

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Plates VI and VII.

BECAUSE of its retiring and crepuscular habits, the Woodcock is not readily observed. Even though it is widely distributed and generally known in eastern North America, it is not intimately known. Many details concerning its domestic life during incubation and the rearing of young are yet to be observed.

While on a bird trip during the early afternoon of March 30, 1932, the writers had the good fortune to flush an incubating bird from its nest of four eggs, in South Washington, Arlington County, Va., about a mile south of the Highway Bridge. The nest was situated on a small hummock near the edge of a clearing at the base of a small tree (*Prunus* sp.) and under a tangled mass of blackberry vines, about eighteen inches from an infrequently used footpath. The nest was a mere hollow in the ground, well lined with a blanket of last year's leaves and twigs. It was situated on rather dry, high ground, about three rods from a small rain pool overgrown with blackberries. The pool was quite dry within a week after our first visit. The nearest stream or constantly damp feeding ground was more than 200 yards distant.

While frequent visits were made to the nest (fifteen in all), the mate of the incubating bird was encountered only at the time of our first visit, when it was flushed from the rain pool, and late one evening when it was heard giving its aerial mating song. On almost every visit the sitting bird faced in a different direction. Usually the small ends of the eggs were pointing inward, but three out of the eight times that the eggs were observed, one or two were pointing outward. Visits to the nest were usually made about 5 p. m. Only once was the bird found off the nest.

The incubating bird sat motionless while being observed. On one occasion its head was turned to one side when we approached. Even though she was photographed and twigs were removed from within ten inches of her head, she sat as still as a rock. Two ants crawled up her beak and over her head, barely missing her eye, yet



UPPER: NEST AND EGGS OF WOODCOCK. PHOTO BY WALLACE B. GRANGE.
LOWER: THREE YOUNG AND UNHATCHED EGG. PHOTO BY DR. PAUL BARTSCH.

the bird remained "frozen" and did not so much as blink an eye for the space of fifteen minutes.

At the end of the twenty-first day after the nest was found, three young were hatched. One egg did not hatch. Because the incubating bird sat practically as closely the first time we observed her as on any succeeding visit within the next two weeks, we were of the opinion that incubation had been in progress at least a day or two. This would indicate that the period is more than twenty-one days—the maximum time recorded for its incubation.

On our second visit the eggs were numbered, weighed, and measured, and seventeen days later they were reweighed. The following data were obtained:

No.	Measurements in mm.	Weight	Weight	Loss	Loss
		in grams <i>Apr. 1</i>	in grams <i>Apr. 18</i>	in grams	per cent
1*	38.5 x 28.5	15.75	12.76	2.99	18.98
2	40.5 x 28.8	16.50	13.20	3.30	20.00
3	41.0 x 28.0	16.10	13.77	2.33	14.47
4	39.8 x 28.8	16.10	13.30	2.80	17.39

* No. 1 did not hatch, but contained an undeveloped embryo.

For the three eggs that hatched, there was an average loss of weight of 2.81 grams or 17.31 per cent during the seventeen day period.

Two of the eggs hatched forty-eight hours, and the other thirty-six hours, after the first cracks were noticed on the shells. All three young emerged the same afternoon.

A marked difference was noted in the behavior of the parent bird before and after the eggs were hatched. For nearly a week before the young hatched the incubating bird sat closely and would not leave without considerable disturbance. When touched, however, it would reluctantly leave the nest and slowly fly in characteristic zig zag fashion a short distance (often about fifty feet), alight, teeter up and down, run a few feet, and fly farther away. This was still characteristic of her flight when she left her emerging young about 10 a. m. on the twenty-first day. By four o'clock that afternoon, all three had emerged and were covered by the parent some thirty feet distant from the nest. One had not yet dried out. After a number of close-up pictures were taken she was touched. Suddenly she left with rather violent wing flaps and at

the same time uttered an alarm call. Even though she left the young in haste she flew slowly, feigning injury, and alighted some thirty-five feet away. The flight was somewhat sidewise, one wing extended slightly more forward and downward than the other. Both legs were dangling and the tail was spread. When alighting she fell over, then went crippling along with tail depressed and spread and wings dangling as if broken. Shortly she flew another thirty feet, feigning injury. The farther she was removed from her young, the less noticeable was the injury-feigning, even though we remained near the brood.

When the mother bird flew away the two strongest chicks scampered off in opposite directions, stopping occasionally in depressions among the dried leaves, where their protective coloration rendered them difficult to see. It was only with considerable difficulty that we could retrieve them from under the dense blackberry tangle, after which they were replaced in the nest and photographed. Twice the next day a careful and extended search was made, but neither parent nor young could be found.

The measurements of the young in millimeters were as follows:

<i>Exposed culmen</i>	<i>Wing</i>	<i>Tarsus</i>
13.5	17.75	17.00
12.5	17.50	16.75
13.0	17.50	17.75

It is interesting to note that the average length of the nestling tarsus was 55.26 per cent of the average length of the adult tarsus while the average length of the exposed culmen was 19.33 per cent of the average adult culmen, both as given by Ridgway.

No egg tooth was discernible; the color of the bill was dusky or blackish; the mouth lining was a dull flesh color. It was noted that each of the young had at least half of an earthworm adhering to the down, indicating that the first food received was the same as that of the adult.

The nesting material, although appearing scanty at first glance, was composed of over 600 larger pieces of twigs and leaves, besides innumerable pieces of fine shredded material. It consisted of about 55 per cent leaves, 40 per cent small twigs and 5 per cent grass. There appeared to be no careful selection of the type of dried material used, as the nest was composed of last year's leaves and



PARENT WOODCOCK COVERING YOUNG.



YOUNG WOODCOCK.

twigs of dominant plants in that neighborhood in about the proportion in which they existed. The nest was composed of the same material throughout except that finer material and more leaves served as a lining.

The following animal matter was found within the nest structure:

- 1 young (dead) *Vivipara contectoides* (Snail)
- several egg cases and fragments of spiders of the family Clubionidae
- fragments of 1 Attidae (spider)
- 4 mites
- 1 *Cyrtolobus* sp. (bug)
- 1 *Melanophthalma* sp. (beetle)
- 1 *Nodonota* sp. (beetle)
- 1 *Paria canella 4-notata* (beetle)
- 1 chrysalid of Noctuidae (moth)
- fragments of another Lepidoptera chrysalis
- 4 larvae of Cecidomyiidae (small fly)
- fragments of 1 pupa case of Amblytelinae (parasitic wasp)
- 2 *Lasius* sp. (ants).

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