

BREEDING HABITS OF THE AMERICAN ROBIN
(*MERULA MIGRATORIA*) IN EASTERN
MASSACHUSETTS.

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ARRIVAL AND DATES OF NESTING.

THE arrival of migrant male Robins in Eastern Massachusetts occurs early in March, the females about a week later and generally by the fifteenth of the month they are to be seen in fair numbers in their old haunts. By the tenth of April nests are to be found under construction—these early builders as often, I think, choosing the bare crotch of a maple, as the more protected, both from weather and sight, branches of a spruce or pine. Throughout the rest of April and fully two thirds of May we may find nests under construction that are to hold the first brood. I am inclined to believe that the first arrivals are the early builders and that the birds that arrive in late March and early April are the birds we find nest constructing in early or mid May.

MATING.

For the same reason that I believe individual Crows and Blue Jays are resident in a locality, I believe that a pair of Robins that have nested in a certain tree or in a certain area are the identical birds that have done so for years. In other words, an ornithologist continually in the field in one bit of country year after year comes to know the general habits of certain common birds, their special ways and traits, and with a degree of certainty can assert that they are the same birds he sees the year round or that come to his locality yearly. For instance, I know of a pair of Robins that nested in a friend's garden three years in succession. Food was placed outside the dining room window during their first spring, of which they partook regularly. Each successive year they returned to the garden to breed, and on arrival would come to be fed at the window as they had been accustomed to do. The young were also brought by their parents

to be fed, but I have every reason to believe that it was the parent birds that returned each year and not a pair of which either the male or female were one of the young of the previous year. (See *Auk*, Vol. II, p. 304.) Thus I feel confident that a pair of Robins once mated remain so for a number of years until separated by injury or death. I can well imagine it to be within the range of possibility, that a pair of birds leaving their summer home could keep together, joining some flock made up of other pairs, and migrate and winter in company; in fact, I think for a pair to separate, whose love for each other is as strong as we know it to be, and to wander apart never to meet again, seems harder to believe than disbelieve.

The arrival of the males before the females can be explained by the male birds of the winter flock starting in advance of their less hardy mates (for winter records in the north of various species are almost always of male birds), to be followed by the females a week or so later when the weather is less severe; and it is probable that the more pronounced Robin courtships we see going on about us in the spring are the birds who lost their mates during the previous winter, remating, and the young of the year being wooed for the first time.

THE CHOOSING OF THE NEST SITE.

In my careful observing of Robins at the breeding season I have only once seen a pair choose a nest site. I chanced to be looking at a female Robin one day (1897) sitting in a crotch of a wild cherry tree when she flew to the ground and began chasing about a male, evidently her mate. In a minute they both flew to the crotch that she had just left and stood peering about; the male flew to the ground again in a few seconds and the female also flew, returning in a minute with the first few twigs that were to form the foundation of the nest. I believe the female chooses the site, as it is she who does the greater part of the building.

THE NEST SITE.

The Robin's nest is too common an object to every observer of bird life to waste space in describing its various situations. Suf-

vice it to say, I have found the nest from two to fifty feet elevation, and in almost every growth of tree common to this locality, as well as on buildings, and others in such places as old carriages, wood piles, etc.

CONSTRUCTION OF NEST.

Having watched a number of nests during construction, I have been able to determine a fair average of the time required, and other interesting points.

After the site has been chosen the building of a substantial foundation of twigs, grasses, string, etc., is begun; this finished, finer grasses are brought and the bird standing in the centre of the foundation draws them round. After the sides of the nest have been fairly well made the bird by turning around in the nest shapes it to the exact contour of its body, and by pushing its breast far down into the nest and raising the primaries, it presses the nest with the wrist of the wing into a compact and perfect mass. The next work is the plastering with mud; a rainy day is generally chosen for this work; the bird brings the mud in its bill and, placing it on the inside of the nest, flattens it into shape by exactly the methods just described. All that remains now is the lining, which is made of fine grasses and which adheres to the mud, making a substantial though not a particularly beautiful nest.

The average measurements of nest are; depth, outside, 3 inches; depth, inside, $2\frac{1}{2}$ inches; breadth, outside, $6\frac{1}{2}$ inches; breadth, inside, 4 inches.

The average period for construction is about six days—the longest period, fifteen days and the shortest, three days. The weather and whether the female is pressed to drop her eggs seem to be the chief explanation of the variation in time. Both sexes build, but the bulk of the work is done by the female. After a nest has been finished, there is often, in fact generally, a delay of from one to four days before laying.

LAYING AND INCUBATION.

As far as my observations go, one egg is laid each twenty-four hours until the complete set is finished which consists of from

two to four eggs (very rarely five in this locality); and if the weather is cold the bird often at once begins to set, that is, with the laying of the first egg. Otherwise, if the weather is mild, setting does not commence until the complete clutch is laid. The eggs are generally laid, I believe, between the hours of eleven P. M. and four A. M., but this is at least not always so. The average period of incubation is thirteen days, but a variation of nearly twenty-four hours is not very uncommon. The female incubates almost unassisted: the male, however, I have observed in a number of cases, upon the female leaving the nest, takes her place, sometimes on the edge of the nest, while at other times he settles himself upon the nest, somewhat awkwardly, but in no case have I ever seen a male sit for more than three minutes in succession. The female does not leave the nest at noon to feed, when the heat of the sun is the strongest, as one would suppose, but leaves the nest generally about nine to ten A. M. and five to six P. M. I have never observed the male feed the female while incubating.

CARE AND GROWTH OF THE YOUNG.

The young may all be hatched inside of twenty-four hours or during a space of three days; this is governed by whether the female begins to incubate at the completion of the clutch or, by reason of cold weather, at the laying of the first or second egg. As soon as the young are hatched both birds commence to supply them with food, the male doing his full share. For the first few days the young apparently do not need much nourishment only warmth, for the female leaves the nest but rarely during this period. The eyes of the young open on the sixth day, and from the third day on, the rapidity of feather growth is astounding. The parents are now kept busy from morn till eve supplying the wants of the young, the birds bringing food to the nest nearly twenty times per hour.

The method of keeping the nest clean from the excrement of the young is interesting. Each time the female comes to the nest with food she stands, after delivering the morsel, until one of the young, having elevated its hinder parts, excretes on the edge of the nest, when she stoops forward and apparently *swal-*

TABLE OF GROWTH OF YOUNG.¹

No. of Bird	Days	1	2	3	4	5	6	7	8	9	10	11
1	Weight of young per day.		$\frac{4}{16}$ oz.	$\frac{8}{16}$ oz.	$\frac{3}{4}$ oz.	$1\frac{1}{4}$ oz.	$1\frac{5}{16}$ oz.	$1\frac{11}{16}$ oz.	2 oz.	2 oz.	$2\frac{1}{16}$ oz.	2 oz.
	Growth of wing per day.		.20			.90	1.10	1.70	2.18	2.50	2.60	2.75
2	Weight of young per day.		$\frac{4}{16}$ oz.	$\frac{8}{16}$ oz.	$\frac{3}{4}$ oz.	1 oz.	$1\frac{3}{16}$ oz.	$1\frac{11}{16}$ oz.	$2\frac{1}{16}$ oz.	$2\frac{3}{4}$ oz.	$2\frac{1}{4}$ oz.	$2\frac{5}{16}$ oz.
	Growth of wing per day.		.20			.90	1.10	1.82	2.04	2.10	2.25	2.34
3	Weight of young per day.		$\frac{4}{16}$ oz.	$\frac{8}{16}$ oz.	$\frac{3}{4}$ oz.	$1\frac{1}{8}$ oz.	$1\frac{5}{16}$ oz.	$1\frac{11}{16}$ oz.	2 oz.	2 oz.	$2\frac{1}{16}$ oz.	2 oz.
	Growth of wing per day.		.20			.90	1.10	1.78	2.12	2.25	2.55	2.72
	Weight of adult bird 3 oz.											
	Length of wing of adult bird 5.30 hundredths.											
			Naked except for a few tufts of down.	Down appearing.			Eyes open, pin feathers appearing on tracts.		Fairly well feathered except on abdomen.	Marked increase in feather development.	Marked increase in feather development.	Body entirely feathered.

¹ Young not weighed or measured after eleventh day for fear of driving from nest.

*lows*¹ the excrement. I have also observed that at times she would not swallow the excrement but carry it in her bill from the nest. During the last few days the young are in the nest they spend most of their time preening themselves.

During the period the young are in the nest I have never observed the male to sit, but I know of a reported instance where a male was known to do so. The young rarely all leave the nest at once, under natural conditions, but the nest is empty generally about fourteen days after the young hatch; they remain, however, for over a week in the immediate neighborhood of the nest, cared for by their parents. Young birds in this locality may be seen on wing as early as May 15.

SECOND BROODS.

The second brood is never, as far as my observations go, raised from the same nest but from another constructed in the immediate vicinity of the former one. I have no evidence and do not believe that a third brood is ever raised, but not uncommonly, fresh eggs are to be found late in July and young birds late in August.

Nest No.	Period of Construction.	No. of Eggs.	Period of Incubation.	Period Young remain in Nest.	Entire Nesting Period.	Species of Tree Nest in.	Elevation of Nest.
1	15 days.	4	12 days 20 hrs.	15 days.	45 days.	Spruce. Woodbine, piazza.	20 feet.
2	3 "	deserted.					8 "
3	3 "	2	13 days.	16 days.	38 days.	Spruce.	15 "
4	6 "	4	blown down.				12 "
5	8 "	3	13 days 5 hrs.	11 days.	36 days.	Cedar.	10 "
6	3 "	4	13 days.	15 "	35 "		22 "
7	—	3	13 days.	12 "	approx. 30 days.	Wild cherry. Spruce.	13 "
8	—	1	taken.	—	—	Apple. Oak.	18 "
9	deserted.	—	—	—	—		19 "
10	"	—	—	—	—	Elm. Oak.	20 "
11	4 days.	4	taken.	—	—		18 "
Average.	6 days.	3	13 days.	14 days.	37 days.	—	16 feet.

¹The bird may eject the excrement after flying to some distance from the nest.