

White-crowned Sparrows, Juncos, and Kinglets, which might be expected to follow the shore-line, fly directly across the lake.

Sparrows are caught in drop traps made of four to eight mesh hardware cloth with the margins folded over four inches to form the sides of the trap. Scratch feed is placed in the traps the night before.

As one of nature's most successful types of birds, this species, to the writer at least, is one of the most interesting. Part of its success in occupying new territory may be due to the roving instinct of the flocks of immature birds. The flocking instinct, no doubt means the survival of more of the young birds than otherwise would be the case, since their collective sense of sight and hearing compensates in part for their inexperience. The trapping of the immature birds, however, is most effective of immediate results on account of this flocking instinct.

Trapping of this wary and most intelligent of the Sparrows, a species ordinarily trap-shy, is best done in the winter time after a period of snow-covered ground. Winter trapping will eliminate some of the birds which at other seasons will not approach the station. I regard the trapping of the young birds in July and August as most important in controlling their numbers, since a single surviving pair represents a possible fifteen or twenty descendants during the coming year.

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## TREE SWALLOW HABITS AND BEHAVIOR AT BREWER, MAINE

BY HELEN J. ROBINSON

Two adult Tree Swallows (*Iridoprocne bicolor*) and four young were banded at this station last year, but not one of the six which came to my station April 17 and 18, 1927, wore a band. Except for being unbanded they appeared so much like last year's group, also of six individuals<sup>1</sup>, that I should have thought them the same birds.

At the time of their arrival this year, two Bluebirds had been here a month, and they had already four inches of nesting-material in Box 1, which is within fifty feet of Boxes 2 and 3. All three boxes were jealously guarded by these Bluebirds,

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<sup>1</sup> See my account of the activities of these birds in the *Bulletin* of this Association for April 1927—"Experiences with Nesting Chipping Sparrows and Tree Swallows," pp. 42-44.

which drove away the prospecting Swallows as summarily as the Swallows had ejected the House Sparrows in 1926. The Bluebirds kept a vigilant lookout from their own tree, a young oak, and watched the Swallows circle about the other boxes. When the Swallows seemed about to enter, one or both Bluebirds charged them, straight as an arrow. The mere sight of the enemy was usually enough to put the Swallows to flight, circling and screaming as they retreated a short distance, but returning as soon as the coast seemed clear. Sometimes Swallows flew bravely to attack the Bluebird, but such birds were always borne to earth by the larger bird, which then tweaked the victim's crown feathers without mercy.

This year I put up two new boxes at a greater distance from the old boxes, hoping for harmony. One was disregarded, but the other was taken by a pair of House Sparrows, which punished the Swallows in the same way as the Bluebirds were doing. By that time the female Bluebird was incubating, so I took down the two new houses and assisted the Swallows in driving the male Bluebird away, soon having a pair of Tree Swallows established in Box 3.

Meanwhile the usual internal warfare among the Swallows themselves proceeded briskly, beginning the day of arrival and continuing a full calendar month. Although five or six birds were about, the struggle was principally between Pair 1 and Pair 2. Pair 1, which finally nested in Box 3, was most aggressive, not only driving the other Tree Swallows from Box 3, but alighting often upon or near Box 2 and guarding it from all comers. Occasionally they clashed in mid air; I could never see whether they locked bills or grasped crown-feathers, but the encounter was always very short, the birds ascending a little distance and then separating. Every fair morning at daybreak the circling and screaming began, lasting, as usual, until ten or eleven o'clock, when the contestants disappeared until the next fair day.

Until May 23d it had seemed as if Pair 2 would surely take Box 2. Although they did no building, they played about the house continually until the 23d, when they disappeared, leaving Pair 1 to nest alone.

The female was three weeks at work on the nest, from May 4th to 25th. Much dull, cold, and rainy weather may have caused the delay in building, for on such days the pair failed to appear. On May 20th, however, both birds stayed about the nest until dark for the first time. On June 1st there were three eggs, but the following night the nest was robbed, prob-

ably by a red squirrel. The next morning the female deposited one more egg and abandoned the nest. The Bluebirds, having raised a brood, had just left Box 1, which was cleaned, and in two more days this box was taken by the Swallows. Four days were required for the second nest-building, the female doing all the work. A week later the clutch of five eggs was completed, and the last egg from clutch 1 was marked and added to the others. This egg hatched, though two other eggs were infertile.

During the period of incubation the male was very devoted. He rarely entered the box, but always mounted guard outside on the perch while he mate foraged. At sunset, while the female was sitting inside, he often took up his post on the perch, but slipped away as soon as the stars appeared. When the young hatched, he hung in the entrance, seemingly much interested and very curious, but there parental concern ended. He apparently disappeared completely after a few days, leaving his mate to care for the young. One of the nestlings died, probably during the extreme heat of mid-July, but the others were banded, and left the nest in good condition.

When the nestlings were about two weeks old, a family of recently fledged Tree Swallows wandered into our vicinity, and, hearing the incessant cries of our own nestlings for food, they were attracted to the box. After much listening and curious peering within the door, one of them at length went inside. The mother flew to the box with food and went in, then came out, and flew away, but still the caller stayed. I approached quietly and looked in. The youngster sat on the edge of the nest, making himself very much at home. I took him out gently and banded him, and although he did not reenter the box afterwards, I took three other visitors, all doubtless of one brood, in the same way. The busy mother did not seem at all troubled by the young visitors, and allowed them about the tree and in the nest with her young with equal unconcern.

The male of the nesting pair was so shy that he escaped unbanded, but the female was banded, as well as two other prospecting Swallows (probably females), three nestlings, and the four visiting fledglings just described.

The tabulated account which follows is the daily record of the pair of Tree Swallows nesting here. The record, with a few very slight changes, is just as I wrote it from day today.

## 1927 TREE SWALLOWS

Arrival	April 17—male
	April 18—female and four others
First prospect	April 18
Banded	Female, May 14
Building	May 4 (few straws)
1/8 inch nest	May 8
1/4 " "	May 14
1/2 " "	May 17
3 inches	May 18
4 " "	May 19
	Rainy days
Box half full	May 22
Feathers	May 24—two
	May 25—five
Egg 1	May 29 } Disappeared
Egg 2	May 31 } night of
Egg 3	June 1 } June 1
Egg 4	June 2
Prospecting	June 2 and 3
Building	June 4
3 inches	June 5
Half full	June 6
All lined	June 7
Egg 1	June 9
Egg 2	June 10
Egg 3	June 11—bird on at night
Egg 4	June 12
Egg 5	June 13
Egg 6 from	
other clutch	June 12
Hatching	June 28—three out
	June 29—noon, four
Young peeping	July 2
Young banded	July 10
Young in door	July 16, 17, 18
Young flying	July 19
One found dead	
in box	July 19
Unbroken egg	
fell from bot-	
tom of nest	July 19

The following tables show the nesting activities of two pairs of Tree Swallows during two successive nesting seasons:

	1926 Pair	1927 Pair
Arrival	April 24	Male April 17; Female and others, 18
Prospecting	April 24 and on	April 18 and on
Female banded	May 3	May 14
Male banded	June 14	—
Building Nest 1	May 18 to 23	May 4 to 25

Egg 1	—	May 29	} Destroyed night of June 1
Egg 2	—	May 31	
Egg 3	—	June 1	
Egg 4	—	June 2	
Building Nest 2	May 25 to 28	June 4 to 7	
Laying	June 3 to 8 (5 eggs)	June 9 to 13 (5 eggs)	
Hatching	June 22	June 28-29	
Young banded	June 29	July 10	
Young flying	July 10-11	July 19	

From these tables, I have extracted the following contrasting facts regarding the behavior of the two pairs of Tree Swallows:

1. 1926 pair was here 25 days before building.  
1927 pair " " 16 " " starting to build.
2. 1926 pair built first nest in 5 days.  
1927 pair " " " 21 " "
3. 1926 pair worked continuously for 5 days (May 18 to 23).  
1927 pair worked intermittently for 13 days (May 4 to 17), then continuously May 18 and 19. The 20th and 21st were rainy, but continuous work was resumed the 22nd.  
Conclusion: May 18 to 23 is approximate period of greatest nesting activity.
4. Both pairs, for different reasons, built second nests in same length of time—four days.
5. Normal interval between building and laying, 4 to 5 days. In exceptional case, 2 days.
6. 1926 pair incubated 14 days. } Reckoned from last egg laid to  
1927 pair 16 " } last one hatched.
7. Part of the 1926 young remained in nest 18 days and part 19 days.\*  
" " " 1927 " " " " 20 " " " 21 " "
8. Earlier arrival means earlier nesting.

Brewer, Maine, August, 1927.

## CHEWINK RETURN RECORDS AT MARTHA'S VINEYARD DURING 1927

BY ALLAN KENISTON

IN this *Bulletin* for October, 1926, page 87, a note appeared giving some details of my Chewink returns: namely, fourteen out of a total of fifty-one banded previous to 1926, or 27.40 percent. Of the twenty Chewinks banded in 1926, thirteen were males. During that year I secured three returns banded in 1923 and eleven returns of birds banded in 1925.

During the current year, up to October 1st, I have banded thirty-one new Chewinks (*Pipilo e. erythrophthalmus*). The first one was banded on May 2d, a male, and the next fourteen

\*The 1926 young, as shown by table, were two days *leaving the nest*. The 1927 young left nest the same day, but were two days *in hatching*.