

had a particularly demonstrative greeting for me when I appeared each morning, or after other absence. He knew me by sight alone, but liked to "check up" by hearing my voice.

While this Cedarbird's wings, with their distorted feathers, had a somewhat scaly, unhealthy appearance, we could never discover parasites of any kind. After its death, it was examined by Mr. John D. Smith, of the Boston Natural History Museum, who was unable to discover any sufficient cause for the bird's abnormal plumage. Mr. Smith sexed the bird, and added a final surprise when he stated that it was a female, and not a male as we had supposed. The sex makes the singing ability of this Waxwing still more noteworthy.

HISTORY OF A CEDAR WAXWING FAMILY¹

BY MARY J. LITTLEFIELD AND FLORENCE LEMKAU

Tuesday, August 6th

I WAS awakened very early by the peculiar "lispings" of a Cedar Waxwing. Investigation showed that not twenty feet away from me, in a little pine tree, sat a Cedar Waxwing, presumed to be a female, on her nest. She was not making a sound; the notes were made by her mate, which was nearing the nest, carrying a breakfast of blueberries to her. As soon as she was fed, they *both* flew off, lispings as they went. Later in the morning I noticed the same thing, but I did not chance to see either when they returned to the nest. I shared my secret of the nest with Mrs. Littlefield, our Camp Director, who came to see it this afternoon, and climbed the tree to look into it, reporting that the nest contained three young without a feather on them. I climbed the tree, too, after that. The baby birds were quite a bit larger than the eggs must have been, but we estimated that they were probably hatched early this morning. They were entirely bare, with no vestige of down.

¹These unusual observations written in diary form during August and September, 1927, are a condensation by the editor of a study of a pair of nesting birds and their young, the nest being placed less than twenty feet from the writers' tent in a little pine tree. Mr. Charles J. Maynard, knowing of the writers' experiences, kindly asked them to prepare the account for the *Bulletin*.

Thursday, August 8th

When I climbed the tree again to-day, I had a good look at the birds. Their feathers are beginning to show quite distinctly, especially on the wings. There is a beautiful bright scarlet ring just inside their beaks, the mouth and throat being deep orange. The youngsters did not seem afraid of an intruder, and I neither saw nor heard either parent, although they must have been in the near vicinity.

Tuesday, August 13th

When Mrs. Littlefield looked at the birds to-day, she found them well covered with pin-feathers, and very active, although the yellow bar has not yet appeared on their tail-feathers, and they have none of the little wax points on their wings. One Waxwing waited on a nearby limb during this visit, lispng nervously. The young were fed blueberries immediately afterward.

Thursday, August 15th

They are nine days old to-day. Every one of them is covered with soft tan feathers, and on the one which seems so much more mature than the others the beginning of a crest was noticed. The female hasn't been sitting on the nest for several days, because the babies are so strong and hungry that both parents are kept busy flying after berries. Whenever they near the nest, they give their lispng call, and the youngsters nearly topple out in their excitement over the anticipated meal. The mother perches herself on a convenient twig just outside the nest, and pokes a berry down the throat of one baby. Then she regurgitates another berry, which she feeds to the second baby, and so on until all three have had a meal. The largest often succeeds in getting more than its share, while the smallest one has a hard struggle to get a fair portion. Sometimes a parent will have such a large berry that it won't go down their throats. She will try again and again, until she finally manages to poke it down the throat of one of them.

After each meal, she goes around to the back of the nest and attends to the sanitation. It is the funniest thing to see them lift up their fluffy little tails to be cleaned out. As far as we can observe, she eats the secretion. It is not regurgitated in her first flight from the nest, and the act seems to be done with considerable gusto. The male parent does not take care of this part of the housekeeping as frequently as does the mother bird, although he did so at times.

Saturday, August 17th

They made their first "peep" to-day. It is exactly like that of the older birds, except that it is not so strong. They seem to peep when they are being fed and also when either parent is approaching the nest. Their feathers are well grown now, and the yellow bar across their tails is very prominent.

To-day for the first time I noticed the father bird in a nearby tall white birch tree. He clings to the topmost twig, and keeps a vigilant watch over his mate and the babies. Once the rain beat so hard and the wind blew so furiously that he was blown off his perch.

Sunday, August 18th (12 days old)

The largest of the three young birds made its first attempt to fly to-day. It hopped out onto a perch and flapped its wings.

The father bird still keeps his watch from the birch-tops; there are three such tall trees about fifty feet from the nest. Sometimes he perches on one, and sometimes on another, probably according to the direction in which his mate flies after food. If she is gone for a long time, he flies off high into the air, as if looking for her, and seemingly grows quite nervous. Every once in a while he joins his mate and away they both fly for berries. After one trip, however, he returns to his perch, and doesn't join his mate again until after she has made two or three more trips.

As far as we can observe, both Waxwings attend to the sanitation of the nest, after practically every visit. They are rather difficult to tell apart, however, and the only difference we have noticed is that the sides of the male are colored a more brilliant yellow than those of his mate.

Monday, August 19th (13 days old)

Two nestlings hopped onto a perch to-day and tried to fly. They are all growing to resemble their parents. Their crests show distinctly and their tails are tipped with a beautiful band of yellow. The breasts of all of them are rather mottled, in comparison with the parent birds.

I am so anxious to see the birds really leave the nest that I can hardly keep away from it.

Tuesday, August 20th (14 days old)

There are several developments to-day. The strongest fledgling flew to a pine tree, six or seven yards away. At one

time all three were out of the nest, but in the same tree. The mother bird flew from one to another and fed each one. The smallest stays nearest the nest and we notice that it is always fed first now.

The father bird keeps a steady, faithful watch, from the birch trees, but we noticed once that the mother flew up and relieved her mate of his watch, while he flew off for some food.

This next news is most exciting of all—the diet has been changed. The parents have been catching insects. They are not skillful at the art, but through our glasses, I saw a large fly or bee being pursued by the father bird. From our previous observations the young birds were fed entirely upon a berry diet, and we certainly have not seen the old birds catching insects, which is now being done quite near the nest.

Wednesday, August 21st (15 days old)

This morning I found no Waxwings about. After a minute or two, however, I spied one perched on the branch of a neighboring tree. Later on in the morning I discovered all three of them in a white birch tree about fifty yards from the nest. We watched them being fed—apparently with blueberries—by the mother. One was farther away than the others and kept hopping about from one limb to another.

Thursday, August 22nd (16 days old)

About nine o'clock this morning, I heard the familiar lisp sound, and knew that the Waxwing family was not far away. I finally located the father and mother on a dead chestnut limb. Both were drenched with the rain, but persistently kept their watch, and seemed to be trying to locate their family.

One Week Later

We haven't seen anything of the Waxwing children since last Thursday, but have heard them once in a while. I climbed the tree to-day and brought down the nest, since we understand that it will not be used again. It was a comfortable little home, constructed of a great variety of material—hemlock and pine twigs, ground pine, bits of string and grass, which formed a soft, smooth lining. It was about five inches in diameter and three inches from top to bottom. It was set about twelve feet from the ground and about three feet out from the trunk of a scraggly old jack pine. The strange thing was that we found a cherry-stone in the nest. Perhaps

some of the largest berries which were difficult to get into the little fellows were cherries.

September 11th (5 weeks later)

We heard the Cedar Waxwings this afternoon, and, looking over in the direction of their calls, we saw two full-grown birds on the top of two tall birches, and three smaller ones on birch-tips a bit lower. Just as we paddled up in our canoe, all five flew up into the air, made a large, graceful circle, and came back to the birches, all five alighting on the top of one birch.

Camp Madeleine Mulford, Montclair Girl Scouts, Stokes State Forest, Branchville, New Jersey.

A NEW NEED IN NATURAL HISTORY

BY GLOVER M. ALLEN

IN recent years the study of natural history has entered upon a new phase, marking an advance in the growth of our knowledge of animals and plants. Half a century ago, museums of natural history, in this country at least, were few, and collections of any size where specimens could be brought together for comparative study were fewer still. But at the present day this is changed. Our larger centers support public exhibitions of excellent character and of local or general scope; some maintain also research collections comprising series of specimens for the more exact study of variation, distribution, and differentiation of species. The result is that such great and historic collections as those at London, Berlin, Paris, Vienna, and elsewhere in the Old World, as well as those at Washington, New York, Chicago, Cambridge, Berkeley, California, and Buenos Aires, Argentina, in the New, have now made it possible for us to arrive at a fair estimate of the living species of the world, so far at least as concerns its birds and mammals. For at the present time there is hardly a corner of the earth's surface left that has not been more or less explored and its fauna and flora collected; so that in these two groups of vertebrates it seems unlikely that we shall in future discover very many more remarkable types, though of course it will be many years before our knowledge is sufficient to settle innumerable details. Nor will the need for study collections grow less, for these are comparable to reference libraries where the student may come with the expectation of