FURTHER OBSERVATIONS ON THE BLACK-THROATED BLUE WARBLER

By KATHARINE C. HARDING

ON May 27, 1928, I found the nest of a Black-throated Blue Warbler (*Dendroica c. cærulescens*) in Holderness, New Hampshire. Fortunately the nest was still in the earliest stages of construction and consisted of half a dozen thin strips of white birchbark which were lodged in the triple crotch of a mountain-laurel bush (*Kalmia latifolia*) nine inches from the ground. The position chosen for the future nest was in dense laurel, which extended for over a mile, covering a hillside heavily wooded with deciduous and coniferous trees bordering the shore of Lake Asquam.

The nest was well shaped on May 30th. On the first of June the outer structure appeared to be completed, and on the morning of June 2d the lining seemed to be finished. The outer structure of the nest was firmly woven of gray shredded bark fibers, fine dried grasses, and a few small strips of white birchbark. The inner lining was composed of fine black rootlets and skunk fur. Previously, the Black-throated Blue Warblers of this region used black horsehairs for the inner lining of their nests, until this year when the farmer who used the neighboring wood road drove a truck instead of a horse. As their usual supply of horsehairs was no longer available, skunk hairs were used in several nests in its place.

On June 3rd at 6.15 A.M. there was one egg in the nest, and the clutch of four eggs was completed on June 6th. Judging from the records of four successful nests of this species which I had previously studied, the clutch was due to hatch in twelve to thirteen days. I numbered each egg and weighed them daily. On June 17th, when I was returning the last of the four eggs to the nest, my sleeve unfortunately caught on a prong of laurel which jerked my hand and caused the egg to roll out of it and drop about seven inches, on to the mat of decayed leaves below. The force of the fall was sufficient to make a slight indentation on the surface of the egg.

I examined the nest on June 18th at 5.15 A.M. None of the eggs were pipped, and I did not touch them, but immediately noticed that a second egg also showed a very slight indentation. As I was sure that I returned the first three eggs to the nest in perfect condition, I was at a loss to account

for the injury. The dent was so very slight that it did not seem probable it would prevent the highly incubated egg from hatching.

Entered my blind at 6.05 A.M. The female returned to the nest at 6.20 A.M. and incubated the eggs. Her coloring blended so perfectly with the blue-green of the sheltering laurel leaves that she looked like a dim blue shadow. She shifted her position and then used her bill in the bottom of the nest. She seemed very alert and restless, and moved her head from side to side. She left the nest at 7.05 A.M. and fed near by, giving "chipping" call at intervals. A male Black-throated Blue Warbler sang in the vicinity of the nest, but did not approach it. At 7.13 A.M. the female returned to nest. 7.35 A.M., female incubated eggs quietly. 7.40 A.M., female left nest. 7.41 A.M., examined nest: eggs not pipped. 7.45 A.M., female returned and incubated eggs. 7.47 A.M., left blind. 9.30 A.M., entered blind. Female on nest. Did not flush her. 9.32 A.M., female perched on rim of nest. Appeared to be eating something in the bottom. 9.41 A.M., female left nest. 9.43 A.M., male lit on rim of nest. This was the first time I saw him approach the nest. He also appeared to be eating something in the bottom of the nest. As I had previously seen a female of this species dispose of eggshells in this way, I approached the nest, believing that one of the fledglings had hatched. Found three eggs not pipped and, to my amazement, one tiny dead fledgling minus one leg and thigh. There were no eggshells in the nest.

The male remained in the vicinity of the nest, giving a highly pitched, vibrant call *sss-hss-sss*. 9.46 A.M., female returned to nest. Incubated eggs. Male singing near by. 9.47 A.M., female continued "eating." 10.05 A.M., female "eating" again. 10.10 A.M., female left nest. 10.25 A.M., female returned to nest. 10.26 A.M., female perched on rim of nest "eating." 10.27 A.M., female still "eating." 10.29 A.M., female still "eating." 10.30 A.M., female still "eating." 10.45 A.M., flushed female and examined contents of nest. The body of the dead fledgling was now half gone. 10.53 A.M., female returned to nest and incubated eggs. 11.01 to 11.09 A.M., female continued "eating." 11.13 A.M., male gave call *sss-hss-sss*. 11.15 A.M., female incubating eggs quietly. 11.16 A.M., female continued "eating." 11.19 A.M., female appeared to tread or turn eggs and left nest. 11.25 A.M., female returned, continued eating and "treading" nest. 11.30 A.M., left nest. 11.33 A.M., female returned, continued eating. Incubated eggs. 11.53 A.M., female used bill in nest.

11.55 A.M., female left nest, carrying half an eggshell. 12 M., female returned. Appeared to tread or turn the eggs. Used bill in nest. 12.10 P.M., female left nest. Lit in tree and wiped bill. 12.20 P.M., female returned to nest. 12.30 P.M. female left nest.

12.33 P.M., examined nest. The dead fledgling had been completely disposed of, and the second egg, which had showed a slight indentation, and its entire contents, had disappeared also. The two uninjured eggs remained in the nest, not pipped. 12.35 P.M., female returned and incubated eggs. 12.45 P.M., female left nest. 12.50 P.M., I left blind.

Returned to the blind several times during the afternoon and examined the nest. Found the female incubating the remaining eggs quietly. At five o'clock I looked at the eggs, which were not pipped. Then entered the blind. When I left at 5.15 P.M., the female was on the nest.

June 19th, 7.55 A.M., entered blind. The female was off the nest. Examined eggs and found they were not pipped. It was exactly thirteen days since the incubation period commenced, and the eggs were due to hatch before night. Entered blind and remained there. 8.10 A.M., still no sign of female. A male sang near by *-zwee-zwee-zwee*. 8.20 A.M., the male lit on the rim of the nest, with an insect in his beak, inspected the eggs, and then left the nest. No sign of the female. 8.45 A.M., the female was still absent. It looked as if she had met with an accident. A cold wind blew from the lake, and the eggs were becoming chilled. Left the blind.

10 A.M., entered blind. No sign of female. Eggs felt lukewarm. Remained in blind. 11.55 A.M., no sign of either male or female. 12.15 P.M., eggs cold. Left blind.

Returned at intervals during the afternoon and examined the nest. At 5 P.M., I was convinced that the female had been killed and decided to try an experiment. I placed the two remaining eggs in the nest of a Chestnut-sided Warbler, about a mile from the blind. This nest contained four newly hatched nestlings. *June 20th*, visited the Chestnut-sided Warbler's nest. The Black-throated Blue Warbler's eggs had not hatched. *June 21st*, examined the Chestnut-sided Warbler's nest and found that one of the Black-throated Blue Warbler's eggs had hatched! Tied a scarlet thread on the fledgling's leg, as a positive identification. The second egg was not pipped and was somewhat discolored, so I removed it from the over-crowded nest. *June 22d*, left New Hampshire for two days.

June 23d, 5 P.M., examined nest and found it heavily tilted

to one side with the young birds in a most perilous position. To my regret the Black-throated Blue Warbler fledgling, being the weakest and smallest of the brood, had evidently fallen or been crowded out of the nest by its larger foster brothers. This accident was especially disappointing, as I had hoped that at least one fledgling from the ill-fated nest might be successfully reared with the aid of its foster parents.

In spite of the fact that this Black-throated Blue Warbler's nest was a complete failure from a bird-bander's viewpoint, the method used by the adult birds in ridding the nest of the injured eggs and their contents was of great interest to me. Previously I had not known that insectivorous birds ever ate flesh. A letter from Alfred O. Gross, of Bowdoin College, stating that he had seen Red-eyed Vireos use the same tactics under similar circumstances convinced me that I had not observed a "freak" occurrence.

It would be most interesting to learn just how widespread this practice is among insectivorous birds, and I should be very glad to acquire additional information regarding this subject from other bird-banders or readers of the *Bulletin*.

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