

dealing in or possessing individuals of this species. Unfortunately, the number of aviculturalists and zoological supply houses in the neighborhood of the metropolis is legion. It is well to note however, that the behavior of the Redwing seemed characteristic of a wild bird, rather than of one accustomed to the proximity of humans.—CHARLES F. J. YOUNG, *Photographic Service Division, New York Public Library, New York 18, N.Y., April 23, 1959.*

Notes on pairing and nest-building of mismatched vireos.—A study on species relationships in the genus *Vireo* (Hamilton, 1958. *Wilson Bull.*, 70:307-346) analyzes the relationship between the Solitary and Yellow-throated Vireos (*V. solitarius* and *V. flavifrons*). The following notes may be of value to the study of interspecific relationships of these species.

On May 19, 1958, a Yellow-throated Vireo, with something in its bill, flew into a tall post oak in my front yard. The following day I located its nest in the oak on a slender branch which made a downward arc from a larger branch, 25 feet from the ground and 12 feet out from the trunk of the tree.

A vireo was present, working in the nest. This bird had no yellow at the throat or eyes, although wing-bars and a light eye-ring were evident. Careful study of the bird on succeeding visits, and reference to the discussion of vireo plumages in Bent (1950. *U.S. Nat. Mus. Bull.*, 197) and Dwight (1900. *Ann. New York Acad. Sci.*, 13:239), confirmed an early speculation that this bird, a female, was a Solitary Vireo, perhaps of the subspecies known as the Mountain Vireo (*Vireo solitarius alticola*). [Southern Pines, 20 miles west of Fayetteville, is the easternmost known nesting area of the Solitary Vireo in this state (1948. *The Chat*, 12:53).] The bird had a dark head and back, white eye-ring and wing-bars, complete absence of yellow at the throat, but a strong yellow wash at the sides. The throat, breast, and belly were white. On one visit, during a light drizzle, the back appeared slaty-brown. In addition, there was a creamy yellow wash at the crissum (which Dwight stated was limited to juvenal plumage).

The Yellow-throated Vireo, the male of this pair, was in song and present at the nest area most of the time although it was never seen working in or about the nest. Bent (*op. cit.*) records that both sexes of *flavifrons* are assiduous and attentive nest-builders; that the female of *solitarius* "seems to do most of it and to be the dominant influence, the male's part consisting mainly of bringing materials."

The male Yellow-throated Vireo accompanied the female Solitary Vireo on her visits to the nest, perching nearby while she worked at the interior and the rim. Both birds were seen on a number of occasions perched side by side in pine trees in the yard, preening or resting. On May 26 the female Solitary Vireo made nine recorded visits to the nest, the exterior of which appeared complete; the male Yellow-throated Vireo sang more incessantly than on previous days. Twice on this day, I saw the male Yellow-throated Vireo join the female at the nest site. The male displayed, with wings fluttering; the pair copulated briefly only a few inches from the nest. On both of these occasions, the female remained crouched in a begging posture, with wings fluttering, after the male had hopped to a nearby perch.

On May 27, at 7:05 a.m., I saw a Yellow-throated Vireo fly silently to the nest. The bird got in, shaping and arranging the interior and the rim. Since I had never seen the male Yellow-throated Vireo in the nest, I watched carefully after the bird left; at 7:45 a.m. two Yellow-throated Vireos flew to the nest site, one perching silently nearby while the other got into the nest to turn and work in it briefly before they both left.

There was no way to determine whether this was an intruding pair of Yellow-throated

Vireos, or whether the male of the original mismatched pair was attracted to a female of his own kind. At 8:05 a.m. the female Solitary Vireo visited the nest alone and worked in it briefly. A Yellow-throated Vireo was perched near the nest, and singing, when the Solitary Vireo returned at 9:10 a.m. and remained to work in the nest for two minutes. The female Solitary Vireo then flew to a neighboring oak to preen in the sun. She stayed within 50 feet of the nest for the following 50 minutes, something I had not seen her do before; she was not joined by her mate. The female Solitary Vireo made a final brief visit to the nest at 10:06 a.m., remaining only a few seconds before flying off for the last time. A Yellow-throated Vireo, perched near the nest, sang as she approached as well as during and after her last visit. The Yellow-throated Vireo did not fly toward, nor threaten, the Solitary Vireo, unless its song, during her visit to her nest, constituted a threat.

Later that morning, I saw a Yellow-throated Vireo at the nest on three separate occasions. Each time the bird got into the nest to turn and shape it; each time it seemed to peck and eat something from the rim; and on each visit the bird sang. Although I did not see two Yellow-throated Vireos in the area at the same time again until several days later, a Yellow-throated Vireo was present and singing through much of the afternoon. A single Yellow-throated Vireo was seen at the nest early the following morning. No other vireos were heard or seen in the area until May 30, when a pair of Yellow-throated Vireos hopped through the branches of a pine tree and then flew toward, but over, the nest tree and out of sight.

A week later I secured the empty nest and sent it to Dr. Herbert G. Deignan at the U.S. National Museum. After comparing the nest with those of a series of Yellow-throated, Solitary, and Mountain Vireos, in company with Dr. Alexander Wetmore, Dr. Deignan wrote:

“. . . Your nest distinctly fits with the nests of the two blue-headed races in its greater dimensions, and does not disagree with them in materials. This would seem to show that, while both members of a mated pair of vireos take part in nest-building, it is the female that is responsible for the architecture of the nest. . . .”—DORIS C. HAUSER, 309 *Sylvan Road, Fayetteville, N. C., January 1, 1959.*

Sparrow Hawks attempting to breed in the laboratory.—Sibling Sparrow Hawks (*Falco sparverius*) taken before they could fly, were kept in a cage (6 × 2 × 5 feet high) in the laboratory (temperature 19° to 21°C.—winter; 23° to 28°C.—summer). They were fed white rats and mice, horse meat and wild birds.

In March, nearly a year after hatching, a pasteboard box with a hole 5 × 6 inches in the side was fastened in the upper corner of the cage. The birds soon enlarged the hole. On April 30 an egg was laid but disappeared the next morning. Five days later a second egg was found but was broken a few hours later. A third egg, laid seven days after the first, remained for 19 days when it was broken. No more eggs were laid.

In late February of the following year the female became very active trying to push the male along the perch and pecking him without response. A few days later (March 8) copulation started. During the height of their sexual activity copulation was frequent. For example, on March 15 they copulated 14 times from 7 a.m. to 7:36 a.m.; six times more before noon and once more at 4:50 p.m. The female was the aggressor. As the season advanced sexual activity diminished, so that by early May copulation occurred only once or twice a day and then ceased. Four eggs were laid but all were broken soon afterwards.

The female died at 30 months of age, having eaten a bird that may have been infected. She was replaced by another female a few months old. At first the newcomer became so aggressive that a few days' separation was necessary. Shortly after the female was returned