

Singing and window-fighting by female Cardinals.—On three occasions in the last 25 years I have observed female Cardinals (*Richmondia cardinalis*) exhibiting behavior usually considered characteristic of the males. One of these females was singing only a part of the Cardinal song, the second engaged in window-fighting, and the third sang a large part of the Cardinal repertory. The first singing bird built a nest in a privet (*Ligustrum* sp.) in a small unpaved corner of a paved court at Vanderbilt University, Nashville, Tennessee, in early May, 1930. This court was enclosed by walls 35 feet high. The nest which was about seven feet above the floor of the court was built largely of small pieces of newspaper and twigs which this bird carried over the top of the building. As the nest location was only about five feet outside my dormitory window, I was able to watch from the semi-dark room as though from a blind. On several occasions during nest construction by the female the male Cardinal sang the "what cheer" beginning of the song (repeated two or three times) from his perch in the privet above the nest and the female immediately answered with, "cheaper," "cheaper," "cheaper," "cheaper," from the floor of the court where she was gleaning small privet twigs, plucked and dropped by the male.

For several days in mid-May, 1945, at the Cranbrook Institute of Science, Bloomfield Hills, Michigan, I watched a pair of Cardinals through the window of a darkened room. These birds were in the branches of a 12-foot hawthorn (*Crataegus* sp.) whose branch tips brushed against the window. From about 2:00 to 5:00 p.m. each day for about a week the female of this pair vigorously attacked with wings and beak her reflection in the lower part of the window while the male sat on a branch within a few feet uttering call notes. Neither bird sang during any of these performances and only the female was seen engaged in window-fighting. A photographic record in 16 mm. colored motion pictures was taken of this behavior. This female built a nest in the hawthorn, beginning about the time her window-fighting ended.

On July 17, 1955, I found another Cardinal's nest, also on the Cranbrook Estate. The female was sitting on two small young and one egg, and left the nest reluctantly. She flew immediately to another bush about 15 feet away and sang almost the full song of the species 11 times in about five minutes. Her state of excitement was evident in the greatly increased tempo of each song sequence. When I walked away from the nest to a distance of about 30 feet, her singing ceased and she began to utter the usual call notes. While the female sang the male sat a few feet away uttering the familiar "chip" notes but otherwise apparently little excited. It will be noted that both instances of the female's singing and one of window-fighting were related in order, to nest building, choice of nest site, and nest protection.—WALTER P. NICKELL, *Cranbrook Institute of Science, Bloomfield Hills, Michigan, October 13, 1955.*

Vertical nest placement in the Blue-gray Gnatcatcher.—The nest placement of the Blue-gray Gnatcatcher (*Poliophtila caerulea*) is generally described in the literature as resting on, or saddled on horizontal branches either under or attached to another upright or diagonal branch. This, apparently, is the usual placement (Fig. 1). The horizontal branching habit found in most taller trees in wooded habitats furnishes a minimum number of suitable upright crotches for nest placement while open, low shrub growth furnishes an abundance of such sites. This is attested by use of the latter by such abundant nesting birds as the Yellow Warbler (*Dendroica petechia*), Alder Flycatcher (*Empidonax traillii*), Indigo Bunting (*Passerina cyanea*), Common Goldfinch (*Spinus tristis*), Field Sparrow (*Spizella pusilla*) and Catbird (*Dumetella carolinensis*). J. J. Murray at Lexington, Virginia, (1934. *Wilson Bull.*, 46:128) reported a nest of

the Blue-gray Gnatcatcher which was "not saddled on a limb but set between three small forks of an upright crotch, in the manner of the nests of the Yellow Warbler and Redstart." R. A. Hallman of Panama City, Florida, (A. C. Bent, 1949. *U. S. Nat. Mus. Bull.*, 196:346) wrote of another nest of this species which was in the "upright fork of a small scrub oak bush, . . . by actual measurement 38 inches . . . from the ground to the top of the nest." These two references to nest placement in upright forks by the Blue-gray Gnatcatcher are the only ones I find in the literature.

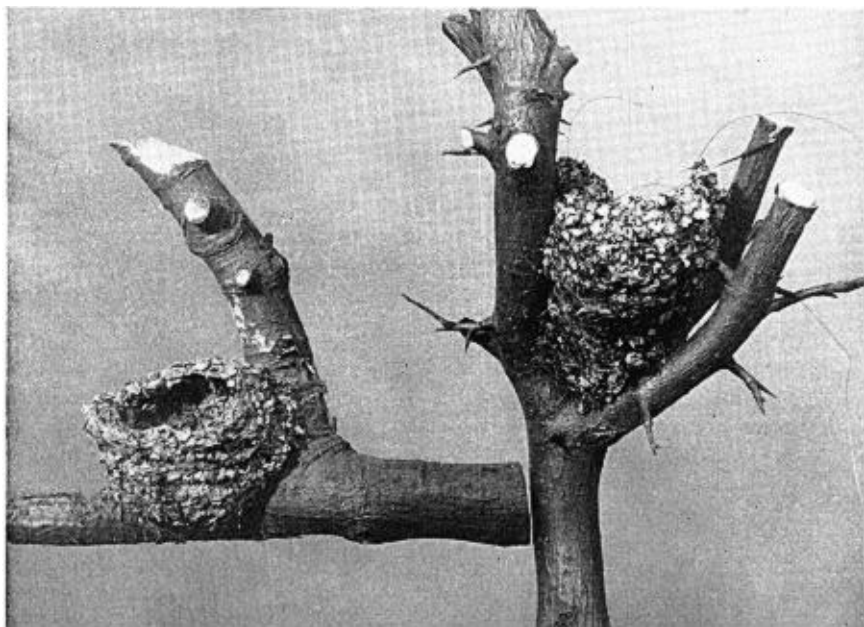


FIG. 1. Horizontal (left) and vertical placement of Blue-gray Gnatcatcher nests. Photograph by Luella C. Shroeder.

Recently I found two vertically-placed nests of the Blue-gray Gnatcatcher. A nest placed in an upright crotch of an elm (*Ulmus* sp.) and enclosed by three branches was collected on December 15, 1954, 3 miles west of Aurora, Indiana. The second, found in Oakland County, Michigan, in January, 1955, was enclosed by four upright branches of wild crab (*Pyrus coronaria*). Heights of the rims of the two nests from the ground were 50 and 42 inches, respectively.—WALTER P. NICKELL, *Cranbrook Institute of Science, Bloomfield Hills, Michigan, September 14, 1955.*