

mately 10°F in the suburbs, 7 inches of snow had accumulated. On March 19th, a bright day with the temperature approximately 32°F, Ripley and I visited the nest site. There was no Woodcock at the location where Ripley had seen the eggs. However, we finally located, at the base of a 2-inch diameter birch tree, a hollow depression in the snow approximately 4 inches deep, with one egg resting on the snow in the bottom of this depression. The egg was frozen and the shell was cracked. A short way from this depression was a little channel in the snow about 12-14 inches long which indicated that the bird was restless and had left the nest momentarily, stomped around, and then returned. Apparently she had abandoned the nest just before the snow stopped falling March 18th.

Ripley immediately assured me that the 2 eggs had not previously been located at the base of this tree, but had been in a little clearing 2 or 3 feet to the left. We scraped away the snow underneath the depression where we had found the one egg and found the other 2 eggs within 4-5 inches of it, under the snow. During our scraping, one of these eggs was broken; it was not hard frozen. The other was unbroken. Ripley is absolutely certain that the Woodcock had moved the first 2 eggs to this new location, perhaps in anticipation of having to endure the storm, since there was somewhat more shelter at the base of the birch tree.—RICHARD BORDEN, 20 Spruce Street, Boston 8, Massachusetts.

NOTES ON WING-FLASHING IN THE MOCKINGBIRD

For some years before Sutton published his brief paper (*Wilson Bull.*, 58: 206-209, 1946) on the display by the Mockingbird (*Mimus polyglottos*) which he calls "wing-flashing", this behavior had been very interesting and thought-provoking. Now, certain conclusions have been rechecked by further observation and seem valid enough to set down in writing.

Since June, 1943, it has been possible to watch Mockingbirds nearly any day all year long, at Savannah, Georgia. Some seasons or parts of seasons specific things set the adult birds apart enough so that individuals could be recognized and the sex known. One year the resident male had a lame leg. Another summer there was no male on territory for some weeks, until another bird took up residence. In spring the females arrive in clean plumage and for some time are in contrast to the males with their dirty plumage.

For some time it seemed that the males never used wing-flashing, but at least 3 undoubted instances of male indulgence have been seen; a few other times it may have been a male that displayed. The performance has been seen many hundreds, possibly thousands of times, which indicates that male indulgence is quite rare. The females come on the grass every few minutes when feeding young, and the males nearly as often.

The fact that the male rarely flashes its wings may explain why Sutton at Orlando, Florida, and Mrs. Lasky at Nashville, Tennessee, did not observe the display commonly in winter since the males remain on territory all winter, but the females appear to leave soon after the postnuptial moult in late August or in September. The male is always somewhere around in the winter, but with the gonadal influence low and little need to defend territory he sings very little until about February. In spring a female comes and accepts the territory. In 1945 the female came on April 15, in 1946 on March 31, while in 1948 one arrived on March 28, and was carrying nesting material the next day.

When a brood of young birds follows the parents on the grass, begging for food or learning to catch it themselves, some will flash the wings and others will not. One such brood of 3 which was seen daily for a week, contained 2 birds that did and one that did not display on each occasion when all were present. This is thought to indicate that the sexual differentiation in this particular appears quite early in life.

There seems no portion of the summer season when the females flash their wings any more than at any other time. In other words, there is no waxing and waning as in other behavior

peculiar to the season of reproduction. The behavior was not more common when the male was present. It was not seen in any aspect when it could be thought a part of the relationship between the sexes.

The flashing is performed in many places, on the ground and off it. One female displayed several times on the ground, flew to a stake in the garden and there lifted her wings, then to the top wire of the lane fence and again lifted her wings before leaving. Another bird circled a spot and flashed her wings several times in succession before finding the insect she evidently knew was there. This looked like intentional use, yet I think it purely accidental for she ran on over the yard and caught insects here and there without showing her wings again.

In flashing the wings, the bird stands erect and holds its head high. The young, when begging for food, crouch, extend the wings out and down, quiver, hold their heads down and bills up, and in general fail completely to behave anything like either young or adult in wing-flashing. The posture of the female when ready for copulation resembles the begging of the young.

The only explanation that seems to fit, is that this is a bit of instinctive behavior which has no present use or meaning and which has no adaptive (purposive) value.

In 2 instances only, I have seen the Brown Thrasher (*Toxostoma rufum*) flash its wings in identical fashion, though there have not been as good chances to observe this species.

It is my belief that neither season, temperature, nor the frequency of the feeding trips to the nest, affect the frequency with which wing-flashing is done. It is observed in the shade, in the early spring, and at all times of day in the summer in equal frequency.

Wampole (*Wilson Bull.*, 61: 113, 1949) tells of a bird making 4-foot vertical flights from the roof of a schoolhouse, and pausing to raise and extend the wings. It may be that this note refers to flight song of the male, a behavior which seems, in this locality, to vary greatly among individuals. In this flight song the male may flit around and do much posturing, but to me it does not seem the same performance as the deliberate wing-flashing which is the subject of this paper. Even though the performance he observed was without song, it may have been the practice of a young male, much like the instance of the very young bird I saw sitting on a fence and practicing a whisper song.

The conclusions from observations of wing-flashing are that it is done almost entirely by the females and some of the young birds; that it is done with equal frequency at all times of the year by the females when they are present; that it is not connected with mating behavior, and brings no specific response in the male; that it is very different from the begging of the young; that it is not done to startle insects into revealing their whereabouts through motion; that it has no present value to the species.—IVAN R. TOMKINS, 1231 East 50th St., Savannah, Georgia.