GENERAL NOTES

Attraction of nocturnal migrants by lights on a television tower.—Allen (1880. *Bull. Nutt. Orn. Club*, 5:131–138) called attention to the fact that birds killed themselves by flying against the lights of lighthouses. Some of the lighthouses at which bird mortality occurred had red lights, others white, some had flashing, and some had fixed lights. Gastman (1886. *Amer. Nat.*, 20:981) estimated that a thousand birds (fall migrants) were killed at electric light towers in Decatur, Illinois.

More recently, Pough (1948. *Audubon Mag.*, 50:354–355) described mass mortality of migrants on the Empire State Building, New York, but made no mention of lights on the building. Howell, Laskey, and Tanner (1954. *Wilson Bull.*, 66:207–209) indicated that migrating birds may be attracted by the light beam of airport ceilometers.

Mortality of nocturnal migrants at television towers has also received attention, and presently several studies of this phenomenon are in progress.

In their outstanding analysis of bird mortality at a 950-foot television tower in Topeka, Kansas, Tordoff and Mengel (1956. *Univ. Kans. Mus. Nat. Hist. Publ.*, 10:17–20) discussed, among other things, the randomness of the sample of birds killed and calculated the number of migrants, assuming that the birds were uniformly spaced across the sky and neither attracted to the tower nor dispersed by it.

Recently the present writers made observations at a 984-foot television tower located 10 miles west of Champaign, Illinois, and obtained evidence that nocturnal migrants may be attracted by the red lights which are placed at 140-foot intervals along the tower.

During the night of May 29–30, 1957, there was a notable migration of birds in the vicinity of Champaign County. One or the other of the writers was present at the television tower from 8:00 p.m., May 29 until 5:15 a.m., May 30. The area was overcast and a light mist fell during part of the night. The surface wind was light from the E.S.E. Graber did not arrive at the tower until 11:30 p.m., but heard birds passing over the city of Champaign between 10:00 and 11:00 p.m. and also at two places along the 10-mile route from city to tower when he stopped to check on the migration. Upon reaching the transmitter he was immediately impressed by the great number of bird calls heard in the vicinity of the tower. It was apparent that there were more birds near the tower than away from it.

Besides hearing the birds we found that we could see birds passing the tower through the beam of an automobile spotlight. The spotlight beam reached the top of the tower, and we could judge the height of passing birds by the positions of the red tower lights and the attachment points of three sets of cable guys. Table 1 summarizes counts of birds which we made between 1:24 and 5:03 a.m.

Throughout this period migrants were around the tower and from call notes we identified Veeries (*Hylocichla fuscescens*), Dickcissels (*Spiza americana*), and Indigo Buntings (*Passerina cyanea*). Many of the birds probably were warblers, but we could not be certain of their identity.

The migrants were not evenly distributed but appeared in waves from the south. In the vicinity of the tower they were obviously confused, and their behavior was similar to that described for birds in a ceilometer beam by Howell, Laskey, and Tanner (1954. *Wilson Bull.*, 66:209). The migrants flew quickly through the framework of the tower, then circled at the edge of the lighted area and passed through the tower again. Most birds flew between elevations of 400 and 900 feet, but a few were above the tower and some were as low as 150 feet. In spite of the numerous obstructions which the framework of the tower offered and the fact that as many as 51 birds passed through or near

the tower in one minute, very few struck it. We heard several hit during the night but failed to find specimens the following morning. The number of birds heard to call per minute varied from 9 to 26, and the number seen per minute varied from 5 to 51 (Table 1). We could not tell how many times an individual bird was counted, for birds entered the beam and the tower structure from every possible direction.

The spotlight beam itself may have had some effect on the migrants, but certainly the birds behaved in the same confused manner whether the spotlight was on or off. When the spotlight was off we could see those migrants that passed very close to the red tower lights, and it was apparent that birds entered the lighted area from different directions. How long an individual bird may have flown about the tower we do not know, but from the call notes we felt certain that new birds were arriving regularly while others were moving away to the north or northwest.

TABLE 1
SUMMARY OF OBSERVATIONS MADE AT TELEVISION TOWER ON MAY 29, 1957, CHAMPAIGN COUNTY, ILLINOIS

Time CDST a.m.	Minutes	Bird notes heard	Birds heard per minute	Birds seen	Birds seen per minute	Elevation of most birds (feet)
1:24–1:32	8	70	9	78	10	600–900
1:55–2:00	5			106	21	400–600
2:04–2:09	5	104	21			
2:25–2:31	6			185	31	400–500
2:33–2:37	4	102	26			
2:40–2:44	4	102	26			
2:45–2:49	4			202	51	Under 500
3:03–3:05	2			33	17	
3:20–3:24	4	102	26			
3:25–3:30	5			155	31	400–600
3:50–3:54	4	101	25			
3:55–4:02	7			151	22	400–500
4:22–4:29	7	101	14			
4:30–4:40	10			101	10	400–500
4:50–4:56	6	51	9			
4:56–5:01	5			26	5	
5:03	Quite light but birds are still passing.					

With the spotlight we could track individual birds as they approached the tower, but usually lost them as they entered the tower framework. Three times we tracked individual birds away from the tower. Two of these flew to the west-northwest and one to the northeast, and all three gained altitude as they left the tower area. Several times we tracked birds as they left the tower framework and saw them circle and return to the tower.

Because the television transmitter itself was turned off (at 12:45 a.m.) before our observations began, we assumed that the confusion of migrants was caused solely by the lights.

Observations made between 3:30 a.m. and 5:45 a.m. on November 5, 1957 corroborated this view. At this time the sky was overcast, but there was no precipitation. When we arrived at the tower (approximately 3:30 a.m.) the transmitter was off, but the tower lights were on. We noticed a few birds fluttering about the outdoor lights of the transmitter building and identified five Slate-colored Juncos (*Junco hyemalis*) a Myrtle Warbler (*Dendroica coronata*), and a Swamp Sparrow (*Melospiza georgiana*). We heard other birds calling as they flew about the transmitter tower and counted eight call notes

per minute during a four-minute period. In quick succession, we then made call note counts of migrants as follows: one mile east of the tower at a place without lights—one bird heard in five minutes, two miles southeast of the tower—no birds heard in five minutes. Returning to the base of the tower, we continued making counts as follows: with tower lights on, 30 birds in four minutes; all lights off, no birds in four minutes; tower lights on, 9 birds heard, all near the end of a four-minute period; lights on, 7 birds in four minutes; lights on, 55 birds in four minutes; lights off, 6 birds heard, all in the first two minutes of a five-minute period; lights on, no birds in first two minutes, but after the lights had been on four minutes we heard 76 call notes in the next four minutes.

Turning off the tower lights definitely eliminated the congestion of migrants about the tower. Immediately after the lights went off, we could tell by the diminishing volume of call notes that birds were leaving the vicinity, and in less than two minutes all birds were out of hearing. After the tower was relighted it took from one to two minutes for the first birds to come into hearing, but thereafter the number of call notes increased dramatically.

We could not identify, with certainty, any of the migrants that we heard during the night, but at 7:15 a.m. we found five freshly killed birds (three Fox Sparrows, *Passerella iliaca*; one Golden-crowned Kinglet, *Regulus satrapa*; and one Woodcock, *Philohela minor*), and three crippled birds (two Slate-colored Juncos and one Golden-crowned Kinglet) under the east and west guys which support the tower.

Our observations indicate that confusion of nocturnal migrants by tower lights occurs only on nights when the ceiling is low, and migrants are apparently forced to fly near or below the 1000- to 3000-foot level. On clear nights or on nights when cloud cover is high, we learned, through the use of special audio equipment (unpublished manuscript) that numbers of high-flying migrants pass the vicinity of the tower without becoming confused.

Thus, calculations of total numbers of migrants based on the sample of birds killed at television towers are erroneous on at least two counts: (1) migrants are attracted to the towers by the tower lights, and (2) only a very small per cent of the birds which reach the tower are killed.—WILLIAM W. COCHRAN, *WCIA, Champaign, Illinois, and* RICHARD R. GRABER, *Illinois Natural History Survey, Urbana, Illinois, April 24, 1958.*

Early record for the Ivory-billed Woodpecker in Kentucky.—An early record from Kentucky seems to indicate a greater amount of wandering among Ivory-billed Woodpeckers (*Campephilus principalis*) than has commonly been attributed to them. Col. Wm. Fleming noted in his journal for March 7, 1780, while near St. Asaph's, or Logan's Fort, about 20 miles south-southeast of Harrodsburg, that he had met with a species of woodpecker new to him (N. D. Mereness, 1916. "Travels in the American colonies," pp. 632–633). He saw two individuals, "the Cock and the hen," the former having "a bright red head with remarkable large tuft of feathers on the Crown . . . the body and the wings White and black." One of the birds was shot, the female, Fleming thought (but probably a male of the previous year, according to Dr. James T. Tanner [letter to K. L. Dixon, June 25, 1958]). Fleming's description was essentially as follows: ". . . the feathers on the throat and belly and part of the wing and tail a shining black, it had nine stiff and strong feathers in the tail. . . , the middle one being six inches long from where the feathers begins. . . , its wings ten Inches long from the shoulder [*bend*?] to the tip, 18 long feathers in the wing, the two first and longest black[,] the 3rd tipd with white and each succeeding one more and more till the next to the back