

trees at a roosting site in Amherst, Massachusetts. During 35 evenings of observation I have not seen any actions which I would call "swallow-like," but have often seen them fly up, hover, then glide back to a perch, after the fashion of an "awkward" flycatcher.

Cade (*loc. cit.*) feels that aerial feeding by Rusty Blackbirds occurs more frequently when crawling insects are scarce and flying insects are abundant. The relationship between availability of "satisfactory" food items and the actual food taken has been amply demonstrated for other species and undoubtedly plays a part in determining the frequency with which a particular species resorts to an aerial feeding habit.

Beecher (Auk, 70: 270, 1953) has recently suggested a phylogeny of the Oscines which would derive the Sturnidae and the Hirundinidae from a common ancestry. If this relationship is correct, it would not be surprising to find a swallow-like aerial feeding habit common to the two groups. However, the Bombycillidae, Corvidae, Icteridae, and Ploceidae, and to a lesser extent the Miminae, are farther removed from the Sylviidae which form the starting point of Beecher's phylogeny. It should be noted that "hovering" to pick off insects is a characteristic habit of sylviiids. This may well be a basic behavioral pattern which has become variously modified in the many lines radiating from the sylviiids. It would seem worth while to collect additional records of the aerial feeding habit to determine the distribution and patterns of this habit among the Oscines. If this is to be done, some standardization of terminology is desirable. I therefore propose the following classification of terms as a starting point:

I. *Aerial Feeding*. Any feeding accomplished while the bird is "on the wing."

A. *Hovering*. The method commonly seen in the Kinglets, Chickadees, Vireos, and Wood Warblers, in which the bird jumps up a few inches from one branch, and hovers on fluttering wings while picking off its food from another twig.

B. *Hawking*. Any feeding during the flight of a bird while it is more than three feet from a perch (the "three feet" is purely arbitrary).

1. *Swallow-like* (Hirundinoid). A continuous series of passes through an area. This would imply the completion of a flight pattern at least approaching a double figure "8."

2. *Flycatcher-like* (Tyrannoid). A single sortie from an exposed perch back to another perch, broken in the middle by a fluttering flight during which the insect is captured.—L. M. BARTLETT, *Department of Zoology, University of Massachusetts, Amherst, Massachusetts.*

Notes on Courtship Behavior of Wild and Tame Blue Jays.—Courtship behavior of Blue Jays (*Cyanocitta cristata*) as described below, was witnessed in wild birds which nested close to my home and jays confined indoors in Bethesda, Maryland. A pair of jays appeared in the yard on March 18, 1953, and on March 31 began nest-building in a clump of honeysuckle (*Lonicera japonica*) hanging 12 feet up in a pine tree. At 7:30 a.m. on April 9 both jays were 15 feet up in a hickory, about 25 feet from the nest tree. The female sat on a limb while the male hopped from one limb to another, keeping within a foot of her, with his feathers ruffled up and making "quick, quick" notes. She perched stiffly upright. After a few moments the jays stood facing each other on the same limb with bills open and touching briefly. Then the male mounted and coition, lasting several seconds, took place. Afterward the male flew away. The female, however, remained on the same limb, fluttering her wings. She did not appear to be preening or smoothing out her feathers. That evening one jay was observed to feed the other, a performance witnessed on subsequent days but not prior to coition. I did not disturb the fairly inaccessible

nest to determine when eggs were laid. Two young ones left the nest on May 21.

A jay captured on July 10, 1952, shortly after it left the nest, lived in my library through the winter, its cage door being open most of the time so that it became tame. When 11 months old in May, 1953, the jay developed new patterns of behavior, apparently sexual in motivation and subsequent evidence showed the bird to be a male. As I approached him in the evening he would hop from a shelf to my shoulder, facing one way, then the other as he kept up low, rapid whistlings in my ear and rubbed his bill in my hair. That these actions represented courtship was indicated by subsequent behavior when two juvenal jays were introduced into the library on May 18. On May 19, the older captive perched beside the largest of the young, fluttering his wings, making low whistles, and running his bill through the young bird's plumage. The next evening, after a similar performance, the older jay attempted coition. The young jay, however, never responded to his advances.

The situation was different for a younger jay which I had removed from the nest in the yard three days before the other young left naturally. For the first week this bird fluttered its wings and begged food from me. By May 25, the year-old captive male had taken over feeding the youngest jay. This he did with great enthusiasm, dismembering many cicadas in the process. No sexual behavior was noted until May 31, when the male hopped from one side of the young jay to the other, making low notes and poking its plumage with his bill. Then he mounted and attempted coition. On succeeding evenings the year-old male would hop over, above, and below the young jay before mounting when the young one, being half his size, was pressed fairly flat. Occasionally the former would stand high as to look down on the juvenal bird's back and sing an odd song which he had developed during captivity, presumably as a prelude to coition.—LAWRENCE KILHAM, 109 South Fourth Street, Hamilton, Montana.

An Egg-bound Mourning Dove.—The condition known as egg-bound is not uncommon in caged wild birds and in domestic fowls. However, in wild birds in the natural state it is rarely, if ever observed.

A Mourning Dove (*Zenaidura macroura*) with an egg-bound condition was called to my attention by Mr. Merritt Paulson, a farmer, who has permitted an extensive study of this species to be made on his property near Barrington, Illinois. The dove was found prostrate on the ground under a tree. At this time an egg was protruding part way out of the cloaca. A bystander advised him to break the egg, which was done. Then, the dove struggled free, flew for a distance of about 75 yards, and again fell prostrate to the ground, where it was recovered.

The bird was in a very weakened condition, had lost the use of its legs, and could not maintain its equilibrium. The area surrounding the cloaca was swollen and covered with blood and fecal matter. This was washed with warm water to permit examining for a prolapse, which was not present. The bird expired about 3 hours after being relieved of its first egg.

Post-mortem revealed the following: weight 102.8 grs., crop empty. The gizzard contained grit and a small amount of unidentifiable dark green fibre. The inner-lining of the gizzard was colored a very dark green, similar to a condition often found in lead-poisoned waterfowl. Gonads indicated active follicles of which two were collapsed, including one which had partly receded. The second egg was in the oviduct adjacent to the opening of the cloaca and measured 29 × 20.5 mm., which is normal in size. The posterior half of the egg was encased by a normal fully calcified shell, the anterior half was very thin and rubbery.

Ward and Gallagher (1920, "Diseases of Domesticated Birds," p. 165) and Levi