

my hand over the burrow entrance, as they did when I brightened the nest chamber with a flashlight.

The young birds were 10 days old when I was first able to observe them inside the nest. The young gaped when the adults entered the burrow, even if the adults did not walk back to the nest chamber. Although I could hear the begging calls of the young, in none of the observation periods did I hear the adults give any call upon entering the nest. The nestlings lifted up their heads when a shadow from another bird passed across the burrow entrance, but they did not gape. The next day I noted the same behavior.

On the 12th day of the birds' life it was cloudy and rainy all day. The young were fed at intervals of 15 to 30 minutes. Perhaps due to the infrequent feeding, the young gaped at shadows that passed over the burrow; and once when I shined a flashlight through the glass plate between my observation hole and the nest chamber, they all turned and gaped widely toward it.

In all previous observations the nestlings did not move off the nest; on the 13th, 14th, and 15th days, however, two of the nestlings were continually off the nest and about one-third of the way down the burrow. A third nestling remained on the nest.

On the 16th and 17th days all three young were fed at the entrance of the burrow. They gaped whenever another bird hovered about them. On the 18th day the nestlings had fledged, and for the next three days I found them on the nest only at night.

Nestling Bank Swallows apparently do not gape in response to a call from the parents, but rather either to a change in lighting or to the approach of another swallow.—GEORGE W. FULK, *Department of Zoology, Michigan State University, East Lansing, Michigan*, (*Present address: Department of Zoology, University of Rhode Island, Kingston, Rhode Island*).

Seasonal variation in bill length of House Sparrows.—In the course of an investigation of geographic variation of House Sparrows (*Passer domesticus*), data were obtained which further demonstrate seasonal variation in bill length of this species. Specimens were collected at Kit Carson, Cheyenne Co., Colorado, in mid-October, 1964, and in late August, 1965. Measurements of the bill were taken from the anterior margin of the nostril to the tip of the mandible, and were recorded to the nearest 0.1 mm. Only adult birds (as determined by cranial ossification) were used in the present study so as to ensure that the samples are comparable. Statistical treatment was by analysis of variance (Steel & Torrie, 1960. "Principles and Procedures of Statistics." McGraw-Hill, New York).

A statistically significant variation in bill length among groups was indicated (see Table 1). However, no portion of this variation could be attributed either to differences between sexes ($P > 0.10$) or to an interaction component ($P > 0.10$). All of the variation in bill length could be assigned to effects of season of capture ($0.025 > P > 0.010$), birds obtained in August having longer bills than birds captured in October.

The results are in essential agreement with reports by Clancey (1948. *Brit. Birds*, 41: 115-116) and Davis (1954. *Condor*, 56:142-149) which indicate that bills of House Sparrows are longer in summer than in autumn and winter. Presumably this variation has as its basis seasonal changes in food habits of sparrows (Davis, *op. cit.*; Selander and Johnston, 1967, *Condor*, 69:217-258); wear to the bill is thought to be greater during late autumn and winter when the primary foods are seeds than it is in summer when a substantial part of the diet is soft-bodied insects.

TABLE 1
BILL LENGTH OF HOUSE SPARROWS
(MEAN PLUS STANDARD ERROR)

Sex	August	October
Female	9.42 ± 0.122 (6) *	9.27 ± 0.100 (12)
Male	9.44 ± 0.053 (7)	9.04 ± 0.104 (9)

* Sample size.

Furthermore, absence of differences in bill length that are related to sex supports earlier contentions that North American House Sparrows have not undergone evolutionary change effecting a partitioning of the food niche (Packard, 1967. *Syst. Zool.*, 16:73-89; Selander and Johnston, op. cit.). Presumably, failure of House Sparrows to experience evolutionary change of this sort is related to their exploitation of an abundant and diverse food source, thereby obviating specialization of bill structure for restricted food sources (Selander, 1966, *Condor*, 68:113-151).—GARY C. PACKARD, *Department of Zoology and Entomology, Clemson University, Clemson, S.C., 9 September 1966.*

Unusual activities of a House Sparrow and a Blue Jay at a Tufted Titmouse nest.—A Tufted Titmouse (*Parus bicolor*) pair nested in a Bluebird (*Sialia sialis*) nest box in my yard at Pennington, N.J. On the morning of 4 July 1965 the titmouse young were fed by a female House Sparrow (*Passer domesticus*) on three occasions within a 40-minute period. She was also making frequent feeding flights to her nestlings in a bird house 17 ft. away. The titmouse pair protested noisily by scolding and diving and once successfully drove her away.

The following morning (5 July) as I watched closely to see if the sparrow would return, a Blue Jay (*Cyanocitta cristata*) flew to the titmouse nest box just as an adult titmouse left, perched on the lower rim of the nest hole, pushed its head and neck well into the nest box and pecked eight times at the nest contents. Then it perched a few moments on an adjacent branch, 10 inches away, before returning to peer in the nest box and poke at the nestlings. Once again it perched on the branch, returned, and poked into the nest box. The jay did not taken anything from the nest. Although the titmouse pair protested noisily by scolding and diving at the jay as it perched on and near the nest box, they did not deter the jay. The entire incident took nine minutes.

Twenty-nine minutes later a jay (same?) flew to the nest box, thrust its head and neck into the box as before, poking three times at the contents before leaving slowly up through the nest tree, branch by branch.

The design of the box was such that it was 8½ inches deep in front but only 8 inches at the back with the almost-square interior 5 inches wide. The nest rim was approximately 3½ inches below the box entrance hole and it seems possible that the jay could have reached the nestlings.

There were ample auditory and visual cues to the nest's location for a potential predator. The titmouse nestlings were very noisy when fed by the adults and at times the nestlings continued calling after the feedings. Moreover, the adults generally flew directly to the nest box hole with food.