

Kenneth Williamson and Robert Spencer (Bird Migration, 1: 176, 1958) record a House Sparrow banded in Britain and recovered in Spain.

Instances of migratory behavior of the House Sparrow in the New World are unknown, so far as I know, but it is possible that House Sparrows may have long since established a migratory pattern. We take this avian pest for granted and give it such casual attention that we may have overlooked newly emerging aspects of its biology.

I am most grateful to Robert J. Newman and to Mary H. Clench for valuable suggestions and reference material.—MAURICE BROUN, *Strawberry Hill Farm, New Ringgold, Pennsylvania 17960*. Accepted 4 Mar. 71.

Digestion and passage of blue mussels eaten by Black Ducks.—Male Black Ducks (*Anas rubripes*) were wild trapped during November and December 1969, caged in outdoor pens in Chatham, Massachusetts, and fed a mixture of corn (*Zea mays*) and blue mussels (*Mytilus edulis*) until 2 weeks before the test date (12–24 March 1970). I fed ducks only cracked corn for 2 weeks before the test. All ducks were in good condition, with weights between 950 and 1100 g.

Test ducks were starved from 12:00 to 17:00 on the day prior to the test. From 17:00 to 17:15, ducks were offered cracked corn *ad libitum*. At 17:15, I removed the cracked corn, and at 10:00 on test day I placed the test food, either corn or blue mussels, in the pens. Ducks fed for specific periods and then were sacrificed and necropsied. For necropsy, I divided the digestive tract into five sections: 1) Mouth to the gizzard entrance, 2) gizzard, 3) from the end of the gizzard to the end of the pancreas, 4) from the end of the pancreas to the entrance of the caeca, and 5) from the end of the caeca to the end of the rectum.

Black Ducks in this study digested and passed a blue mussel in 30–40 minutes (Table 1). Similarly Malone (J. Wildl. Mgmt., 29: 529, 1965) reported that Mallards (*Anas platyrhynchos*) can pass crayfish (*Camborus* sp.) in as little as 45 minutes. Ducks number 3 and 6 (Table 1) indicate that there was probably no carryover of mussel fragments in the digestive tracts of other tested ducks. No duck contained

TABLE 1
DISTANCE OF PASSAGE OF BLUE MUSSELS THROUGH THE DIGESTIVE TRACT
OF BLACK DUCKS PENNED OUTDOORS IN MARCH 1970

Duck No.	Food ¹	Allowed to feed (minutes)	Mussels found ² Digestive tract section ³				
			1	2	3	4	5
1	Mussels	15	YW	YWF	YF	N	N
2	Mussels	50	N	YF	YF	YF	YF
3	Corn	50	N	N	N	N	N
4	Mussels	30	YW	YWF	YF	YF	YF
5	Mussels	45	N	YF	YF	YF	YF
6	Corn	45	N	N	N	N	N
7	Mussels	20	YW	YWF	YF	N	N

¹ Food offered *ad libitum*.

² YW = yes, whole only; YWF = yes, whole and fragments; YF = yes, fragments only; N = no fragments or whole mussels.

³ Explained in text.

more than 10 cc of blue mussels, or mussels more than 1 inch long, in section 1 at death.

Other common soft-shelled foods of wintering New England Black Ducks, such as bent nosed clams (*Macoma balthica*), ribbed mussels (*Modiolus demissus*), soft-shelled clams (*Mya arenaria*), and salt marsh snails (*Melampus bidentatus*), are probably digested and passed at the same rate as blue mussels. Non-shelled animal foods such as scuds (*Gammarus* sp.), beach fleas (*Orchestia* sp.), and worms (*Nereis* sp.) are probably digested at least as rapidly.

Hence, Black Ducks killed after more than 30 minutes of feeding may have eaten, digested, and passed certain animal foods. Conversely, if the Black Ducks have not been gorging or stuffing foods, any soft bodied or soft-shelled animal foods contained in the esophagus or crop probably were just eaten.

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Feeding interactions between Pied-billed Grebes and herons.—On 17 October 1970 we noted a Louisiana Heron (*Hydranassa tricolor*) and a Snowy Egret (*Leucophoyx thula*) feeding in a small (ca. 0.5 hectare) freshwater pond near the northern tip of Ashe Island, just south of the New River Inlet, in Onslow County, North Carolina. Both herons were moving slowly in shallow water near the edge of the pond. Three Pied-billed Grebes (*Podilymbus podiceps*) were swimming about 2 to 4 m from the herons, remaining just offshore of the birds. All five birds were feeding actively and occasionally catching small fish about 5 to 8 cm in length. After about 1 or 2 minutes, the Louisiana Heron flew to a small island in the pond, the Snowy Egret walked to the shoreline and remained stationary, and the grebes dispersed. Shortly thereafter the Louisiana Heron began to forage actively, and it was soon joined by two of the grebes. This association lasted about 2 minutes, and then the heron stopped moving and the grebes swam away. About 3 minutes later the Snowy Egret resumed active feeding and it was soon joined by all three grebes. Christman (Condor, 59: 343, 1957), Parks and Bressler (Auk, 80: 198, 1963), and Emlen and Ambrose (Auk, 87: 164–165, 1970) have reported commensal relationships between mergansers, cormorants and various species of herons. All these observers felt that the herons were reacting to the presence of the swimming birds, or the fish driven inshore by them. Our observations appear to be the first indicating a grebe-heron interaction, and the first in which the swimming birds were reacting to the herons. Possibly the grebes were reacting to the fish disturbed by the herons, but the rapidity with which the grebes assembled in the vicinity of a moving heron lead us to doubt this hypothesis. This incidental observation was made while the authors were engaged in a research project funded by the National Science Foundation (Grant GB-8771).—HELMUT C. MUELLER, MAXEEN G. BIBEN, and HAROLD F. SEARS, *Department of Zoology, University of North Carolina, Chapel Hill, North Carolina 27514.* Accepted 20 Jan. 71.