one had four eggs, three had five eggs, two had four young, and one had five young. Young fledged at one nest on 15 July. Nests were placed as open cups in the meadow (three), in small (less than one foot high) shrubby cinquefoil (*Potentilla fruticosa*) (three), and one was under a rock. Adults apparently do not brood their eggs during rainstorms, but they were observed on several occasions to rush to their unprotected nests when a rainstorm turned into a hailstorm. Hail damage to two eggs in each of two nests resulted in abandoned nests.—RICHARD E. JOHNSON, *Department of Zoology, University of Montana, Missoula, Montana (Present address: Department of Zoology, University of California, Berkeley, California), 17 May 1965.*

Regurgitation of food by Mallard Ducks.—That water birds, by carrying resistant disseminules within their intestinal tract, are important agents of dispersal for many aquatic organisms is well known (Löffler, H., 1963. *Vogelwarte*, 22:17–20; Malone, C. R., 1965. *J. Wildl. Mgmt.*, 29:529–533; Proctor, V. W., 1964. *Ecology*, 45:656–658). The dispersal of freshwater species not capable of active overland transport and lacking resistant disseminules, while not so well documented, has largely been attributed to transport via the external surfaces of birds. A recent observation indicating that dispersal via the avian intestinal tract might be a possibility for even these organisms prompted this note.

During experiments to determine the effects of avian digestion on algal oospores and ostracod eggs, six-month-old female Mallards (*Anas platyrhynchos*) were fed to repletion on *Chara* sp. Two of the five birds under observation regurgitated portions of their meal about 45 minutes following its ingestion. Each bird vomited a ball, about one inch in diameter, of loosely compacted *Chara*. Apparently the food had not entered the stomach for it was not obviously altered by digestive processes. The cause of the vomits is unknown but it seems likely that the birds simply had overeaten. Trials were repeated numerous times but vomits never again occurred.

This observation bears little significance to the dispersal of either *Chara* or ostracods, since both possess resistant disseminules which survive passage through the intestinal tract of various birds (Proctor, V. W., and C. R. Malone, 1965. *Ecology*, 46:728–729). However, if organisms not capable of withstanding avian digestive processes were attached to plants ingested and later regurgitated by a flying bird, dispersal would be effected. Two excellent examples of organisms which might take advantage of this unique mechanism of transport exist.

Bondesden and Kaiser (1949. *Oikos*, 1:252–281), in attempting to explain the dispersal of aquatic gastropods, fed snails to ducks but found that all the snails were killed by digestion. They suggested that snails might be dispersed if vomited from the crop but did not offer evidence that this could occur. I have previously shown that aquatic snails and their eggs, when ingested by ducks, are unharmed before entering the gizzard and might be carried internally and dispersed if regurgitated from the crop (Malone, C. R., 1965. *Nautilus*, 78:135–139). At that time I pointed out that little is known of the rate of food passage from the crop into the gizzard of ducks. Even less is known concerning the occurrence and frequency of regurgitation.

Jubb (1964. *Ostrich*, 35:115–116) stated that the dispersal of fish cannot be explained by birds because fish do not possess resistant eggs. However, he failed to consider the possibility of fish or their eggs being carried within a bird's crop and later regurgitated.

For those organisms easily killed by avian digestion and by desiccation, such as fish, transport via the crop of birds would be a highly advantageous means of passive overland transport. This mechanism of dispersal largely has been neglected and data related to it

are needed. Reports of regurgitation of food will make worthy contributions to the growing body of knowledge concerning the role of water birds in the dispersal of aquatic organisms.—CHARLES R. MALONE, *Department of Biology, Texas Technological College, Lubbock, Texas, 14 June 1965.*

Record of Mourning Dove kill by American Kestrel.—The following note concerns an additional prey species to the list of foods of the Sparrow Hawk, or American Kestrel (*Falco sparverius*) published by D. S. Heintzelman (1964. *Wilson Bull.* 76:323–330).

On 31 March 1964, I observed a male Kestrel attack and kill a Mourning Dove (*Zenaidura macroura*) at the University of Delaware farm, Newark, Delaware. From my automobile and with the aid of binoculars, I first observed the Kestrel perched in a large oak tree located on the border of a cornfield. As the hawk glided from the tree toward the middle of the cornfield, I could see its talons were outstretched and it appeared to strike something on the ground. Immediately, a Mourning Dove flew away, but the hawk remained on the ground. As I approached the area on foot, the hawk took flight, returned to the same oak tree, and perched. A Mourning Dove lay quivering on the ground with the entire top of its skull torn off. Apparently the injured bird was aware of my approach as it attempted to fly. Assuming that the bird was mortally wounded, I obtained a wire cage 2 × 2 × 4 feet with ¼-inch plywood ends and a 4- × 4-inch door and placed the dove inside. The 4- × 4-inch door was left open. I returned to my car and waited. After 10 minutes the hawk returned, alighted atop the cage, and, after much scrutiny, entered. The cage was oriented in such a way that the plywood end hid my

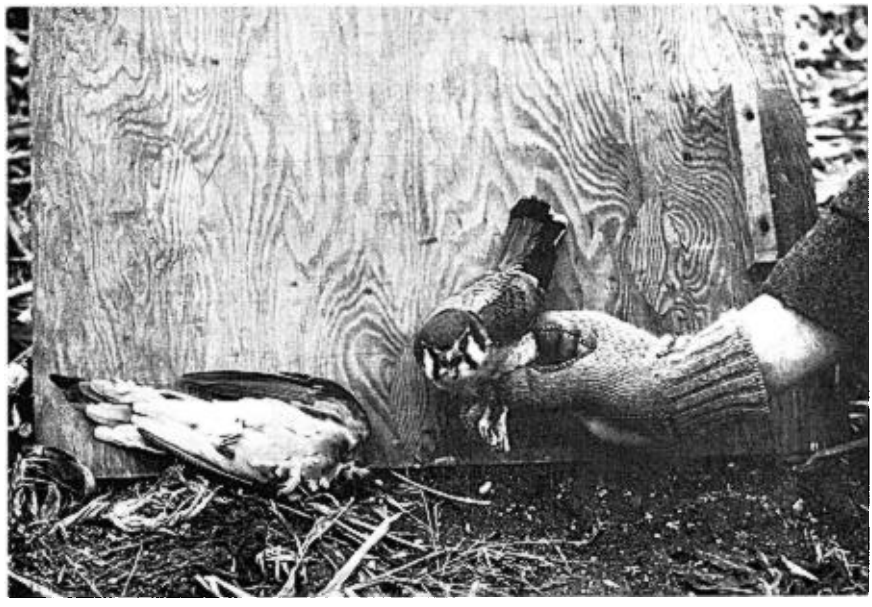

FIG. 1. American Kestrel with Mourning Dove it had just killed and decapitated.