dust is lifted to considerable altitudes by the associated rising current of relatively warm air (Sinclair, J. Atmos. Sci., 30:1599–1619, 1973). There were scattered cumulus clouds with bases at about 2500 m; the temperature near the ground was about 38°C; wind from the south was blowing 5 to 10 m/sec (meterological data correspond to the record of the U.S. National Weather Service at Oklahoma City).

Near Hennessey at about 14:00 I saw a large dust devil about 0.8 km to the east in a field. I sped north to pass it; then to intercept it I turned east and stopped as the whirlwind approached. It had become invisible after entering a woodlot where dust previously marking the column was less available. Suddenly, about 150 m away, the whirlwind appeared again, well marked by dust lifted from plowed land bordering the woodlot. Almost at the same moment as my renewed sighting, about six vultures, probably *Cathartes aura*, appeared above the woodlot and flew with rapid strong flapping of wings directly toward and into the whirlwind. They gained altitude rapidly; I guessed they were about 150 m high as they passed nearly overhead. Their position related to the whirlwind at the surface showed that the axis of the whirlwind sloped about 20° from the vertical toward the direction of its horizontal motion. While spiraling in the thermal column and drifting northward at a forward speed of about 10 m/sec, the birds passed rapidly out of sight as they continued to rise together.

It seems likely that soaring birds use both tactile and visual sensing as well as random flight to locate regions of rising air. Thus both Hankin (Animal Flight, Iliffe & Sons Ltd. London, 1913) and Cone (Am. Sci. 50:180–209, 1962) refer to the start of circling by a flock of vultures or condors initially on the ground, coincident with a gust of wind. Hankin seems to imply visual sensing where he states that Cheels (*Milvus govinda*) often amuse themselves by gliding in and out of dust devils at Rajputana, where sometimes half a dozen, like a row of factory chimneys, are visible at once. Pennycuick (Sci. Am. 229(5):102–109) states that vultures and eagles appear to use visible signs as a glider pilot does. Cone suggests, however, that birds find thermal shells (bubbles) by accident, or by sensing air temperature gradients associated with the buoyancy structure of their thermal core and body, or by monitoring aerodynamic forces.

In the present case it remains inconclusive whether the primary stimulus to avian flight was tactile or visual or both. My perception of events suggests, however, that the vultures rose from the ground because they saw a dusty column and recognized it as the strong updraft they required for low-energy ascent to a great altitude.—EDWIN KESSLER, *National Severe Storms Laboratory NOAA, 1313 Halley Circle, Norman, OK 73069.* *Accepted 23 Sept. 1974.*

Blue Geese wintering with Sandhill Cranes.—Between 14 January and 26 February 1974 two immature Blue Geese (*Chen caerulescens*) were seen on 14 occasions with a wintering sub-flock of approximately 200 Greater Sandhill Cranes (*Grus canadensis tabida*) on Paynes Prairie, Alachua Co., Florida. Times of observations varied from dawn to dusk. The geese flew to and from roosting sites and fed with the cranes and were usually associated with a group of five cranes. The geese were never seen individually and as far as could be determined, did not leave the company of the cranes. On 19 February the geese and 33 cranes were captured with oral tranquilizers, banded and released (William and Phillips, J. Wildl. Manage. 37:94–97, 1973). When observed one week later, 26 February, the geese were still with the flock. This association is particularly interesting since Harvey et al. (Wilson Bull. 80:421–425, 1968) described Sandhill Cranes as a predator of eggs and young Blue Geese. The fact that the geese were

outside their normal wintering range may have prompted this association.—STEPHEN A. NESBITT, *Florida Game and Fresh Water Fish Commission, Wildlife Research Office, 4005 S. Main, Gainesville, FL 32601.* *Accepted 26 Aug. 1974.*

Renesting and second broods of wild Mallards.—During 1968–71, nesting Mallard (*Anas platyrhynchos*) hens were captured on nest baskets in prairie marshes of Western Stutsman Co., North Dakota (Doty and Lee, J. Wildl. Manage., In press). Each duck was marked with an identifying nasal saddle (Doty and Greenwood, J. Wildl. Manage., In press). Eight of the marked hens were subsequently observed nesting twice in a breeding season on baskets. Five of the hens renested in the same previously used baskets and three were in different baskets but in the same marshes. The time between termination of the first nests and initiation of egg laying in renests averaged 23 days (9 to 66 days). The long delay for some of the ducks indicates that other nesting attempts could have taken place, but periodic checking of all nest baskets precluded the possibility that interim nesting occurred in them.

Three of the eight renesting hens had hatched clutches of eggs earlier in the season. The successful hatch of the first and second observed clutches of two hens was deduced from the appearance of egg membranes and shells, and the absence of any sign of duckling mortality. These hens laid the first egg of their second clutch approximately 22 and 25 days after termination of the first nests. There were 11 and 10 hatched ducklings in the first broods and 6 and 3 in the second broods. The third hen hatched five of six eggs in its first observed clutch but the ducklings died of exposure soon after they left the nest. A temporary confinement pen set around the nest basket (for capture and marking of young) had apparently prevented the hen from properly brooding the ducklings during a rainstorm in the evening of the day of hatching. That hen laid the first egg of its second clutch in the same basket 11 days after the earlier hatch, but the hen died after laying four eggs in the second clutch. The apparent cause of death was peritonitis possibly brought on by oviduct necrosis due to an impacted, thin-shelled egg.

Instances of individuals renesting after hatching eggs in earlier clutches have been reported for the Wood Duck (*Aix sponsa*) by Barnes (Auk 65:449, 1948), Hester (Proc. S.E. Assoc. Game and Fish Comm. 16:67–70, 1965), Grice and Rogers (Massachusetts Div. Fish and Game, Final Rep., Proj. W-19-R, 1965), McGilvrey (Auk 83:303, 1966), Rogers and Hansen (Bird-Banding 38:234–235, 1967), and L. Fredrickson (pers. comm.); the Black Duck (*Anas rubripes*) by Stotts and Davis (Chesapeake Sci. 1:127–154, 1960), and Benson and Foley (N.Y. Fish Game J. 9:73–92, 1962), the Pintail (*A. acuta*) by Sowls (Stackpole Co., Harrisburg, Pa. and Wildl. Manage. Inst., Washington, D.C., 1955), the Mallard on managed areas (Burger, Proc. N.E. Fish and Wildl. Conf., 1964; Bjarvall, Wilson Bull. 81:94–96, 1969), and released Mallards (Benson and Foley, N.Y. Fish Game J. 9:73–92, 1962).

I thank Charles W. Dane for his review of the manuscript.—HAROLD A. DOTY, *Northern Prairie Wildlife Research Center, U.S. Fish and Wildlife Service, Jamestown, ND 58401.* *Accepted 8 Aug. 1974.*

Artifactual clutch size in Sooty Terns and Brown Noddies.—Certain seabirds including Procellariiformes and some Laridae usually incubate single-egg clutches, but have been found occasionally with more than one egg. Several investigators have con-