The pooled bearings of both treatments were significantly oriented ($P << 0.0001$) under the Rayleigh test (Batschelet 1965). As can be seen from Fig. 1, the vanishing bearings of the clock-shifted pigeons were definitely deflected counterclockwise relative to those of the controls. Indeed the mean of the pooled clock-shifted bearings is 71 degrees to the left of the mean of the controls. The Watson and Williams F test (Batschelet 1965) for difference between experimentals and controls yields $P << 0.001$.

Homing success was very poor in both groups. Of 71 control birds and 69 experimentals, only 14 controls and 17 experimentals returned, none the day of release. We can offer no explanation for the unusually poor homing performance of the controls; poor homing was, of course, expected in the clock-shifted birds.

We may safely conclude from these data that the sun compass is still used in homing by pigeons wearing frosted contact lenses. They can certainly see the sun as a bright area in their blurred, milky white visual field, and this is apparently sufficient to provide compass information. These results are in agreement with Schlichte (1973), who demonstrated that pigeons immobilized in a stationary apparatus could be trained to use the sun compass while wearing frosted lenses.

A second series of releases, designed to test the ability of pigeons wearing frosted lenses to orient under total overcast, was also initiated, but only two such releases (involving 35 experimentals wearing frosted lenses and 33 controls wearing clear lenses) were carried out, both with Cornell birds: 14 km S (27 August 1971), 91 km E (29 August 1971). Most of the birds perched (only four vanishing bearings of experimental pigeons were obtained), probably because the combination of lenses and overcast resulted in very low light intensity. We mention these releases here because we plan no more such tests with the present style lenses, and wish to put these two on record.

We thank Irene Brown, Hannelore Tabel, and André Gobert for their help in conducting the releases and timing-in the birds that returned. This research was supported by a grant from the Deutsche Forschungsgemeinschaft to K. Schmidt-Koenig and by National Science Foundation Grant BMS 72-02198 to W. T. Keeton.

Literature Cited

BATSCHELET, E. 1965. Statistical methods for the analysis of problems in animal orientation and certain biological rhythms. Washington, D. C., Amer. Inst. Biol. Sci.

KEETON, W. T. 1969. Orientation by pigeons: Is the sun necessary? Science 165: 922–928.

SCHLICHTE, H. J. 1973. Untersuchungen über die Bedeutung optischer Parameter für das Heimkehrverhalten der Brieftaube. Z. Tierpsychol. 32: 257–280.

SCHMIDT-KOENIG, K. 1961. Die Sonne als Kompass im Heim-Orientierungssystem der Brieftauben. Z. Tierpsychol. 18: 221–244.

———. 1972. New experiments on the effect of clock shifts on homing in pigeons. Pp. 275–282 *in* Animal orientation and navigation (NASA SP-262) (S. R. Galler, K. Schmidt-Koenig, G. J. Jacobs, and R. E. Belleville, Eds.). Washington, D. C., U.S. Government Printing Office.

SCHMIDT-KOENIG, K. & H. J. SCHLICHTE. 1972. Homing in pigeons with reduced vision. Proc. Natl. Acad. Sci. 69: 2446–2447.

SCHMIDT-KOENIG, K., & C. WALCOTT. 1973. Flugwege und Verbleib von Brieftauben mit getrübten Haftschalen. Naturwissenschaften 60: 108–109.

K. SCHMIDT-KOENIG & W. T. KEETON, *I. Zoologisches Institut der Universität Göttingen, West Germany,* and *Section of Neurobiology and Behavior, Cornell University, Ithaca, New York 14853.*
Accepted 11 Aug. 75.

Ejection of pellets by captive Ovenbirds.—As summarized by Rea (1973, Auk 90: 209), the regurgitation of pellets containing indigestible material is known to occur in several avian families. Among the Passeriformes these include: Corvidae, Cinclidae, Turdidae, Sylviidae, Meliphagidae, Dicaeidae and Sittidae (Pellow 1971, Brit. Birds 64: 80) and Laniidae (Storer 1961, Auk 78: 90). To our knowledge the phenomenon has never been reported in Parulidae or other members of the New World nine-primaried assemblage.

In our laboratory, captive Ovenbirds (*Seiurus aurocapillus*) regularly regurgitate pellets. These birds are maintained on a mash based on dog food, supplemented by Hykro insectivorous bird food along with pupae and adults of *Musca* and larve of *Tenebrio*. Pellets are generally spindle-shaped; 30 measured gave the following means: length 0.907 ± 0.024 cm, max. width 0.374 ± 0.012 cm, and weight 0.026 ± 0.002 g. The pellets are greenish-brown in color and composed of a dense matrix of small pieces of plant fibers and bits of chitin, in which are embedded sand grains and hard seeds which range in diameter up to 2.5 mm. The relative proportions of these components varies considerably. Exoskeletal parts of insects (*Tenebrio, Musca*) are reduced to such small fragments that identification is difficult. The pellets are held together by a mucous-like substance, which is water-soluble. Upon casting, they are sticky and soft but subsequently become hard. As ejection is accompanied by vigorous headshaking, pellets often adhere to nearby objects. Based on a group of 18 birds from which pellets were gathered collectively, the average interval between successive ejections for an individual bird was approximately 20 days.

Pellet formation in the Ovenbird provides a possible mechanism to eliminate gravel and sand from the ventriculus where it accumulates in large quantities (Bent 1953, U.S. Natl. Mus. Bull. No. 203: 465). As the birds in our laboratory were not provided regularly with sand, small, hard seeds in a food supplement were apparently retained as a substitute for grit. This also occurs in gallinaceous birds (Beer and Tidyman 1942, J. Wildl. Mgmt. 6: 70).

In spite of many hours of close observation of free-living Ovenbirds, we have never witnessed the ejection of a pellet. As this is an inconspicuous and apparently infrequent event, it is possible that it occurs in the wild but thus far has escaped notice.—RETO ZACH AND J. BRUCE FALLS, *Department of Zoology, University of Toronto, Toronto, Canada M5S 1A1.* Accepted 17 Jul. 75.

Weather-dependent foraging in Ospreys.—Interest is increasing in the constraints placed by the physical environment on avian foraging. Grubb (1975) found that significant shifts in the foraging "niches" of temperate woodland birds accompanied changes in winter weather. Dunn (1973) correlated fishing success in two terns (Sternidae) with variation in water surface condition and wind speed. Ueoka and Koplin (1973) report that tide cycles influence rate of fish capture in Ospreys (*Pandion haliaetus*), but their methods render this result difficult to interpret. I report here that sunlight and water surface condition significantly affect the fishing activity of Ospreys.

During late March of 1974 and 1975 I watched Ospreys fishing in Lake George near the outlet of Salt Springs Run, Lake County, Florida. I used binoculars and a stopwatch to monitor birds fishing within 200 m of a 1-km stretch of the western shoreline. Each bird entering this area was followed until it left, with or without a fish. The Ospreys hunted from the wing exclusively and, by definition, either from a hover (stationary in the air) or from an interhover (gliding or flapping flight). I assume the great majority were breeding as incubation was in progress at nearby nests, so all were at least yearlings. At the conclusion of each bird contact, I measured wind velocity 1 m from the lake surface with a portable anemometer, and noted whether the sun was shining (defined as presence of shadows). Also I recorded the lake surface as smooth, lightly rippled, or heavily rippled. Because of a treeline along the western shore, wind from the west disturbed the water surface in the study area much less than winds of the same velocity coming across the lake from the east. Thus the influences of water surface condition and wind velocity could be separated. I read temperature and relative humidity every half hour.

For analysis of interval data I employed the terminal 2-min sample from each observation bout. This procedure biased upward the determination of successful dives/min for all weather combinations. Other calculations capitalized on all available information. Significance levels were found with chi-square and extended median tests (Siegel 1956).

TABLE 1

EFFECT OF WIND VELOCITY ON OSPREY FORAGING[1]

	Wind velocity (m/sec)		
	0.1–4.0	4.1–8.0	P
Hovers/min	1.42 ± 0.18 (53)[2]	1.34 ± 0.16 (46)	0.74
Hover length (sec)	3.01 ± 0.23 (42)	3.89 ± 0.49 (37)	0.44
Dives/min	0.29 ± 0.05 (53)	0.25 ± 0.04 (46)	0.96
Successful dives/min	0.13 ± 0.03 (53)	0.09 ± 0.04 (46)	0.40

[1] Conditions: sun shining and lake surface lightly rippled.
[2] $\bar{x} \pm s_{\bar{x}}$ (N).