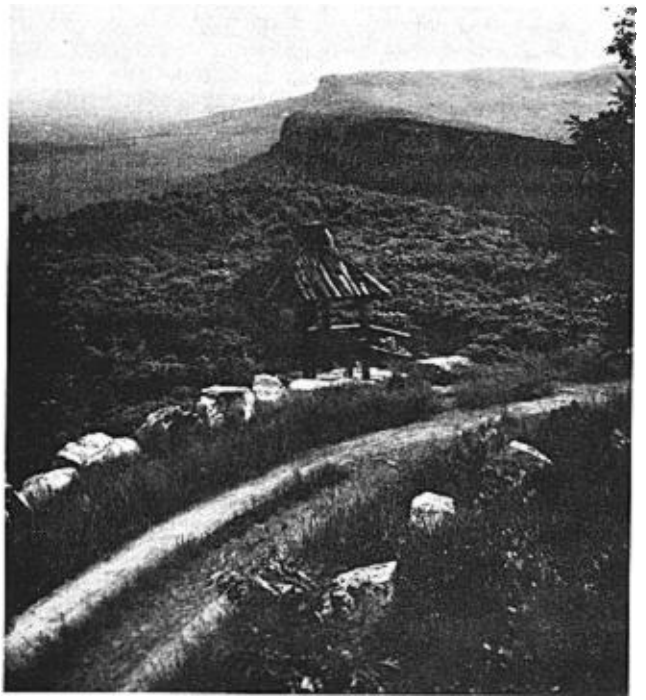

Fig. 1. Site of Bewick's Wren nest, Shawangunk Mountains, Ulster County, New York. Summerhouse, called Odell Outlook, 1490 feet above sea level. View looks southwest along Shawangunk ridge. Nest was above right-hand roof post.

at Point Pelee, Ontario (Godfrey 1966, Natl. Mus. Canada Bull. 203: 288). The New York nest record is approximately 180 miles northeast of any previously known breeding record. According to Bull (1974, Birds of New York State, New York, Doubleday) only two confirmed records of the species exist for New York: a 1930 specimen from Long Island and a 1954 color photograph from Seneca County, although there are a number of sight reports.

The identification was verified by the following: Fred N. Hough, Alice Jones, Davis Finch, Helen Manson, Robert Smart, and Virginia Smiley. Thanks are given to John Bull, who critically read the manuscript. This note is a byproduct of the baseline research activities of The Mohonk Trust.—DANIEL SMILEY and JAMES STAPLETON, *The Mohonk Trust, Mohonk Lake, New Paltz, New York 12561.* Accepted 23 Dec. 74.

The chemical composition of the ovary, oviduct, and follicles of the Starling.—Five adult female Starlings (*Sturnus vulgaris*) were collected between 0710 and 0815 on 23 April 1973 from nest boxes in the vicinity of Kennett Square, southeastern Pennsylvania. Each of the females had laid one or two eggs at the time of collection. Ovaries and oviducts were dissected from the birds; large follicles in the ovaries and oviducal eggs were treated separately. The components were dried

TABLE 1

WEIGHT OF FEMALES AND THEIR REPRODUCTIVE ORGANS

	Nest box (female) number				
	49	52	69	72	84
Time of collection	0715	0730	0800	0815	0710
Wing length (mm)	128	123	129	123	129
Body weight (g)	90.0	83.9	87.9	84.3	89.5
Number of eggs in nest	1	1	1	2	2
Egg weight (g)	6.74	6.29	7.10	7.09	7.51
				—	7.90
Wet weights (g)					
Ovary	0.37	0.29	0.45	0.65	0.41
Oviduct	3.79	3.90	5.20	4.84	5.44
Oviducal egg[1]	4.79	3.64			
Follicle I	1.190	1.015	1.239		1.171
Follicle II	0.828	0.677	0.935	0.842	0.891
Follicle III		0.016	0.047	0.021	0.013

[1] Contents only; shell excluded.

in a vacuum oven at 45°C and lipids were extracted from the dried remains with a 5:1 mixture of petroleum ether and chloroform. Wet weight, dry weight, lean dry weight, and, by subtraction, water and lipid weight, were recorded for each component. Chemical constituents were converted to energetic equivalents by using the following relationships: lipid = 9.5 kcal/g and lean dry matter = 5.65 kcal/g (Ricklefs 1975, Publ. Nuttall Ornithol. Club 15: 152–292).

Adult measurements, nest contents, and wet weights of ovaries, oviducts, and developing follicles are presented in Table 1. Each nest box had contained one egg the previous afternoon. The number of eggs in the boxes when the females were collected indicated that No. 69 had not laid, and probably would not have laid, on 23 April (Starlings infrequently skip days during the laying cycle); Nos. 49 and 52 had not yet laid but contained eggs in their oviducts that would have been laid later in the morning; Nos. 72 and 84 had both laid eggs, but No. 72 may not have produced an egg the following day, judging from the absence of a follicle weighing more than 1 g. Ovary, oviduct, and egg weights were not related to the weight of the female at the time of collection, but egg weight was significantly related to weight of the oviduct (correlation coefficient, $r = 0.88$, $P < 0.05$).

Average weights of ovary, oviduct, follicles, and egg, and their chemical composition expressed as a percent of wet weight, are presented in Table 2. The ovary, not including the two or three largest follicles, represents 0.6% of the average weight of nonbreeding females (76 g), which is a smaller percentage than any species surveyed by Ricklefs (op. cit.). The ovaries contain a large proportion of extractable lipids representing, in part, yolk accumulated in small follicles. The composition of the oviduct of the Starling (Table 2) resembles that of the domestic fowl (water = 76.0%, lipid = 4.3%, and lean dry matter = 19.7%: Common 1938, J. Agr. Sci. 28: 347).

Because one follicle is ovulated and one egg laid each day, the differences between weights of successive follicles represent daily growth increments of a single ovum. The yolk of a freshly laid egg, being the fully matured ovum, weighs 1.22 g on average. During the 3 days prior to laying, the developing follicle weighs 2%, 68%, and 94% of the weight of the egg yolk; weight increments therefore represent 66%,

TABLE 2

CHEMICAL COMPOSITION OF REPRODUCTIVE ORGANS, FOLLICLES, AND EGGS[1]

Component	Wet weight (g)	Water (%)	Lean dry (%)	Lipid (%)	Energy Content (kcal/g wet weight)
Ovary (5)[2]	0.043 ± 0.14	72.9 ± 3.3	18.2 ± 0.4	8.9 ± 4.0	1.87 ± 0.33
Oviduct (5)	4.63 ± 0.75	73.9 ± 1.0	24.8 ± 0.5	1.3 ± 0.7	1.52 ± 0.08
Oviducal egg (2)	4.31 ± 0.94	71.0 ± 3.0	20.8 ± 2.6	8.3 ± 0.4	1.95 ± 0.18
Follicle I (4)	1.15 ± 0.10	50.3 ± 1.2	21.3 ± 0.7	28.5 ± 1.1	3.91 ± 0.12
Follicle II (4)	0.835 ± 0.098	50.1 ± 1.7	20.7 ± 1.1	29.2 ± 1.1	3.94 ± 0.13
Follicle III (4)	0.024 ± 0.016	63.8 ± 22.8	—	—	—
Fresh egg[3] (12)	6.3[4]	83.2	11.0	5.9	1.18
Fresh egg yolk[3] (12)	1.22 ± 0.11	57.0 ± 0.9	15.9 ± 2.4	27.2 ± 2.6	3.48 ± 0.48

[1] Values presented are means ± SD.
[2] Sample size in parentheses.
[3] Calculated from data in Ricklefs (op. cit., MS).
[4] Excluding shell.

26%, and 6% of the final weight of the yolk during its last 3 days of growth. The chemical composition of the ovum 1 and 2 days before laying resembles that of the fresh egg yolk except that lean dry matter content is slightly higher and water content slightly lower.

During the day prior to laying, the ovulated ovum travels through the oviduct where it acquires its coating of albumen and shell. Because none of the females I examined had newly released ova in their oviducts, Starlings apparently ovulate after 0800. The two oviducal eggs I discovered would probably have been laid within 3 h as most eggs are laid before 1100; the eggs should have been fully formed by this time (see Romanoff 1949, The avian egg, Wiley, New York). The oviducal eggs weighed less than fresh eggs because they cracked when the birds were frozen. The loss of albumen evidently consisted of less dense portions because the amount of lean dry material relative to lipid in the oviducal eggs was greater than in whole fresh eggs. Total lipid, 0.35 and 0.37 g respectively, was similar to that of fresh eggs (0.33 g).

The fresh weight of eggs is highly correlated with the weight of the oviduct (see Table 1), possibly because albumen is secreted in proportion to the size of the oviduct (whether length or wall thickness is not known). In a later study I show that variation in egg weight in the Starling is related solely to variation in albumen content; yolk weight and the chemical composition of yolk and albumen are not correlated with egg size.

Finally, the relatively large size of the oviduct in the Starling (6.1% of female body weight) may be related to the high albumen (and correspondingly low yolk) content of the eggs of altricial birds (72.5%) compared to precocial birds (54%; Ricklefs op. cit.). In two other passerine birds, the White-crowned Sparrow (*Zonotrichia leucophrys*) and the Bank Swallow (*Riparia riparia*), oviducts represented 3.5% and 10.9% of female body weight (Peterson 1955, Wilson Bull. 67: 235; King et al. 1966, Condor 68: 476). In four precocial species, oviducts comprised 2.4–4.3% of female body weight (Ricklefs op. cit.).—Robert E. Ricklefs, *Department of Biology, University of Pennsylvania, Philadelphia, Pennsylvania 19174.* Accepted 23 Dec. 74.

***Accipiter poliogaster* from Peru, and remarks on two collecting localities named "Sarayacu."**—The Museum of Natural History at the University of Kansas recently received a specimen (KU 68795) of the Gray-bellied Hawk, *Accipiter poliogaster*. It is an adult female taken at San Juan, Prov. Oxapampa, Dept. Pasco, Peru (10° 30′ S, 74° 53′ W), on 20 August 1964, by Arden L. Tuttle. The locality is at 275 m and is in virgin rain forest.

This appears to be the first record of this rare species in Peru. Moreover, our study of the species' distribution uncovered the existence of some confusion about two South American collecting localities. Although this problem was noted some time ago in the literature (see later) a review is necessary here.

Two collecting localities (see Fig. 1), separated by about 600 km, are both named Sarayacu. One (approximately 6° 40′ S, 75° 00′ W) is near or on the Ucayali River. It appears from the early maps we have studied (Morales 1942) to have been an important settlement through much of the 1800's, and it was an important collecting locality for birds (Sclater and Salvin 1866, 1873). The village was located in the Territory of Acre, an area disputed by Bolivia, Peru, and Ecuador. Although Sclater and Salvin considered the locality to be in Peru, it seems to us that some other early