

1964, and 12 of these remained mated as before. Another pair remained mated with each other, but moved into a new shaft for nesting. Two birds continued as mates for the eighth consecutive year. Four birds were nine years of age. One was ten years old, and another one equalled the age record for Chimney Swifts of 13 years. Two pairs lost their nest in the early stages of nesting but soon replaced them. Two females deserted their former mates and nested with a new mate in a new shaft. Two pairs failed to construct a nest, but remained together in residence through the summer.

One female left its former mate in shaft D-1 to nest with the male in shaft E-1 when his former mate failed to return. The female which nested in shaft M-1 in 1964 was replaced by the female which nested the previous year in N-9, where the 1964 female from M-1 joined with a bird which nested previously in I-1, but this pair failed to build a nest. Four returns which came back before the nesting season began failed to nest or remain on the campus. Four others were captured after the nesting season was over and had spent the summer season elsewhere. At least three of these eight were immature birds. The last day when swifts were present on the campus was 5 October when one of the 9-year-old birds and the 13-year-old bird were released from traps. They were the last two remaining swifts for the season.

The preceding report in this series was published in *Bird-Banding* 35 (1): 38-39. 1964.—Ralph W. Dexter, Department of Biological Sciences, Kent State University, Kent, Ohio.

Alleged Xanthochroism in Bird Plumages.—In his paper on melanism in North American birds, Gross (1965) refers to the occurrence of xanthochroism in several species. In almost all cases such variants are not xanthochroistic, this implying replacement of normal colour by yellow, but are non-melanic schizochroic individuals (Harrison 1963a) the absence of melanin in the plumage leaving carotenoid pigments, which might be yellow or red, phenotypically apparent. The yellow pigment on the head of an Evening Grosbeak (*Hesperiphona vespertina*), referred to by Gross, could be an example of concealed pigment similar to that found in some African Weavers (Ploceidae) (Harrison 1965). I would suggest that the Cardinal (*Richmondia cardinalis*), Bluebird (*Sialia sialis*), and Purple Finch (*Carpodacus purpureus*) referred to in the same paper are probably not examples of either of the variants so far mentioned, but may be dilute (= chlorochroistic, of Rensch 1925) forms of non-eumelanic schizochroism (Harrison 1963b). The latter produces "fawn" variants and in the dilute forms the light brown melanin may be present in very small quantities and the plumage may appear almost yellow. There is concealed yellow in the plumage of some olive-brown birds, but I would be interested to find that it occurs in conjunction with either red or blue. The point could be settled by sectioning feathers of such specimens and examining for the presence of melanin granules.

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Autumnal Hawk Migration Through Panama.—Immense, mixed flocks of hawks migrate through Central America each fall to their wintering grounds. We witnessed this spectacular event in 1963 (Rogers), 1964 (Hicks), and 1965 (Child) at a banding station near Almirante, Bocas del Toro, Republic of Panama on the Caribbean coast. Most of the migrants were Broad-winged Hawks (*Buteo*

platypterus) together with a small proportion of Swainson's Hawks (*Buteo swainsoni*). Their direction of flight was invariably northwest to southeast, parallel to the sea coast. No migrating hawks were observed on cool, cloudy, or rainy mornings, presumably due to lack of thermals. The short duration of this migration and its precise timing from year to year are documented in the field notes below.

FALL 1963	FALL 1964	FALL 1965
7 Oct — More than 100 Broadwings overhead at 10 a. m.	7 Oct. — Rainy and cool. No hawks.	7 Oct. — More than 50 Broad-winged Hawks leaving trees and riding convection currents, 6 a. m., 20 miles SE of Almirante.
8 Oct — Several hundred Broadwings high overhead at 9:30 a. m.	8 Oct — Netted first Broadwing of season today. Strip of sky from NW to SE filled with migrating hawks, mostly Broadwings with a few Swainson's. Continued for 3 hours—cannot estimate numbers.	
9 Oct. — Broadwings roosting in cacao groves. One caught in mist net this morning.	9-11 Oct — Cloudy and rainy. No hawks.	
10 Oct — Broadwings roosting around lab. Rising from woods 8:00-8:30 a. m.		
11 Oct — Broadwings passed overhead for three hours. Impossible to estimate numbers, but at least several thousand.		
	12 Oct. — Hawks overhead in huge circling flocks, mostly Broadwings.	12 Oct. — Three groups of Broadwinged Hawks swirling in updrafts at 9:30 a. m., each group consisting of 25-50 individuals. Hawks coming into updraft from all directions.
	13-16 Oct—Rainy mornings, no hawks.	13 Oct. — 9:00 a. m. — Three groups in separate updrafts, coming in from all directions. 11:00 a.m. —Several groups of hundreds passing to the SE.
14 Oct — Mixed flocks of Broadwings, Swainson's, and unidentified kites roosting around lab early this morning.		14 Oct — 9:30 a. m. Large swirl of 50-75 Broadwings. 3-4 p. m.— Observed thousands of hawks very high passing to the SE.

15 Oct. — 9-10 a. m.—A few small swirls consisting of less than 50 Broadwings. 3:30-5:00 p. m. — Observed large strings of hawks migrating to the SE, estimated numbers greater than 1000. Also about 1000 Kites very high mixed with a few unidentified Buteos. Kites are either Mississippi (*Ictinia mississippiensis*) or Plumbeous (*I. plumbea*).

17 Oct. — 50-60 Broadwings at 10 a. m. in small groups of 7-10.

17 Oct. — Observed thousands of migrating Black and Turkey Vultures with a few Buteos mixed in, all migrating across Almirante Bay to the SE.

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Arrested molt in a Blackpoll Warbler.—On September 30, 1965, a Blackpoll Warbler (*Dendroica striata*) in unusual plumage was banded (No. 104-72499) and released at Round Hill, Sudbury, Middlesex County, Massachusetts. The bird's skull was completely ossified and its wing measured 75.5 mm. (chord). It weighed 14.7 gms., an indication that it was healthy at the time of capture. It was in slightly worn adult male breeding plumage, except for three small areas where the postnuptial molt had occurred: bilaterally, just under the eyes, and in the mid-dorsal region. Here the feathers were the typical greenish color of the fall plumage. Inspection of the feather tracts showed no evidence of further molt.

In a search of the recent literature, we found only one similar record. Griscom reported "an adult male (Blackpoll Warbler) in full breeding plumage, but very worn and dirty" from Cambridge, Massachusetts on December 5, 1946 (Griscom and Snyder, *The Birds of Massachusetts*, 1955: 203). Deborah V. Howard, 34 Fairfax Street, West Newton, Massachusetts 02165 and D. Dickinson Henry, Jr., 38 Pinehurst Road, Belmont, Massachusetts 02178.

Construction of a "beta-confinement" bird enclosure.—The terminology "beta-confinement" was originated by R. A. Norris in his paper about Savannah sparrows (1960. *Bird-Banding* 31: 173-216) for a large, seminatural enclosure. Research of bird feeding on apples at this station indicated the necessity of examining an individual species, isolated and independent of many extraneous factors. A search of ornithological and wildlife literature relating to the confinement of species in a semi-natural state was for the most part negative. Those found in addition to that cited above were as follows: (1) Marsden, H. M. and C. H. Conway. 1963. Behavior and the reproductive cycle in the cottontail. *Journal of Wildlife Management* 27: 161-170. (2) Serventy, D. L., D. S. Farner, C. A. Nichols and N. S. Stewart. 1962. Trapping and maintaining shore birds in captivity. *Bird-Banding* 33: 123-130.

Several abstracts were noted but these described only "alpha-confinement" situations, as might be stated for (2) above. Certainly this is not a complete review and perhaps it only scratches the surface. Also, it must be confessed that the author is not an ornithologist nor a zoologist. However, it was heartening to read