

over wide areas of both land and water without stopping? Why do some pass by one route and return by another? Why do some small birds fly over water, instead of making a comfortable journey by easy stages over land? Why do the young in certain cases precede the parents? Why do birds fly at night instead of by day? And many more.

And finally, to puzzle and attract us, there is that probably greatest problem of migration, how the birds find their way through darkness and through storms over wide expanses of land and water to a far distant home without guidance other than an inherited instinct. This element of bird migration alone would serve to make it one of the most alluring phases of ornithology.

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## PURPLE FINCH AND CATBIRD RETURNING RATIOS

BY CHARLES L. WHITTLE

In this Bulletin for July 1926, p. 48, paragraph 2\*, attention was called to the increasing returning ratios of Purple Finches (*Carpodacus p. purpureus*) from year to year as the birds advance in age. These ratios are doubtless connected with the numbers of birds surviving from year to year, though how accurately they represent the survival ratios will only be known after many such investigations have been made. From this article I quote part of the table on page 49:

### PURPLE FINCH RETURNING RATIOS

(1924—June 5, 1926)

Year of Banding	No. Banded	Returns-1	%	Returns-2	%	Returns-3	%
1923	166	25 (1924)	15.06	17 (1925)	63.00	10 (1926)	58.82

As the majority of the returning birds for the Peterboro station have now (June 13, 1927), been recorded for the current year, it is interesting to note the continually increasing percentage of returns-4 over the percentage of the returning birds in 1926, namely 58.82 percent. Seven of the ten returns-3 in 1926 are back this year, or 70 per cent. Of these seven

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\* "Returning Ratios in Their Relation to Annual Mortality Among Birds" by Charles L. Whittle and Helen G. Whittle

returns-4, one at least is six years old, a male, No. 66834, banded as such May 15, 1923. The other six birds are males and females of undetermined age, but they are all of course at least five years old, the banding dates (early May) precluding the existence of birds in juvenal plumage.

It is also of interest to prepare a similar table showing the returning ratios of Catbirds (*Dumetella carolinensis*) taken at Cohasset, Massachusetts, up to July 2, 1927, as follows:

RETURNING RATIOS OF BANDED COHASSET CATBIRDS\*  
(1923 to July 2, 1927)

No. Banded	Year Banded	Returns-1	%	Returns-2	%	Returns-3	%
7	1923	2 (1924)	28.57	2 (1925)	100.00		
11	1924	5 (1925)	45.45	3 (1926)	60.00	2 (1927)	66.66
15	1925	3 (1926)	20.00	3 (1927)	100.00		
19	1926	7 (1927)	36.84				

This table shows that of the seven birds banded in 1923, two returned in 1924, and that 100 percent of the returns-1 of 1924 were returns-2 in 1925. The history of those banded in 1924 is more complete, the figures again showing high and increasing returning ratios with increasing age. Of the five returns-1 in 1925, three were returns-2 in 1926, and of these two were returns-3, in 1927,—45.45, 60.00 and 66.66 per cent respectively.

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## WILSON'S PETREL IN THE WEST INDIES

BY STUART T. DANFORTH

THE Wilson's Petrel (*Oceanites oceanicus*) is such an abundant bird in its breeding grounds on the Antarctic islands and in its range during the Antarctic winter off the American coast that it seems rather surprising that there are so few records of its occurrence in the region separating its breeding and winter ranges, across which it must migrate twice a year. Records of its occurrence in the West Indies are few

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\* Of the twelve returning birds during 1927 (up to July 2nd), two are sight-returns-2, and six are sight-returns-1. All twelve were adult birds when banded.