

A Roseate Tern A343200 (immature), banded July 4, 1929, was shot at Lamaline, on the southern coast of Newfoundland, July 28, 1931.—MRS. ETHEL M. CROWELL, 4 Maple Street, Franklin, Massachusetts.

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**Additional History of White-breasted Nuthatch No. 56530.—**

In the *Bulletin*, Vol. IV, 1928, pages 29 and 100, and in *Bird-Banding*, Vol. I, 1930, page 83, was recorded the then known history of a male White-breasted Nuthatch, No. 56530, banded May 14, 1923, by Mrs. R. G. Caughey of Antrim, New Hampshire, which in 1930 was at least seven and a half years old. Mrs. Caughey now reports that this bird continued to visit her station up to October, 1931, so he is now at least eight and a half years old.—C. L. WHITTLE.

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**Duration of Life of the Roseate Tern.<sup>1</sup>—**On July 7, 1931, a Roseate Tern (*Sterna dougalli*) bearing band number 403063 was found dead on Egg Island in Lewis Bay near Hyannis, Cape Cod, Massachusetts, by a member of the staff of the Austin Ornithological Research Station. This bird had been banded when a chick by Mr. Charles B. Floyd at Tern Island, Chatham, Cape Cod, Massachusetts, July 8, 1926. So far as it has been possible to ascertain, this age record of five years constitutes the longest duration of life proved for an individual of this species.—OLIVER L. AUSTIN, M.D.

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**Song Sparrow Returns-3.—**Song Sparrow No. 174410 (band changed in 1931 to No. B119586), banded on December 7, 1926, a return-1 on August 16, 1929, a return-2 on October 20, 1930, a return-3 on March 16, 1931.

Song Sparrow No. 578824, banded December 11, 1927, a return-1 on October 10, 1928, a return-2 on June 3, 1929, and a return-3 on March 5, 1931.

Song Sparrow No. 174448 (band changed in 1931 to No. B119584), banded on October 13, 1927, returned on March 19, 1929, a return-2 on March 4, 1930, and a return-3 on March 12, 1931.

Song Sparrow No. 611688, banded on March 31, 1928, returned on April 2, 1929, a return-2 on March 2, 1930, and a return-3 on May 1, 1931. Song Sparrow No. 611696, banded on May 2, 1928, returned on March 3, 1929, a return-2 on May 15, 1930, and a return-3 on March 7, 1931.

Note the different periods of the year in which No. 174410 and No. 578824 were captured, and that though one was banded a year later than the other, the periods of capture are similar with one exception.

The last three have now been breeding here for four consecutive years. No. 174448 remained during the winter following its first capture and also the spring and summer of 1928.—RAYMOND J. MIDDLETON, Norristown, Pa.

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**Starling, Barn Swallow, and White-throated Sparrow Recoveries.**

—Starling No. A200521, an adult banded on November 20, 1928, was killed in Palatka, Florida, by Mr. A. Crabtree in December, 1930. This

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<sup>1</sup>Contribution No. 5 from the Austin Ornithological Research Station.

bird was apparently a winter resident of Norristown when banded and yet two years later had migrated to Florida to winter.

A Barn Swallow, No. 7535, banded as a nestling on June 28, 1924, was found dead two miles from place of banding on May 26, 1926.

White-throated Sparrow No. A100232, an adult, banded during migration on October 8, 1928, was trapped by Mr. James McGreal at Manchester, New Hampshire, on April 29, 1930.—RAYMOND J. MIDDLETON, Norristown, Pa.

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**Two House Wren Returns-2S and A Mourning Dove Return-1S.**—House Wren No. B13914, banded on July 20, 1928 as an adult, returned on April 26, 1929 and was a return-2S on April 28, 1930.

House Wren No. B74505, an adult when banded on June 6, 1929, returned on June 15, 1930, and was return-2S on May 24, 1931.

Mourning Dove No. 283236, banded March 27, 1926, returned June 19, 1930. This bird was at least five years of age at the time of its recapture.—RAYMOND J. MIDDLETON, Norristown, Pa.

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**A Device for Applying Celluloid Bands**—As the Bureau of Biological Survey has sent me a supply of colored celluloid bands, and, no doubt, others have also obtained a supply, the problem of applying them to birds' tarsi is open for suggestions. A makeshift device for applying the small bands is not difficult to make and is fairly satisfactory. To make this device take a pair of steel dividers and wind a good-sized pure rubber band tightly around one of the arms close to their junction, so that they are held open say a fourth of an inch. To apply the band, pinch the points together and place them in the band, holding it with the slit downward. Then by releasing the pressure on the arms they will open the band so that it may be easily placed on the bird's tarsus.—C. L. WHITTLE.

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## RECENT LITERATURE

**The Riddle of Migration.**—By William Rowan. Published by Williams & Wilkins Co., Baltimore. In the introduction to this interesting little volume Dr. Rowan states that there are two avenues by which to approach the problems involved in the migrations of birds. "Field observations and speculations based thereon exist in sufficient volume to fill a library, but few and far between are the attempts of the technically trained biologist—the anatomist, biochemist, biophysicist, physiologist, etc.,—to apply his special knowledge to the problem." And he says of his book: "If it convinces the ornithologist that the laboratory and microscope may prove real adjuncts to a solution of the problems of migration and if it encourages him to continue more enthusiastically than ever in the collection of facts and in analysis of the field aspects, it will have achieved its object."

Following the delightfully written word-pictures of his Prologue, Dr. Rowan gives forty pages to the bird, its anatomy and physiology. Then follow interesting chapters on "Environment, Past and Present," "The Evolution of Migrations," and "Annual Migrations." The various theories as to the cause of migration and the stimuli governing it, are discussed, and Dr. Rowan describes his extensive experiments with captive Juncos and Crows, and other birds on the effect of light in causing structural and physiological changes in the living birds. By the use of artificial lighting he subjected birds in fall and early winter to light con-

ditions similar to those of spring, and studied these birds later both in the field and on the dissecting table. His conclusions are most interesting.

Birds which were subjected to an artificially controlled daily increase in light conditions, with a corresponding increase in physical activity and in time devoted to feeding, showed both anatomically and physiologically, reactions such as are expected in the spring of the year, though the experiments were carried on in the autumn. These birds sang as in spring, courted and mated, and when released from captivity, apparently migrated. Dissection showed their gonads were enlarged as in spring. Control birds, on the other hand, subjected to normal light, food and exercise, showed no such changes in either structure or actions from what is normal at that season.

The book should be read by all bird-banders and others interested in the movements of our feathered neighbors.—J. B. M.

**Der Vogelzug.** Vol. 2, No. 4, October 1931. The first paper in this number is on the migrations of Siberian ducks, by Werner Rüppell, based on return records of birds banded while wintering in India. Seven species of ducks are discussed. His data suggest that the birds wintering in India breed to the east of the Ural Mountains and chiefly to the west of the Yenesei River.

Holst contributes a paper to the discussion of bird flight and head winds, two papers on which appeared in the preceding number (one by Drost and one by Geyr von Schweppenburg). He concludes from an examination of published data that the apparent preference for flight against the prevailing wind (that is, directly into head winds) is not a matter of purely physical or mechanical factors, but that in cases where flight is exclusively against head winds or with side winds that some other still unknown factor may play a part. This factor, evidence for the existence of which is based on negative rather than positive data, is assumed to be probably of a "psychophysical" sort. The reviewer cannot see any advantage in this assumption.

Franz Groebels writes on further observations on the body temperature of migrant birds caught at lighthouses. (The author had previously published two papers on this subject—one in the *Verh. Ornith. Gesellschaft Bayern*, Vol. 18, 1924, p. 44-74, and one in the *Zeitschrift f. vergl. Physiologie*, Vol. 12, 1930, p. 682). He gives data on a number of species, which, together with previously compiled information, lead him to the conclusion that birds migrating by night are in a weaker condition as far as their own chemical temperature regulation is concerned. Jerky, sudden movements tend to increase the body temperature, which is not constant, but varies with the changes in the external thermal conditions. This lack of stability is a very noteworthy physiological fact, especially since these birds are able to draw upon a very rich supply of body fuel. The livers of a number of migrating larks were examined histologically and were found to be swollen with fat and glycogen, both of which are heat-producing foods. The author refrains from attempting to explain these anomalous observations and is continuing his researches, the results of which will be of decided interest.

Fabricius and Tåning contribute the first of a projected series of papers on bird-banding work in Denmark. They give some return records of the European Avocet, Godwit, Oyster-catcher, and Sandwich Tern, banded as young birds at the Danish bird reservation "Tipperne." Of the 1560 young Avocets banded, six were retaken in Portugal and one in France; of 55 Godwits banded, one was recaptured in Portugal and one in Italy; of 65 Oyster-catchers banded, one was recovered in

poles. The present article indicates that a properly planned "drive" might furnish excellent results in quantity banding, but it calls for the coöperation of quite a number of banding enthusiasts.

The second article in this issue is on "Some Flocking Habits of the Crowned Sparrows" and is by John B. Price of Stanford University. Several hundred Golden-crowned Sparrows (*Zonotrichia coronata*) and Puget Sound White-crowned Sparrows (*Zonotrichia l. pugetensis*) have been banded since 1925 on the college campus, and not only have many repeats and returns of banded birds been recorded, but an extensive series of sight identifications has followed the use of conspicuously placed areas of artificial coloring-matter on the feathers of captured birds. The results show clearly that both the species studied "spend the winter on the Stanford University campus in definite flocks each with its own range of about 15 to 20 acres, and there is very little changing of individual birds from one flock to another." Though these species migrate annually to a northern breeding area, "in most cases an individual bird returns to its original flock territory after migration." A typographical slip on page 242 refers to "Puget Sound Golden-crowned Sparrows" in error for White-crowned Sparrows.—J. B. M.

After reading this important paper by Mr. Price, one cannot help feeling regret that all the bird-banders making up the four regional associations do not, as a matter of course, receive a copy. This applies also to all published matter supplying ornithological information secured by banding and related methods of research. This article is of particular importance at this time as it answers the question often asked by banders operating small stations: "How can I hope to accomplish anything of importance compared to the results of such large research stations as those operated by Baldwin and the Austins?" Surely there are many aspects of ornithology that can be studied with profit by small operators, and no better illustration of this has come to my attention than the study of the distribution of the Golden-crowned Sparrow and the Puget Sound White-crowned Sparrow while on their wintering grounds.

The paper is a fine beginning toward what it is hoped in time will be complete histories of such wintering groups. Among other things we need to know why, (1) these species were each in several flocks instead of in a single flock made up of each species; (2) in what order did the birds comprising the wintering groups arrive from their nesting grounds; (3) in what order did the wintering groups leave for their nesting grounds; and (4) where do the birds comprising the groups nest, what is their distribution on their nesting grounds and during their migration to and from their nesting and wintering grounds?—C. L. W.