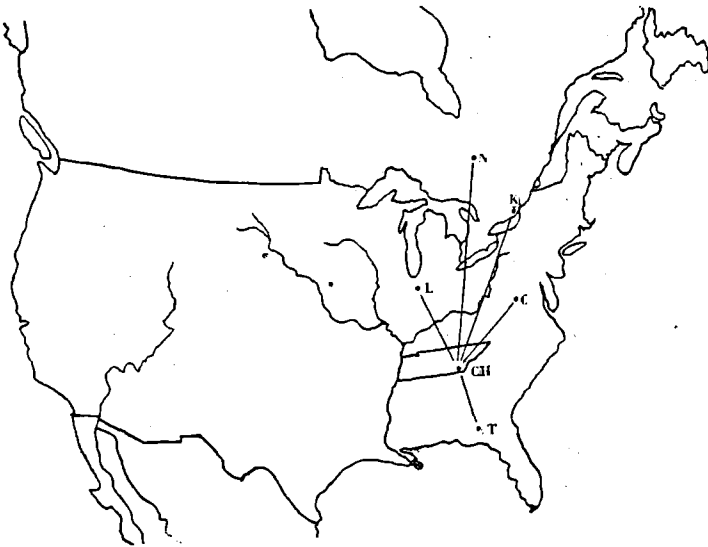


THE BANDING OF CHIMNEY SWIFTS AT
CHATTANOOGA, TENNESSEE

By WYMAN R. GREEN

By way of introduction to this account of the banding of Swifts (*Chaetura pelagica*) at Chattanooga we can do no better than to quote from an interesting book by Dr. Alexander Wetmore, Assistant Secretary of the Smithsonian Institution. The volume is entitled "The Migrations of Birds," and is worthy of the attention of all students interested in this aspect of bird-life. He says (pages 195 and 196), "The chimney swift, found in summer throughout the eastern half of North America from Manitoba and Quebec south to the Gulf Coast, has long been an anomaly, since, though abundant in numbers, its winter home has never been located. In autumn, toward the close of their stay, the birds congregate in large flocks, which roost in certain selected chimneys, or occasionally resort to some hollow tree after the fashion of their ancestors. . . . Migrant swifts pass south to the Gulf coast, where for a time they are extremely numerous, and then disappear, to return at the close of March, and to work slowly northward during April to their breeding grounds. For many years they were wholly unknown south of our limits, but recently a few have been recorded in April in Haiti, apparently in northward migration. We may suppose that their winter home is somewhere in the northern part of South America, though this remains to be definitely ascertained."

Obviously much remains to be discovered about the migrations of this bird, and it is in the hope of interesting more banders of eastern North America in the banding of Swifts that the writer ventures to publish this preliminary account of his own work. We have during the short time that we have been working on this project, accumulated some most interesting data, as the accompanying tabulation shows. But in the solution of the many problems connected with the migrations and other habits of any species of bird the coöperation of many workers in widely separated localities is needed. In the migration paths of these birds they sometimes frequent large chimneys in thousands. Bird-students who are located in or near cities, or even small villages are likely to find that the Swifts visit the larger chimneys in small numbers on their northward route, and in much larger numbers on their southward migration. Here in Chattanooga we have taken as



This map indicates some of the most significant results so far obtained in this study of the migration of Chimney Swifts. The banding was done at Chattanooga, Tenn., (CH). Swifts were taken which had been banded at Thomasville, Ga., (T); Lafayette, Ind., (L); Charleston, W. Va., (C); and at Kingston, Ont., (K). Some of our birds have been recaptured at North Bay, Ont., (N). The study indicated a number of migrations of minor importance which are not shown on the map.

many as seven thousand in one catch. We have taken birds from the chimneys of our college buildings on the campus of the University of Chattanooga, from the chimneys of neighboring high school buildings, and from a chimney on a tall building in the heart of the city. The work of setting the trap, and the banding operations also are carried out with much greater facility on flat-topped buildings, for it is very desirable that all birds be banded as soon as possible after trapping. Thus, if it can be done on the roof, so much the better.

Swift-banding is in a category by itself for the reason that, for a given expenditure of time and energy, the results are so much greater. The cost in effort, time, and money is, as we shall try to show, practically negligible. In the less than two years that we have been banding Swifts we have had some remarkable results. Some of our banded Swifts have been

recaptured in Ontario, Canada, and in other remote localities. We have captured Swifts which had been banded in Canada, Indiana, Pennsylvania, West Virginia, and southern Georgia, and very recently one of our Swifts was taken in Ohio. These are certainly most interesting results to secure in so brief a time.

Reference to our table will disclose the fact that we have trapped a total of 12,650 Chimney Swifts, and banded 3,737 of them. We set our trap only five different times. Our average catch was thus over 2,500 birds. It seems to the writer that all banders of other birds who can possibly find the time should add Swift-banding to their activities if they have not already done so. Many banders of other birds are now entering this field also. The Bureau of Biological Survey at Washington was unable to supply the workers with the Number 1 bands last year. The writer was obliged to release 8,914 Swifts because of not having the bands for them. The survey, however, is preparing to supply this size in large numbers next year. We are requesting 15,000 bands for our use here at Chattanooga during September and October of this year. The Swifts pass through this locality going north in April and May. Sometimes they congregate in chimneys in small numbers during these months. They have not done so in this locality this year, though numerous single individuals have been observed. We can offer no explanation as to these differences in behavior from year to year. In all probability, however, they are correlated with seasonal variations.

Of course on the northward migration the Swifts are seeking nesting-places and they spread out, pair, and rear their broods wherever they can find suitable locations for doing so. Then in the late summer and fall they congregate, augmented by the young broods, and in this latitude, after inhabiting some large chimney for a short time move on south. Our data are not conclusive on this point but indicate that each individual bird does not tarry very many days in one locality. Or, if they do stay several weeks, they do not use the same chimney during the time. This is one of the questions we hope to answer by wholesale banding operations in Chattanooga next September and October.

After this experiment we shall make another progress report. We shall be glad to get in touch with all who have already established Swift-banding stations, for we believe that a mutual exchange of data would be very helpful as well as interesting. Such mutual aid in the form of tabulated progress reports from the various stations will help greatly in maintaining the enthusiasm of the workers. There is always



FIG. 2.

FIG. 2. Our first trap, in use on the main office building of the University of Chattanooga. The sides of this trap were covered at first with burlap, and the transparent sheet of celluloid was placed in a horizontal position. Many birds on striking the sheet would turn back and rest on the burlap walls. We later substituted a sloping transparent sheet and oil-cloth walls. On September 21, 1929, we captured 7,000 Swifts with this trap.

FIG. 3. A temporary trap constructed on the fourteen foot chimney of the Clemons Bros. furniture store in the heart of Chattanooga, by Henry Howard a local contractor. On October 8, 1929, we captured over 2,700 Swifts with this trap. Among them were several which had been banded several years before by I. H. Johnston, at Charleston, W. Va., and one banded by S. E. Perkins, the same year at Lafayette, Ind.

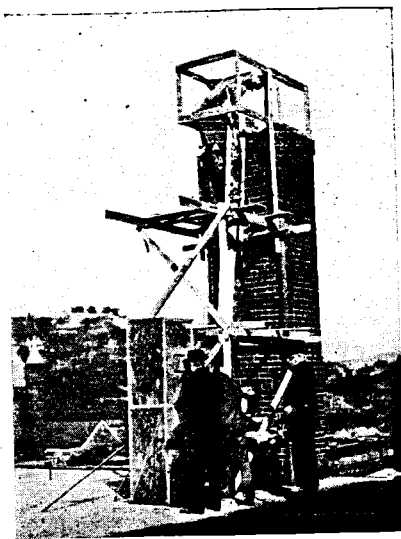


FIG. 3.

much excitement when we capture a bird that has been banded elsewhere. While we have had no difficulty in getting all the help we needed in this work, in some localities such help may not be at hand. If every Swift-bander could have in his possession while banding, a tabulation of data from every other Swift-bander, such as the one presented herewith, when a band-bearing Swift was taken from the receiving cage, he could at once turn to column two and discover who placed the band on it. This information as the work is in progress would make the helpers want to come back and help again. Whether a helper is a business man, a writer, a local naturalist, teacher, poet, or student in college, his imagination is aroused when a bird is captured which has come all the way from Canada, Pennsylvania, Indiana, southern Georgia, or Ohio. Our helpers have ranged through this entire gamut.

We shall be pleased to supply copies of our data to all who care to receive them, at any time. Especially should we like to make the mutual exchange of data, just after the big banding period, that is, about the end of October. Not only do we need to correlate our efforts in this country, but it would be most desirable to interest workers in South America, Central America, Mexico, and the West Indies. Doubtless some of the bird enthusiasts in North America have friends in some of these other countries whom they might interest. No matter what their interests in those countries, they are likely to succumb to the lure if they are asked to help solve such an age-long mystery as locating the winter home of these birds, if it is at all possible for them to do so. The writer is already endeavoring to enter these fields through correspondence with a large number of biologists, other educators, ornithologists, etc., and hopes soon to be in a position to offer valuable data on the southern limits of the Swift migrations. It seems altogether likely that their winter quarters is in the West Indies, South America, or Central America. Dr. Wetmore states that they have been seen in Haiti. It has been rumored that they habitually occupy the crater of an extinct volcano somewhere in the equatorial region during the winter. But about the only satisfaction this affords us is that, if true, it is one more bit of evidence for the naïve theory that everything must have some use. There is probably no better use to which craters may be put. But whether volcano crater, old chimneys, hollow trees, or merely dense tropical forests constitute their winter home, surely every student of birds wishes to know where it is, and by concerted effort we can find out.

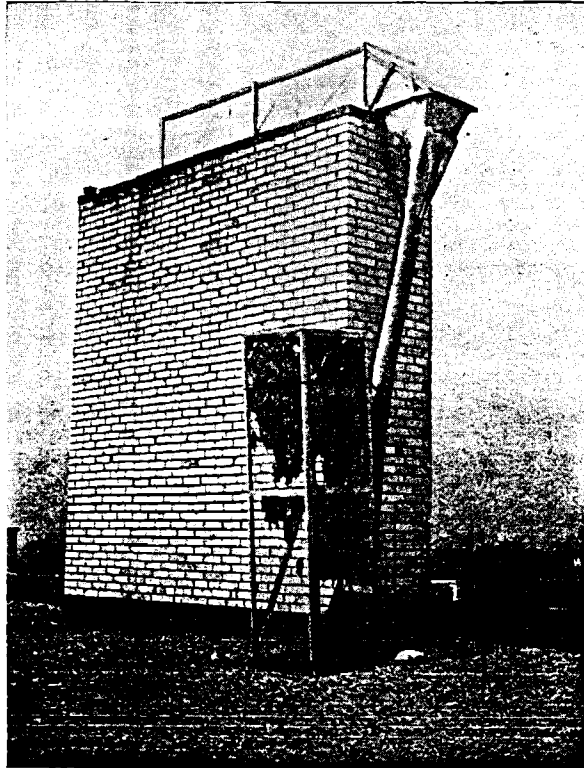


FIG. 4. One of our latest traps, with black oilcloth sides, sloping transparent end, and tin funnel. The receiving cage contains about eight hundred Swifts. On October 19, 1929, we captured 955 Swifts in this trap, from the chimney of the Central High School. It is located in the eastern part of the city, about three miles from where we did our other trapping. Among them were Swifts from each of our previous catches.

Although experienced banders need no suggestions as to the most successful kinds of traps to use for Swifts, we shall very briefly describe our methods for the convenience of those who may not have undertaken this work up to this time. The general type of traps we have used are described in the miscellaneous publication No. 58, United States Department of Agriculture. Figure 4 shows one of our most successful traps

in operation. The size and shape of the trap depends largely upon the type of chimney the Swifts are using. The essentials of a good trap are few in number. It is necessary only to have a light wooden framework with cloth tacked on both sides and one end, hardware cloth or screen wire on the top, with the bottom, or at least a large part of the bottom, left open so that Swifts can enter as they emerge from the chimney. One end, as shown in the figure referred to is preferably made sloping, and must be covered with a sheet of transparent celluloid such as can be obtained at any good auto-supply store. Under this slanting sheet of celluloid is a large funnel made of oil-cloth or of tin, into which the birds drop as they fly against it in trying to make their way to freedom. From the bottom of this funnel a stovepipe leads to the receiving-cage below. It should enter the cage a foot or so from the bottom; otherwise the birds tend to pile up on the floor of the cage and smother. The Swifts are so sluggish that they will die rather than make a vigorous effort to creep from under a small pile of their companions for air. It is best to make the bottom of the receiver of hardware cloth and have the cage elevated from the roof an inch or so, in case the catch is to be a large one. One cannot always estimate this, either. On one occasion the writer expected five hundred birds and actually caught seven thousand! Ordinarily they will fly to the top of the cage and attach themselves, where they are likely to hang indefinitely.

While the trap may be made as small as possible considering the size of the opening in the chimney, the receiving-cage should not be too small. Of course small receivers may be more convenient, but in case of a large catch one may need several of them. It is best to let all of the Swifts come out of the chimney when they get ready, for, if hindered too much, they may decide to stay in all day. The receiver should by all means be an open screened box of some kind. We lost a number of specimens by using sacks as receivers early in our experience, and we were as careful as we could well be in the use of the sacks. We even lost a few birds by suffocation in the receiver illustrated in figure 4, and this receiver has a hardware cloth bottom.

We should like to suggest a device which makes the removal of the Swifts from the receiving-cages very convenient. In cases of a receiving-cage six feet tall we would make two openings about seven inches square in each of two opposite sides of the cage, one above the other and so placed that one can reach the birds from some one of the openings in any portion of the cage. We then hang a piece of burlap on the



FIG. 5. Robert Sparks Walker, nature writer and poet, who has solved many of nature's riddles, is helping to solve the riddle of the Swift migrations. (Placing a band.)

inside of the cage over each door. Such doors close automatically as the arm is withdrawn, so that no birds escape. The edges of the openings may be easily covered with a narrow strip of tin, so as to eliminate the likelihood of tearing the clothing while reaching for birds. These luxuries may be dispensed with, of course, but are rather desirable if one is banding large numbers of Swifts. Half a dozen workers can band Swifts around such a cage and not be in one another's way.

A complete discussion of our results would be tedious. In the interest of brevity we have tried to present some of the most significant aspects in the outline map, figure 1, and to show something of how some of the difficulties encountered were

overcome by means of the photographs and the following tabulation:

TABULATION OF DATA ON SWIFT-BANDING AT CHATTANOOGA

Data on Local Banding				Data on Swifts Banded Elsewhere			
Date and station	Birds banded. Numbers used	Re-leased not banded	Bearing local bands	Bearing strange bands	Place of banding	Date of banding	By whom banded
Oct. 16, 1928 Old H. S.	1000. B72001 to B73000	900	none	1 1	Charleston, W. Va.	9/18-1926 9/15-1927	I. H. Johnston "
May 25 1929 Univer.	91, C6410 to C6588	none	none	none			
Sept. 21 1929 Univer.	1500. C23501 to C25000	5500	8 banded Oct. 16, 1928	1 1 4 3 1 1	Thomas- ville, Ga. George School, Pa. Charleston, W. Va. " Kingston, Ontario	10/1-1926 5/26-1927 9/15-1927 (?) 9/14-1928 6/7-1929	H. L. Stoddard John Bartram I. H. Johnston " R. O. Merriman
Oct. 8, 1929 Clemons	1146, C32001 to C32197 and C36051 to C37000	1559	11 banded Oct. 16, 1928 2 banded May 25 1929 4 banded Sept. 21 1929	1 2 1	Charleston, W. Va. Lafayette, Ind.	9/17-1926 9/15-1927 9/6-1929	I. H. Johnston " S. E. Perkins
Oct. 19, 1929 Central H. S.	none	955	7 banded Oct. 1 1928 1 banded May 25, 1929 9 banded Sept. 21 1929 13 banded Oct. 8 1929				
Totals	3737	8914	54				

Since Oct. 8, 1929, we have captured no Swifts which were banded elsewhere.

This table includes data on Chimney-swifts banded at Chattanooga from Oct. 16, 1928, to Oct. 19, 1929, inclusive. A total of 17 were captured bearing strange bands.

Four of our Swifts banded Oct. 16, 1928, have been recaptured elsewhere, one by E. J. Pifher, at Trout Lake, North Bay, Ontario; one by A. Chevrier, at Markstay, Ontario, one by Noah Bales, at Decatur, Tennessee, and one by I. H. Johnston, at Charleston, West Virginia.

Two banded Sept. 21, 1929, have been taken elsewhere; one by C. B. Gardener, at Norwalk, Ohio, and one by A. N. Rueckl, at Luxemburg, Wisconsin.

One which we banded Oct. 8, 1929, was recently caught by Willie Turner, at Rocky Face, Georgia.