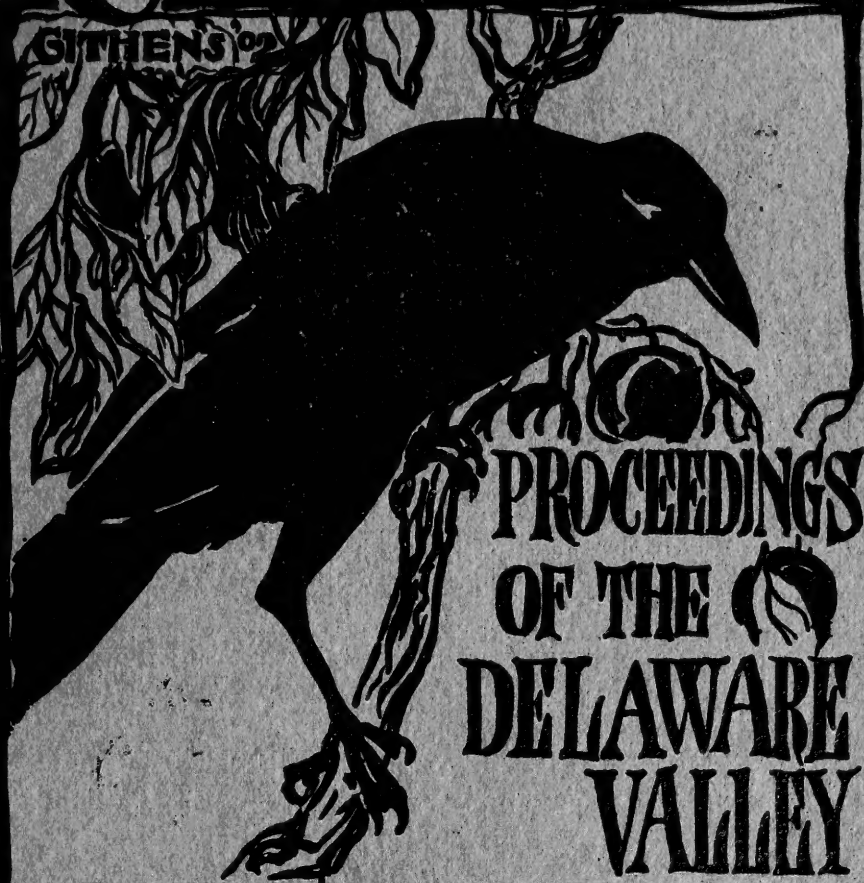




CASSINIA
A BIRD ANNUAL

GITHENS '02



PROCEEDINGS
OF THE
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ORNITHOLOGICAL CLUB
OF PHILADELPHIA

1912

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CASSINIA

An Annual Devoted to the Ornithology of
Pennsylvania, New Jersey, and Delaware

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Geo. A. W. Ball

CASSINIA

PROCEEDINGS OF THE DELAWARE VALLEY ORNITHOLOGICAL CLUB

No. XVI.

PHILADELPHIA, PA.

1912.

George Archibald McCall

BY WITMER STONE

AN army career in the first half of the nineteenth century offered the best, indeed often the only, opportunity of visiting the western and southern wilds of North America, then mainly populated by Indians more or less hostile to the whites.

Consequently it is not surprising that many an army officer has contributed materially to our knowledge of the natural history of the country; some having an inherent interest in nature, exploration or hunting, others doubtless influenced by the novelties which they found about them.

Prominent among these army naturalists was George A. McCall, whose name is perpetuated in our American Ornithology by the Texas Screech Owl, *Otus asio mcalli*, which was named in his honor by John Cassin, and described in the well-known "Birds of California and Texas" "as a slight memento of long-continued and unbroken friendship, and in testimony of our high appreciation of him as a naturalist who has contributed much of interest and importance, especially to the ornithology of Western America."



George Archibald McCall was born March 16, 1802, at Philadelphia, son of Archibald McCall and Elizabeth Cadwalader. He was educated at West Point Military Academy where he graduated in 1822, and was commissioned lieutenant in the Fourth Infantry stationed at Pensacola, Florida. The territory of Florida had just been acquired by the United States, the purchase having been ratified in March, 1822. From there Lt. McCall went with his regiment to Hillsborough [Tampa] Bay, where the Seminole Agency's headquarters were located, and where he remained until sent north on recruiting service in July, 1830.

In an autobiographical volume which he prepared during the last years of his life,¹ we find many allusions to hunting and occasionally an ornithological note of interest, although it is evident that much material of this kind was eliminated from the journals and letters upon which the volume is based, as being of little general interest. Fortunately, however, many ornithological notes from the journal had been furnished to Cassin and published in his "Birds of California and Texas," to which reference has already been made.

From a letter dated Hillsborough Bay, December 1, 1827, and published in his "Letters from the Frontier," he describes the shooting of a Flamingo on Anclote Key, thirty miles above the entrance to Hillsborough Bay, where later he got three others. Two were adult males and two young of the year "in pale, grayish, rose-color" plumage. He says: "As I debouched from the thicket my eye caught sight of the grotesque figure but splendid plumage of a Flamingo on the beach not over fifty yards from where I stood. It was the first bird of the species I had ever seen in the flesh, although I had from childhood been familiar with the stuffed specimens of the museums. As the bird had not yet perceived me, I stood for several minutes to observe his manners. He was standing in the water knee-deep and was with his great clumsy beak cleansing and arranging the pen feathers on the side of his body, just

¹ Letters from the Frontier, written during a period of Thirty Years' Service in the Army of the United States. By Major General Geo. A. McCall, late Commander of the Pennsylvania Reserve Corps, Philadelphia, 1868.

under his wing. The latter was extended and partially revealed to me the deep scarlet of the wing coverts and the glossy black of the quill feathers." Having read in Horace of the famous Roman delicacy, a dish of Flamingo tongues, Lt. McCall had the tongues of his specimens cooked, but while they had a delicate flavor they proved so exceedingly oily that only a small portion could be eaten.

In another letter he describes Millet Key, a small island absolutely covered with eggs while clouds of terns, gulls and skimmers flew screaming overhead. The eggs were so thickly spread upon the sand that without great care one could not walk over the ground without breaking them. "Next morning," he adds, "we gathered four or five bushels of eggs from the ground we had cleared the day before, and I candidly confess, I should not have credited the thing had I not been present."

Lt. McCall seems to have been the first to notice the difference in the Florida Quail, as he says "the Partridges appeared to me smaller than our northern bird and somewhat differently marked." These observations are among the first made on the birds of Florida by an American naturalist.

In 1831 Lt. McCall was appointed Aide-de-Camp to Gen. E. P. Gaines, and reported at Jefferson Barracks, Mo. From that time until 1836 he was stationed at Memphis and Nashville, Tenn., Courtland, Ala., and Little Rock and White River, Ark. At the last place he made the acquaintance of the Prairie Chicken, which abounded on the Big Prairie all about Mrs. Black's Halfway House where travelers stopped.

The year 1836 found him back in Florida under Gen. Worth, subduing the Seminole uprising, in which campaign he gained distinction and became a captain on Sept. 21.

The next ten years were spent mainly on the western frontier, in Missouri and Indian Territory, although he was in Tennessee in 1838 and Florida in 1841. At Fort Scott, Indian Territory, he described the hunting of turkeys and grouse and the abundance of Sandhill Cranes.

In 1846, after the declaration of war with Mexico, Capt. McCall was ordered to join General Taylor and served throughout

the war, gaining distinction in the battles of Palo Alto and Resaca de la Palma, and was commissioned Major of the Third Infantry, December 26, 1847.

In November, 1849, after a year's leave of absence on account of ill health, he was ordered to Santa Fé, New Mexico. He reached San Antonio, January, 1850, and traveled over the route to El Paso, crossing the Pecos February 19, and reaching his destination March 12, where he remained until August 31. In the meantime, he had on June 10 been appointed Inspector-General of the Army, and he now spent several months inspecting other posts in the department of New Mexico.

Inspired no doubt by the novelty of the fauna, General McCall seems to have paid much more serious attention to ornithology during his sojourn in New Mexico than ever before, and encouraged by Cassin he published, on his return east, his paper on the birds of this region.¹ This was a notable contribution to ornithology, treating of a country practically unknown. Gambel, who crossed from the Ratone Mts. and Santa Fé to California in 1841, being apparently the only ornithologist who had previously entered it. In this paper Gen. McCall describes as new a Jay, *Cyanocorax cassinii*, which proved later to be *Gymnorhynchus cyanocephalus*, named by Wied in 1841, now known as the Pinon Jay. Also a Purple Finch, *Carpodacus obscurus*, not different from *C. mexicanus frontalis*, and a Lark, *Otocoris occidentalis*, which still stands in our Check List.

In 1852 General McCall was engaged in an inspection of the military posts of California and Oregon. Just what his route was upon this tour I have been unable to ascertain, but from the notes contributed to Cassin he evidently paid close attention to the birds which he encountered. On April 22, 1853, finding his impaired health unequal to the duties of his position, he resigned and retired to his home "Belair" near West Chester, Pa., where he remained until the breaking-out of the Civil War. He then offered his services to the State and was

¹ Some Remarks on the Habits, etc., of Birds met with in Western Texas, between San Antonio and the Rio Grande, and in New Mexico; with descriptions of several species believed to have been hitherto undescribed. *Proc. Acad. Nat. Sci., Phila.*, V, pp. 213-224, 1851.

made commander of the Pennsylvania Reserves. He rendered valuable service during 1861 and 1862, especially in the peninsular campaign, and was finally captured at Frazier's Farm, June 30, 1862, in the seven days' battle before Richmond. He was confined in Libby prison until his exchange in August, but his health was so affected that he was unable to return to the war, and resigned March 31, 1863. He died February 15, 1868.

General McCall was married August 30, 1851, to Miss Elizabeth McMurtrie, by whom he had five children.

He is described by his brother, in a manuscript history of the family, as a man of extraordinary determination and force of character, and who possessed much scientific ability. He describes himself as "one for whom nature in her mildest hour of infancy has always possessed unrivalled charms." He became a member of the Academy of Natural Sciences of Philadelphia, June 29, 1847, and, besides the paper on the Birds of Texas and New Mexico already referred to, published in the Proceedings of the Academy, the following:

"Description of a supposed new species of *Columba* inhabiting Mexico, with some account of the habits of the *Geococcyx viaticus* Wagler." Vol. III, pp. 233-5, 1847. The new species *Columba solitaria* proved to be *C. flavirostris* described by Wagler from Mexico in 1831.

"Notes on some Mexican Birds heretofore not fully described." Vol. IV, pp. 63, 64, 1848. *Orpheus curvirostris* and *Columba leucoptera*.

"Note on *Carpodacus frontalis* (Say), with description of a new species of the same genus from Santa Fé, New Mexico." Vol. VI, p. 61, 1852. This was *C. familiaris* based on exceptionally red specimens of *C. frontalis*.

In addition to these papers there are the numerous contributions to Cassin's "Birds of California and Texas." Indeed to judge from some statements in Cassin's letters to Baird, Gen. McCall seems to have had no little part in starting this publication. Under date of June 7, 1851, he writes: "Col. McCall is here, constantly engaged in ornithology at the Academy. He is a devout ornithologist and possesses great knowledge about western specimens"; and again, February 9, 1852, he says:

“McCall is quite excited about my new book; he has been urging me to it for the last six months and is getting notes ready.”

It will thus be seen that General McCall played no small part in building up our knowledge of the North American Avifauna, although like many other field naturalists he had no selfish desire to gain notoriety by publishing all his notes over his own name, but gave the results of his experience cheerfully to others, who could use them in the advancement of his favorite science.

He gave many valuable specimens to the Philadelphia Academy, not only birds but mammals and reptiles as well, and among the latter his name is perpetuated in that of the curious Horned Lizard of New Mexico, *Anota mcallii*, named by Mr. Hallowell from a specimen collected by Gen. McCall.

The published observations by Gen. McCall constitute apparently but a small portion of the natural history lore with which his mind was stocked, but we have enough to show that he should occupy a high place in that wonderful group of early naturalists whose activities centered about the Academy of Natural Sciences of Philadelphia, and whose explorations carried them far beyond the then frontier boundaries of our country.

Bird Migration in Pennsylvania a Hundred Years Ago

BY WELLS W. COOKE

MODERN theories in regard to bird migration agree that present migration routes are but the present stage in development of routes that have been evolved from other original routes widely different. How fast changes have taken place there is no means of knowing, but the present inquiry is an endeavor to learn whether any perceptible changes have occurred in the past hundred years. The history of bird migration in the United States dates from the appearance in 1799 of Barton's "Fragments of the Natural History of Pennsylvania", which contains his migration records for the year 1791 at Philadelphia. Something about the bird life on this continent had been appearing in print for many years previously, beginning with Hernandez, who published in 1628 the first local bird list for this hemisphere, being a list of the birds of Mexico, and containing 229 out of the actual 1500 in that country. The first local list of Canada was issued by Baron de la Hontan in 1703, and six years later Lawson published his list of the birds of Carolina, the first local list of the United States. Nearly a hundred years elapsed after that before any one considered it worth while to record in print the dates of the arrival of the birds.

Dr. Benjamin S. Barton was "Professor of Materia Medica, Natural History and Botany in the University of Pennsylvania", as the title-page of his "Fragments" announces, and he wrote this tract of 42 pages as "Part First" of a series of treatises which he hoped to issue, and two others, which he says he had already in preparation. As they were never published it seems probable that the first part was not a sufficient financial success.

The "Fragments" are in three parts, an introduction of 18 pages, the main text occupying 14 pages, followed by a 10 page appendix. Barton explains that he uses Linnæan names, but sometimes those of "Professor Gmelin, the laborious and often successful editor", and sometimes had to impose new names of his own making. He first gives the dates of arrival of 99 species in the spring of 1791, of which 71 are land birds. Next come notes on 26 species of fall migrants and remarks on the time when the summer residents depart. Last are four pages of observations on the "Resident Birds of Pennsylvania."

The notes on the spring arrivals are the most interesting part of the whole treatise and these will be compared with the dates at which these same species now arrive at Philadelphia. The Biological Survey has a very large amount of data on the arrival of the birds in the vicinity of Philadelphia, and the average dates compiled from these records are used as the basis for the comparison with Barton's dates. He begins with the arrival of the Red-winged Blackbird March 1st, which is close to the average. Then no more records until on March 12th he records the arrival of six species of which the Phoebe is just about average. The Fox Sparrow is two weeks late, but Barton says that in 1792 he saw it February 28th, which is just average. Among these six are the Chipping Sparrow and the Swamp Sparrow both far ahead of their usual time and both probably errors. His Chipping Sparrow is probably the Field Sparrow. The next day he adds the Cowbird just on time; two days later the Bluebird and the Killdeer, both late; then no more until April 10th, when he notes the Purple Martin, a week late; April 15th he records six species all but one of which, the Barn Swallow, probably came long before. From April 20th to May 1st he seems to watch arrivals carefully, and most of his species were probably seen shortly after their arrival. Indeed, the Kingbird, Baltimore Oriole and Orchard Oriole are recorded earlier than they are usually seen at Washington, D. C.

After May 1st Barton seems to have lost interest in his migration watching, and reports no more arrivals until May 12th, and only a few more for the rest of the season. The eleven days then from April 20th to May 1st are the period he is

watching the birds most closely and when his notes have most value. It is fortunate that this is the part of the migration season when birds are little influenced by the variations in the seasons. The following table gives Barton's dates of arrival for the twenty-one species he noted from April 20th to May 1st, and compares these dates with the average dates of arrival for Philadelphia computed from the data of the Biological Survey.

Species.	Barton's date of arrival in 1791.	Average date of arrival during late years.
Green Heron	April 20	April 19
House Wren	" 23	" 21
Chimney Swift	" 23	" 17
Whip-poor-will	" 23	" 21
Kingbird	" 23	" 29
Baltimore Oriole	" 23	May 3
Orchard Oriole	" 23	" 2
Catbird	" 23	April 26
Black and White Warbler	" 23	" 17
Summer Warbler	" 27	" 23
Northern Water-Thrush	" 28	" 28
Warbling Vireo	" 28	" 30
Hummingbird	" 30	May 1
Maryland Yellow-throat	" 30	April 24
Ovenbird	" 30	" 23
Scarlet Tanager	" 30	" 30
Red-eyed Vireo	" 30	" 27
Redstart	May 1	" 24
Wood Thrush	" 1	" 27
Great-Crested Flycatcher	" 1	" 30
Yellow-breasted Chat	" 1	" 30
Average	April 27	April 26

The average dates of arrival of these 21 species agree quite closely with the dates when they were first seen by Barton. Only one-quarter of the dates vary more than three days from the average. The differences vary from nine days earlier than

the present average in the case of the two Orioles to six days later in the case of the Chimney Swift. The average of the whole 21 species is within one day of the present average day of arrival.

So far then as the report of this single season of 1791 is concerned, it indicates that birds have not changed, during the last 100 years, their times of spring arrival.

Two of Barton's birds have not been used in the above calculation. One of these, the Red-headed Woodpecker, winters sparingly at the present time in favorable localities near Philadelphia, while the other, the Towhee, is apparently much more common near Philadelphia now than in Barton's time and arrives much earlier than the date noted by Barton.

Barton's "Fragments" contains records of the dates of flowering of many of the common trees, shrubs and herbaceous plants. It is to be hoped that some Pennsylvania botanist who has dates of the vernal advance of vegetation in these later days will make a comparison of plant growth similar to that outlined above for the birds.

Some of Barton's remarks and observations are interesting from the standpoint of modern ornithology. He mentions the Rose-breasted Grosbeak, Purple Martin and Nighthawk as species known locally in Pennsylvania, but not as common near Philadelphia. Now all three of them are common there and all have been known to nest near that city. He failed to discriminate between the Marsh Wren and the Winter Wren, called them the same bird, and said they remained the whole year. He says of the Chat: "This is a bird of very singular form, manners and language." The coming of the Phoebe seems to give a "confident assurance to the farmer that he may very soon begin to open the ground and plant." The Pennsylvania Indians regarded the arrival of the Whip-poor-will as a sign of planting time, while their white neighbors commonly remarked that when the Whip-poor-will arrives it is time to go barefooted.

Barton devotes four pages to expressing his belief that birds do not hibernate, and he gives the interesting fact that previous to the cold winter of 1783-4, the Mockingbird was not rare in winter near Philadelphia. The Swallow-tailed Kite which he

saw July 4, 1791, is the earliest record for Pennsylvania, though it has since been noted a few times, but his is almost the only record for the state of the Carolina Parakeet, which he reports as occurring occasionally near Carlisle, and also the only record for the state of New York, where he reports that the Dutch settlers near Albany were exceedingly alarmed in 1780 by the arrival in the depth of winter of a very large flight of Parakeets.

Barton has been led into a queer error with regard to birds dividing their time half and half between the summer and winter homes. He says that in general those species which arrive late in the spring do not disappear until late in the autumn. The facts are just the reverse; the latest birds to arrive are most likely to leave first, and instead of spending six months near the nesting site, the extreme is reached in the Orchard Oriole, many individuals of which begin their fall migration within seventy days after they enter the state.

The last three pages of the "Fragments" are devoted to the usefulness of birds as insect destroyers and to a plea for their protection. Thus Barton was one of the first champions of that bird protection which in these later years is at last coming to fruition.

Preliminary Report on Roosting Habits of the Purple Grackle in the Delaware Valley

BY JULIAN K. POTTER

ON August 1, 1912, Mr. Stone sent out a circular letter to the migration corps of the D. V. O. C., asking the following questions concerning the roosting habits of the Purple Grackle:

If there is a regular evening flight near your home,

(1) How long does it take to pass? Does the time of flight change as the season advances? How many birds pass?

(2) Where do the birds roost? Where do they feed? Where does the flight start?

(3) When do they abandon the roost? Do they change their roosting place or feeding ground as the season advances?

Papers on the subject were received from ten observers: W. L. Baily, E. C. Emlen, Russell Mason, George Spencer Morris, S. C. Palmer, C. J. Pennock, J. K. Potter, S. N. Rhoads, Witmer Stone and K. R. Styer.

It being the purpose of this report to deal only with the foregoing questions, much interesting data taking up other phases of Grackle life could not be considered.

As soon as they arrive in the spring the Grackles gather at a definite roosting place, generally one occupied for a number of years. Already they find at this roost a few birds which have spent the winter there. Mr. C. J. Peck¹ and Mr. E. C. Emlen² have shown that these main roosts are practically permanent the year round, being deserted completely only for a few days during severe weather in January and December. During March the roosts fill up and the number of birds reaches large proportions, but in April and May the roosts are almost deserted again, while the Grackles are busy with courtship and

¹ The Overbrook Grackle Roost, CASSINIA, 1905, p. 36.

² Notes on the Germantown Grackle Roost, CASSINIA, 1902, p. 22.

nesting duties. Although there may be a small nesting colony in the roost itself, practically all the birds nest in various ever-green clumps about the neighborhood. For a brief period, four weeks according to Mr. Lynds Jones,¹ the Grackles appear to stay about the nesting colony trees, although Mr. Peck's observations showed that even at this time from two to three thousand returned to the Overbrook roost every night, and Mr. Emlen states in regard to the Germantown roost that "all through the nesting season quite a large number of birds came back to spend the night." It seems hardly probable that a large number can be referred to unmated birds. Certainly as soon as the females commence to incubate, the old males start to make their nightly trips to the roost, leaving the females to guard the nests. As the young mature they join the old males in the sunset flight until by the middle of June, when nesting duties are over, they commence to appear in flocks of some size. (Mr. Pennock noted 250 June 12th.) Up to this time the Grackles come into the roost from all directions, apparently from the scattered nesting colonies, but as soon as the nests are completely abandoned and the birds have taken to their feeding grounds, definite lines of flight are established to the roost and these lines are followed by detached companies of birds. The establishment of flight-lines occurs about the last week in June.

In regard to one particular flight-line Mr. Stone writes: "For some years past I have noticed during late June and July a regular evening flight of Purple Grackles passing over my home near 51st St. and Hazel Ave., West Philadelphia, in a northeasterly direction toward Kirkbride's Insane Asylum at 46th and Market Streets. My idea of this evening flight was that it represented the old and young from the asylum grounds, returning from their day's feeding along the Schuylkill or Delaware, to their nesting-place to roost. This year I paid closer attention to the flight than during any previous season and came to the conclusion that the flight of mid-July was altogether too large to be referred wholly to the birds breeding about the asylum."

¹ Bulletin 415 Wilson Ornithological chapter of the Agassiz Assoc.

“In order to obtain some definite data on the subject I stationed myself at a window facing to the south and counted the birds as accurately as possible, as they flew over in detached bunches or larger flocks. This counting was repeated for several nights with the following results:

Time.	July 22.	July 23.	July 24.	July 25.	July 26.
6.15	..	..	3	4	..
6.20	..	..	3	2	..
6.25	..	..	318	9	16
6.30	15	..	102	11	25
6.35	123	..	41	108	115
6.40	125	11	15	576	70
6.45	205	433	1	87	141
6.50	137	248	..	42	311
6.55	23	52	..	2	4
7.00	103	..	..	..	..
7.05	75	..	..	..	..
7.10	2	..	..	..	..
Total	808	744	483	841	682

“It will be noted that the time of the flight was approximately the same except on July 24th which was a cloudy day with more or less rain, all the other evenings being perfectly clear. Evidently the amount of light influenced the time of flight.

“I verified the supposition that the birds were roosting at the Asylum by visiting the grounds, where I located the birds in an avenue of maples in the northern part of the west enclosure. I likewise determined, by visiting the lower Schuylkill during the time of flight on another evening, that the birds did not come from there, but did apparently come from beyond Lansdowne, the flight-line apparently crossing a little south of that place. I left home on August 1st returning about the end of the month. I at once took up my station to note the change in time of flight and numbers of the Grackles, but not a Grackle did I see from that time on, either flying over or about the Asylum grounds.

Evidently the entire roost had gone elsewhere, and as I do not recall seeing any flights in late August of former years, this change may be a regular feature of the life-cycle of the species. I heard of no attempt to drive the birds from their roost at the Asylum, and there was no apparent disturbing cause."

Three interesting facts are brought out by these observations: first, that the line of flight follows the same course and the same direction each evening for several weeks of every year; second, that the Asylum trees are also nesting sites for some Grackles; third, that this roost was abandoned this year and is probably abandoned every year long before the southern migration begins, and has therefore not the same status as the roosts at Germantown and Overbrook, which are occupied the year round.

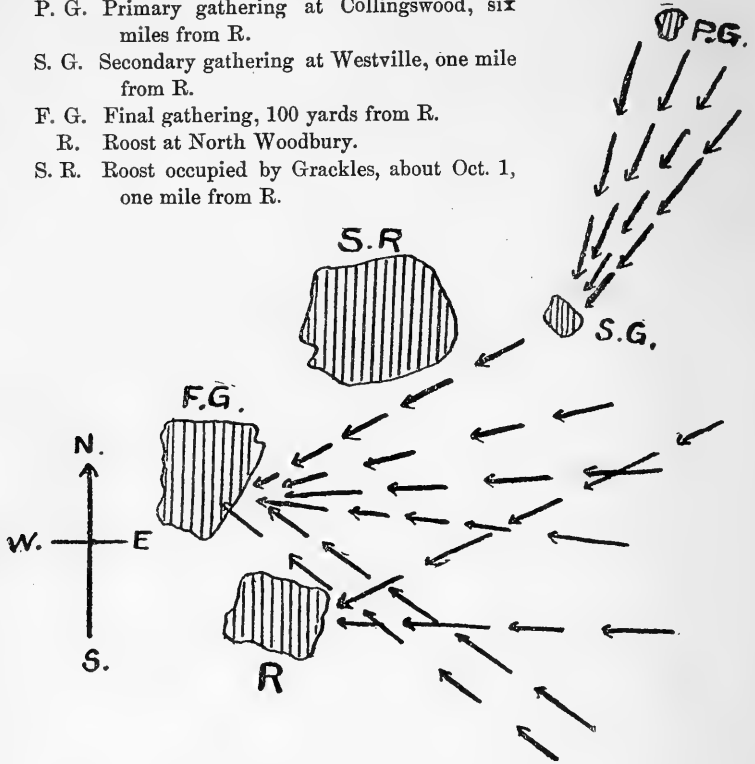
Following out these lines of thought, it was noted that the directions of the flight-lines are permanent for each roost. At Swarthmore, Pa., Mr. Palmer states, the birds arrive from the south and southwest; at Germantown they come from the northwest, north, northeast, and east; at Olney, N. J., Mr. Morris reports, they come from the southeast; and at Woodbury, N. J., they appear from the northeast. To all these roosts a few individuals come in from all directions, but the large flocks follow the main flight-lines.

In regard to the second fact, observations of the members seems to suggest that in the beginning most of the roosts were nesting colonies, but as each wood was occupied by more and more roosting birds, the nesting Grackles abandoned it for quieter quarters. This was the case of the Germantown roost, which was originally the scene of much nesting activity, but now holds not more than a dozen nests each spring.

That several of the roosts are not permanent for the whole year and that others are merely gathering-places for each afternoon is evident from the various reports. The Kirkbride roost was deserted by the first of August. At Kennett Square Mr. Pennock reports a woods, to which the males retired during the breeding season and which was not occupied as a permanent roost. The author, while hunting for a permanent roost in Camden County, N. J., came across several gathering-places and at least one of these transient roosts.

Investigation along a line of flight leading to North Woodbury, N. J., showed that the birds passed through three distinct stages of flocking. From the accompanying plan of the roost the movements of the Grackles can be easily traced.

- P. G. Primary gathering at Collingswood, six miles from R.
- S. G. Secondary gathering at Westville, one mile from R.
- F. G. Final gathering, 100 yards from R.
- R. Roost at North Woodbury.
- S. R. Roost occupied by Grackles, about Oct. 1, one mile from R.



GENERAL PLAN OF GRACKLE ROOSTS,

NORTH WOODBURY, N. J.

Showing formation of one line of flight.

At 5 p. m., August 8th, a small flock was located feeding near Newton Lake, Collingswood (P. G.). At 5.15 they flew to nearby trees, and after a short concert took wing, flying southwest. This line was followed as opportunity presented. On August 15th, at a point three miles southwest of P. G., about

two hundred birds were seen to pass in flocks of from two to forty. The flight started at 5.30, ceasing at 6.45 p. m. On August 24th at Westville (S. G.) the birds started to gather in a grove of trees at 5.30 p. m. The flight stopped at 6.35. Birds came in by detachments of from ten to two hundred, some of the larger flocks being long-drawn-out and scattered. About fifteen hundred birds assembled here, coming in from directions indicated by lines converging at (S. G.). The Grackles kept up a continual creaking while they waited for late arrivals. At 6.45, five minutes after sunset, all left in three compact flocks at intervals of one-half minute, flying southwest toward the roost, indicated by line running from (S. G.) to (F. G.).

On September 5th, the final gathering place (F. G.), an extensive wood of high chestnuts, was located at North Woodbury. The birds commenced to come into it at 5.15, first appearing in small flocks, later, about sunset, in flocks of five hundred or a thousand. From (F. G.) the birds started to go into the roost (R) proper about sunset, over a line of tall shade trees leading from (F. G.) to (R.). The final gathering-place was used by the birds only when disturbed by gunners, who frequented the place. When not disturbed, the large flocks, late arrivals, went direct to the roost (R).

Examining this data, it is evident that, though some of the Grackles went through three stages of flocking, the most of them passed through but two, before they reached the roost. From a comparison of the times, given for the beginning and end of the flights, and from other data which was secured along the line of flight, it can be seen that the birds commenced to gather at (P. G.), (S. G.), (F. G.) about the same time each evening. Hence it is undoubtedly true that some of them went through only one flocking stage and others none at all, flying direct to the roost from a feeding-ground nearby. Similar gatherings were noted by other observers, one being observed at a feeding-ground and two others consisting of huge flocks some distance from a roost. It may also be observed from this data that the Grackles, which fed far from the roost and also those nearby, started to fly at about the same time each evening, those nearest

the roost arriving earliest. Of course, stormy and cloudy weather advanced the time of the flight, as was noted by Mr. Stone. It should also be mentioned that the number of birds along the flight-lines varied greatly at different dates. At a point where 200 were seen August 22d, only 1 was observed September 1st. On August 24th 1500 Grackles gathered at Westville, but on September 15th only 500. This indicated that the exact location of the feeding-grounds had probably changed, though not enough to alter the direction of the flight-line.

The birds in the North Woodbury roost (R) increased in numbers till about the middle of September, when they aggregated about six thousand birds. From this time they slowly decreased, until on October 1st only a dozen birds approached the roost. These circled about it a few times and flew due north, almost in the opposite direction to the main flight-line. Up to this date the daily routine of flocking at the various gathering-places had been kept up, but now the secondary gathering-place at Westville broke up, though the flight-line was not altered. Investigation on October 8th located the birds in a much larger piece of woodland (S. R.), one mile north of the old roost. The numbers of the birds had increased enormously. The roar of their evening concert could be heard a quarter of a mile away. About twenty thousand birds roosted here until the third week in October, when they gradually disappeared. The last birds were seen October 26th. The unexpected abandonment of the roost (R) was very similar to the mid-summer abandonment of the Kirkbride roost, and it seems likely that Mr. Stone's suggestion is correct, that the smaller roosts combine as the season advances.

The main facts of the various roosts, other than those already noted, are as follows: Germantown roost, situated in growth of deciduous and coniferous trees in the town. Occupied by birds about forty years. Formerly a large nesting site. Largest number occupying roost, fall of 1912, about ten thousand. Most birds depart about last week in October. Number of birds remain till later, some all winter. These birds roost in the conifers. Other species observed roosting with Grackles—Robins, Cowbirds, Red-winged Blackbirds and English Sparrows.

Swarthmore roost, moved several times in and near the town. Occupied for thirty years. Trees, deciduous and coniferous, of low and high growth. Used as nesting colony in spring. Largest number of birds recorded in fall, about five thousand. Most of birds left last week of October, 1912. A few seen up to December 15. Other species roosting, Robins and Cowbirds.

Kirkbride roost, situated in mixed growth at Kirkbride's Asylum, 46th and Market Sts., Phila. Used as nesting colony in spring. Occupied by birds in fall to number of one thousand. Roost deserted some time in August. Other species roosting, Red-wings, Starlings, Cowbirds.

North Woodbury roost, situated in grove of Sweet Gum trees one acre in extent, in outskirts of town. Occupied by birds till about October 1st. Then moved about one mile north. Located in tract of woodland forty acres in extent, composed almost entirely of scrub oak, only a few tall trees. No traces of nests. Said to have been used at least six years. Birds left for south last week in October. Other species occupying roost, Robins and Starlings. Robins came to roost independent of Grackles; Starlings came in associated with them. The Robins remained in the old roost after the Grackles had removed to the new, but the Starlings accompanied the Grackles and apparently deserted the new roost at the same time the Grackles did, a possible clue to the rapid spread of the Starling southward.

Audubon roost. Very little data. Birds occupied tall trees in and about the town to extent of about one thousand. Strange to say this roost was located within one mile of the line of flight, which passed from Collingswood to North Woodbury, yet at no time were birds observed to fly in direction of Audubon.

Summing up the foregoing, any kind of growths, whether high or low, are satisfactory for roosting purposes. Grackles appear to occupy the same roost year after year. When the trees, in which the roost is located are removed, the roost is then stationed at some favorable point in the neighborhood. Persecution of birds, other than destruction of trees, does not appear to affect roost stability. The main lines of flight come to each roost from the same general direction, but the direction varies greatly in different roosts. The number of birds occupying the

different roosts varies greatly and constantly increases up to the middle of September or later. This increase may be partially due to the arrival of migrating birds from the north, but our data points to a combination of the smaller roosts. The departure of the main body of Grackles occurs about the last week in October, two of the observers noting that the roosts are virtually abandoned immediately after the first hard storm takes the leaves off the roosting trees. Further investigation by the members of the Club during the coming summer is expected to bring together much more data for the solution of the problems, suggested by this report.

Pigeons by the Million¹

The Great Nesting Grounds in Pennsylvania

“Bradford, Penna., May 8.—Millions of wild pigeons are nesting in the woods on the borders of Forest and Warren Counties, in what is known as the Spring Creek region. The country thereabout is almost an unbroken wilderness, a few bark-peelers, log-cutters, and oil well ‘wild-catters’ forming the entire population. The vast beech woods that cover much of the area afford the food that attracts the pigeons to the locality, every fruitful beechnut year being sure to be followed by the appearance of the birds in greater or less numbers. The beech tree is uncertain in its yield of nuts, and never bears two years in succession. When the trees bear well thousands and thousands of bushels of the nuts fall to the ground after the frosts of Autumn. They are covered by the falling leaves and buried deep beneath succeeding snow, their soundness and sweetness are preserved, and on the approach of Spring the pigeons swarm to the beech woods to feed on the nuts, which are their favorite food, and at the same time mate, nest, and hatch their young.”

At this point the unknown author propounds an astounding theory that during the southern migration the main body sends out “flocks of scouting pigeons” to the beech woods to learn the “condition of the nut crop,” and that this information is used the following Spring to decide the location of the great nesting colonies! The source of this theory and in fact much

¹This article, offered for reprinting by Dr. Louis B. Bishop, appeared in the Sunday issue of the *New York Times*, May 9, 1886, and is valuable as a contemporary account of a species virtually extinct. Although some of the statements are rendered dubious by a context of astonishing theories, there is a residue, sufficiently reliable to warrant a reprint almost in full. Italics and comments are the editor's.

of the article seems to be the "professional pigeon netters, who make it a business to keep posted on the movements of wild pigeons and to follow them wherever they may fix their roosting and nesting places." He adds that "all of the common wild pigeons in this country form one great colony" and whenever the food conditions are favorable, "the entire body of pigeons nest . . . in one locality." He admits, however, that "it is generally arranged by the birds . . . to nest in two or three colonies in different parts of the country," and continues, "the last time the Pennsylvania beech was populated by the main body of visiting birds was in 1880, when they filled five miles square of the woods in Forest County. The roost this Spring in those woods is much smaller in dimensions. In 1880 the birds began to arrive in the woods as early as February, and for two weeks there was a ceaseless influx. The snow was still deep in the woods, and the pigeons swept down upon it by the million and by using their wings uncovered the buried beech nuts. Untold thousands perished from starvation and cold during the first two weeks of the roost."

"Another large division of the main colony sought feeding grounds that year in Indian Territory, and another in the Michigan woods, but the woods in Pennsylvania was so much larger than the others, and so easy of access and convenient to the market, that the professional netters came from all parts of the country to Forest County. The roost broke up in the latter part of April, and in that time more than \$200,000 was received by netters and hunters for pigeons and squabs killed and netted in the woods. The main body of the wild pigeon colony of North America nested in Forest County in 1867, 1868, 1871, 1878 and 1880. It is this year in Missouri. Twenty-five years ago the beech woods of Sullivan County, N. Y., less than a hundred miles from New York City, were still so extensive that the main body of the colony roosted there as it had done in that county and in the adjoining counties of Wayne and Pike, Penn., at intervals, ever since the earliest days of the white settlements. It is *not* because these birds are *becoming extinct* that they are seldom seen nowadays in localities where they were abundant a few years ago, although they are ruthlessly destroyed every

Spring, wherever they may roost; but their disappearance from old haunts is due to the destruction of former roosting and nesting place."

"The appearance of the pigeons in the Spring Creek woods and in the woods along Palate Creek has been quickly followed by hundreds of hunters and netters, both professional and amateur. The farmer, the bark peeler, the villager, the oil scout, and the wild-catter are now out in force, and, in spite of the strict law forbidding the capturing of wild pigeons during the nesting season, are making away with the birds and their young by the thousand every day. Besides the barrels full of pigeons and squabs that are daily shipped away from every available railway station myriads of the birds are killed and left to rot in the woods."

"As soon as a colony of wild pigeons is settled in its roosting place the mating of the birds begins. The cooing of thousands upon thousands of pigeons in the roost during the courting period is kept up constantly for three days. This is the love note of the male. A tom pigeon, as the male is called, selects the hen he fancies, and woos her alone. If another tom wants her, there must be a fight between the rivals, which is always a fierce one. The hen perches on a limb near by while the fight for her possession is going on, and when it is over she is claimed by the winner, and she becomes his at once. She has no other mate during the succeeding nesting period, and if a hen loses her mate she remains a widow until the next season. The tom gathers sticks and moss to make the nest with and his wife builds the nest. It takes three days to complete the nest. She lays one egg generally, but sometimes two. While she is on the nest the tom carries her the choicest food he can find and takes his place on the egg every afternoon for an hour or two while the hen takes an airing. There may be 50 nests in one tree. The egg is 13 days in hatching. The young bird is fed by its parents for 13 days. The food is sometimes carried *20 miles or more* by the old birds. By some mysterious process it is changed in their crops to a sort of whey. This the young bird sucks from the crop by inserting its beak in the open mouth of the old bird. This food is called 'pigeon milk.' When the

squab is 13 days old it is as round and fat as a butter-ball, and is left to itself by its parents. The woods are constantly full of these comical looking birds during the nesting time. They cannot fly for two or three days, and during that interval they tumble and stagger about like tipsy men. By and by they find their wings. These helpless squabs are virtually 'scooped up' by the thousand and shipped to market. They are worth \$3 a dozen. A pair of pigeons hatch three broods before the roost breaks up. Then the mass of birds separate and go to all parts of the country in isolated flocks that are seen from late in the Spring until Fall. In November they gather together and seek a common home for the Winter."

"Before glass balls and clay pipes ever came into use professional netters made an especial business of capturing the bird alive. One netter, who always appears with the birds in Forest County, frequently netted and disposed of 50,000 birds in a single season to sportsmen's clubs to be used in shooting matches. That branch of the business has now shrunk to small proportions. Netting pigeons is a simple and effective method of capturing the birds by wholesale." The rest of the paragraph describes the method of netting, by which a net, "sometimes 20 by 40 feet in extent" is attached to two hickory poles, which have one end fastened flat on the ground. Then the poles with the net are bent back and fastened to two stakes, in such a way that they can be sprung by a rope from ambush. The ground over which the net is to spring "is spaded up and scattered over with salt or buckwheat." "Wild pigeons," he states, "are fond of salt, as an old woodman discovered by seeing them gather about the salt springs in Michigan 10 years ago." "If the netter is operating before the pigeons are nesting," he uses "a pigeon with a long string tied to its leg." The bird by its fluttering attracts the pigeons to the food. During nesting time "a stool pigeon is used", which is always blinded by sewing its eyelids together to prevent it from seeing and giving warning to the wild birds. "As many as 1,100 pigeons have been caught by a single springing of a net."

"In spite of all the destruction that weather, netters, hunters, hawks, crows, and other enemies of the wild pigeon work in a

pigeon roost, it is more than probable that *more pigeons* leave the woods when the roost breaks up than enter it at the beginning of nesting." This comforting statement and what follows reminds one of the present attitude of complaisance toward the destruction of our diminishing wild fowl. He continues: "The roost of 1880 in Forest County, it was estimated, contained not less than 2,000,000 pigeons, and that naturally this number was increased by 3,000,000 hatched during the stay in the county. The same ruthless hunting of the birds on and off their nests, by night and by day, which is now going on in the present roost, was carried on in 1880 by a much larger force of law breakers, but after all their destruction it could not be discovered, anywhere in the woods, where the trees contained apparently *one less bird* than they did before the slaughter began. A gentleman who visited the Spring Creek region recently says that one cannot walk in any direction a rod through the woods without coming upon *scores* of dead and wounded pigeons. The McKean Gun Club, an association of gentlemen who believe only in legitimate sport, are taking measures to send representatives to the roosting and nesting grounds to arrest all persons guilty of violating the strict game law. During all the year that this law in regard to wild pigeons has been openly and notoriously broken in this part of Pennsylvania, a single arrest of an offender has never been made."

In Days Before "The Club"

SOME PHILADELPHIA BIRD COLLECTIONS AND COLLECTORS

BY SPENCER TROTTER

THIS paper is reminiscent of youthful days spent in the delightful pursuit of ornithological study. Very few persons that I knew then seemed to care much about birds. A cousin in New York, Newbold T. Lawrence, a nephew of the ornithologist George N. Lawrence, early fired my zeal in the direction of forming a collection. Newbold Lawrence had a fine collection of birds stowed in a great case of drawers, over which I used to linger as a boy when staying at his home in New York. It was he who first instructed me in the art of making a bird-skin. That was at his summer home near Far Rockaway, Long Island, back in the early seventies. I have a vivid recollection of this first bird-skin—it was a Least Tern. Lawrence had a very complete collection of the water fowl, bay snipe, and plover of the Long Island coast. I have spent many hours with him on the salt marshes, lying in a "blind" on the border of the "Big Pond," or some of the other shallow waters of these "flats," shooting Yellowlegs, Dowitchers, Willets, and other species over the "stools." One of the visits to his New York home was a red letter experience. I took supper one evening with "Cousin George" (George N. Lawrence), who showed me his splendid collection and told me of his early acquaintance with the great Audubon, and also of a certain Philadelphia collector of birds, one Christopher D. Wood, who had a shop on Market Street, Philadelphia, somewhere between Thirty-fourth and Thirty-Sixth Streets. On that visit I was presented with a copy of Coues' "Key," 1st edition, by my uncle. On another visit I met Harold Herrick, who later married one of my cousins, a sister of Newbold. Herrick had recently described the inter-

esting Warbler, *Helminthophaga lawrencei*, named by him in honor of George N. Lawrence. He had also published a list of the birds of Grand Manan. All this, however, concerns New York and not Philadelphia.

Armed with "Chris" Woods' address I soon found my way to his shop and expended twenty-five cents on the skin of a Chestnut-sided Warbler. For many years after I was on intimate terms with the genial "Chris," a constant visitor to his shop, which was always redolent of the smell of bird flesh, dried skins and arsenic. Wood was really a wonderful collector and a splendid field ornithologist, but he had no more idea of scientific ornithology than a cat. He belonged to a race that has become well-nigh extinct; a peculiar race of unlettered men, but possessed of a marvelous instinct for finding birds and with lots of information as to the habits and notes of various species. I remember "Chris" once saying that, if you heard a Chipping Sparrow's song in the woods, it was sure to be a Worm-eating Warbler that was the performer, for a Chippy was not a dweller in woodland, and the songs of the two birds had a certain resemblance. Woods' father and one or two of his brothers were also good collectors. Charlie Wood was taxidermist in John Krider's old gunshop at the N. E. corner of Second and Walnut Streets at one time. John Krider himself belonged to this same type, a quasi-scientific sportsman. Public sentiment against killing song birds, the spread of suburbs over the near-by countryside, the wilder woodlands thus becoming more and more remote from the city, and the precarious livelihood dependent upon taxidermy and commercial bird-collecting, were factors in the extinction of this interesting race.

The instinct to collect things is a kind of bower-bird trait that develops in many normal individuals at a certain period of their lives. Its particular nature may be predetermined by circumstance—a few books, running later to first editions (and in some cases to book-plates), stamps and coins, clocks and china (I even know a man, who at one time collected wish-bones, and thought the wish-bone of a Bobolink his highest acquisition), butterflies and birds' eggs. Out of it all may come an orderly arrangement of the mind—a life-long pursuit, a master in some

branch of technical study, or it may all become the junk of abandoned youthful enthusiasms. It seems to me that of all things, the most lasting and refreshing, the most liable to lead to some permanent good to the individual, is the collecting of natural objects, for it takes the devotee away over the hills and out under the wide sky, and therein lies much of the inspiration of the natural history collector—the incipient state of mind that makes a good naturalist. The butterfly net, the fishing for species rather than sport, the small-bore gun and the dust-shot load—what meanings they have in the life of the mind! In the days of which I am writing about it was not uncommon for men to go shooting in the fall of the year, and a variety of the smaller birds, Meadow Larks, Robins, Blackbirds and Flickers, fell to their guns. Nor was this slaughter considered so diabolical a crime as it is to-day. And these were ordinarily humane gentlemen, mark you! I remember that Cousin George Lawrence went robin-shooting every autumn for years, and probably my very first interest in birds came when as a small chap I used to pick up Red-headed Woodpeckers, Flickers, Bluejays and Cedarbirds that my father shot on the hills near Baltimore. Very well I remember the Wild Pigeon that he killed out of a small flock that flew over us on one of these occasions. This going afield with a gun was, I think, a survival of old pioneer days. I am glad that these days are past, but I am glad also that I was born before they had wholly disappeared. The camera has come, and these recent collections of bird pictures are full of wonderful interest, but among the formative influences of my youth, and in the days of “Chris” Wood, outdoor photography was but an ill-developed art. A man is in large measure always a part of his youthful fancies and his youthful environment.

I reaped many a good harvest from “Chris” Wood’s gun, and my bird collection grew apace, but his data were not without question. He never kept a note or labeled a specimen. The locality and approximate date of a specimen’s capture were generally all that I could get out of “Chris.” The peculiar hybrid Swallow came into my hands a few days after it was shot, and also the second specimen of Brewster’s Warbler.

Both of these birds brought me into relations with the then young men of the Nuttall Club and with their newly-started "Bulletin." The Swallow later brought a great letter from Elliot Coues and also a notice of it in his "Birds of the Colorado Valley." During the years 1878-79 and '80 I was a Jessup Fellow at the Academy of Natural Sciences, working on the bird collection which was in a state bordering on chaos. In those days I met Coues, Baird, and two British ornithologists, F. Ducane Godman and Henry Seebohm. Mr. Seebohm had come over from London to look up some specimens of Thrushes in the Academy's collection, on which family he was then engaged in writing a monograph. From "Chris" Wood I got some good data for a list of rare birds taken by him around Philadelphia. This paper was sent to the Linnean Society of New York and first published in "Forest and Stream," and later in the "Nuttall Bulletin." It was all fine enthusiasm in those days.

At school, in the early seventies, I first met Will Collins, a boon companion who, like myself, was just starting to make a collection of birds. I have his collection now at Swarthmore; my collection went to Bryn Mawr. Collins made an honest collection; the majority of the specimens were shot by himself around his home, on a farm near Frankford. Before ill health forced him to give up, he had accumulated most of the species of the smaller land birds of this district. The days spent with Collins hunting birds over that country about his farm are among the most delightful recollections of my youth. We both became quite expert in the use of an implement, called the "slap-jack," and a good many interesting birds fell into our hands through this means, especially when pursuing birds in more or less thickly-settled places. I remember one day in October, 1876, Collins and I started for the Centennial Exhibition in Fairmount Park. We got as far as Snyder's Woods, a most attractive spot in those days and really quite wild, when the sight of some shy migrant lured us from the path. Presently I heard Collins calling in a low voice, and when I reached him he was standing under a small tree, on one of the lower limbs of which sat a little Saw-whet Owl, at which he was pep-

pering away with his slap-jack. He finally hit it, and then we walked back to my home in the city and made a skin of it that evening. On another occasion, one September morning, Collins shot a Philadelphia Vireo from among some willows on the breast of an old dam near his Frankford home. In September of the following year, I shot another of this species at a spot not a quarter of a mile from where Collins captured his bird. This was rather remarkable for a species quite rare in this region. In those days the Dickcissels used to nest in certain fields of timothy and clover about the farm (we called them Black-throated Buntings). Collins and I each got several specimens, but we did not realize how limited was their eastern distribution or how soon they were to vanish from this locality. In May and June the dry, monotonous note of the bird could be heard all day long from fence rail or telegraph wire along the road near these fields. Among many interesting birds secured by Collins in his neighborhood were a female Blue Grosbeak and a Mourning Warbler, the former taken in the fall of 1879. The winter of that year (January and February) was remarkable for great numbers of Red-poll Linnets, of which Collins secured a goodly lot. Through Collins I first heard of S. N. Rhoads, of Haddonfield, N. J., an enthusiastic young ornithologist whose early promise has been amply fulfilled. He it was who first reported the nesting of the Blue-winged Yellow Warbler in Chester County, Pa., as an early contribution to the "Nuttall Bulletin." George Spencer Morris rose on my horizon a little later, though I did not meet him for some years. Both of these ornithologists have made valuable collections, much of Rhoads' material being now in the collection of the Academy. William L. Baily I have known from boyhood, but he was not inoculated with the bird fever until the days when he was a student at Haverford College. I know that he made a good collection, but later dropped the gun for the camera, with which he has done such splendid work. William L. Abbot, I also knew as a frequenter of the Academy, a good field ornithologist and old time collector. I met him one day in the fall of 1890 and told him that I had a fine baby boy. He retorted that he had a fine elephant gun and was just starting for East Africa after big

game. I do not remember having seen him since that day. All of the young ornithologists I have just mentioned made collections of birds around Philadelphia, and these, together with their notes on various species, laid much of the foundation of our present useful data.

Somewhere along in these years I made the acquaintance of Mr. John McIlvaine, a retired lumber merchant of West Philadelphia. He was a delightful old gentleman, and I always remember him as wearing a high silk hat in his own home. He was still collecting birds, which he mounted in remarkably life-like attitudes. William Freedley was another ornithologically-inclined sportsman and egg-collector. About this time, too, I met William F. Lee of West Chester, Pa., who had he lived would have been my brother-in-law. Lee was an artist in taxidermy and a good all-round ornithologist. His collection of mounted birds is still at his mother's home in West Chester. What delightful additions Lee and Collins would have made to our coterie of Club members had they lived, both as ornithologists and as companions!

Witmer Stone and Stewardson Brown were making a fine collection of birds in the Germantown district during the eighties, but I did not meet Stone until he came to the Academy as a Jessup student. I believe that I voice the sentiment of all who know him that he is the bright and particular star in our ornithological firmament, and that the life and vigor of our Club has been in largest measure due to his broad knowledge and untiring zeal.

In later days I came to know Charles J. Pennock, and with him I have renewed my youth and enthusiasm in the field. C. J. is an old-time ornithologist and not much of anything rare and desirable gets into Delaware that gets out again, without leaving a record of itself in the shape of either hide or note. Pennock began his ornithological life away back in the seventies, but his earlier work was largely about Ithaca, N. Y., and Princeton, N. J., and around his home at Kennett Square, Penna.

One other ornithologist I must mention, though he was not of our generation and did not regard himself as an ornithologist—

the late Professor Edward D. Cope. His was a brilliant and widely-ranging mind, of a vast acquirement of knowledge and profound philosophy. He was a pioneer in the study of faunal distribution, and his review of the zoögeographical regions in the "Bulletin" of the U. S. National Museum published in 1875, contained much interesting matter relating to the ranges of various birds. The copy which he presented to me, and which I still have, opened a new field of interest and one to which I have ever since been attracted. Cope edited a small book, "Our Own Birds," written by William Lloyd Baily (an uncle of our Wm. L. Baily). Among Cope's extensive collection of vertebrates was a small collection of bird skins, which had been made by Bernard Hoopes, who like Cope, belonged to the generation before us. I remember this collection as containing several specimens of the Cape May Warbler and, rarest of all, a Bachman's Warbler. This collection is now a part of the Academy of Natural Science's collection.

There must have been many other persons interested in ornithology during these years, but I did not have the good fortune to meet them. That was in the days before The Club. To me, the one great feature of the Club has been the bringing together of men of like tastes and interests—pleasant companions to foregather with at the meetings, where communications and discussions enrich one's mind and fill the days that follow with much fine thinking about birds and men and the background of the world beyond the door-step—of deep woods and tangle-bordered streams, of wind-swept beaches and lonely marshes, of the uplifting hills, and over all the light and dark of the brooding sky—the highway of the bird.

General Notes

RECORDS OF UNUSUAL OCCURRENCES FOR 1912¹

- Holboell's Grebe. Kennett Sq., Pa. (*Pennock*), Feb. 15.
Caspian Tern. Brandywine Cr., Pa. (*Sharpless*), Sept. 27.
Canvasback. Fish House, N. J. (*Potter*), March 23-31.
American Bittern. Haddonfield, N. J. (*Moore*), Jan. 20.
White Egret. Audubon, N. J. (*Tatum*), Sept. 4.
White Egret. West Chester, Pa. (*Brinton*), summer, 1911.
White Egret. Sugar Bridge, Pa. (*De Haven*), July 26, 1911.
Field Plover. Bred Westtown, Pa. (*Rhoads*), spring, 1910.
Semipalmated Plover. Chester, Pa. (*Carter*), May 16.
Semipalmated Plover. Camden, N. J. (*Potter*), May 21-26.
Golden Eagle. Germantown, Pa. (*Windle*), Nov. 1.
Baltimore Oriole. Haddonfield, N. J. (*Moore*), Jan. 16.
Lapland Longspur. Delaware City, Del. (*Pennock*), Feb. 5.
Prothonotary Warbler. Egg Harbor R., N. J. (*Emlen*),
May 4.
Cerulean Warbler. Moorestown, N. J. (*Linton and Mickle*),
May 14.
Yellow Palm Warbler. Moorestown, N. J. (*Hallett*), Dec.
25, 1911.
Mourning Warbler. Westtown, Pa. (*De Haven*), May 25.
Mockingbird. Kennett Sq., Pa. (*Pennock*), Dec. 15-Jan. 4.
Mockingbird. Concordville, Pa. (*Palmer and Styer*), through
winter.

¹These records are unusual either on account of locality or date. For details see Migration Report.

CHRISTMAS LIST, DEC. 25TH, 1912.

Moorestown, N. J. 6:30 a. m. to 7:00 a. m. and 7:50 a. m. to 4:50 p. m. clear; 9 in. snow; wind west, light; 18° (at start).

Duck (species unknown)	9	Goldfinch	6
Great Blue Heron	2	White-thoated Sparrow	64
Bob-white	2	Tree Sparrow	141
Mourning Dove	11	Chipping Sparrow	1
Marsh Hawk	1	Field Sparrow	2
Sharp-shinned Hawk	1	Junco	315
Cooper's Hawk	4	Song Sparrow (singing)	80
Red-tailed Hawk	3	Swamp Sparrow	1
Red-shouldered Hawk	5	Cardinal	13
Sparrow Hawk	3	Northern Shrike (singing)	1
Long-eared Owl	1	Carolina Wren	1
Belted Kingfisher	2	Winter Wren	4
Hairy Woodpecker	3	Brown Creeper	8
Downy Woodpecker	9	White-breasted Nuthatch	5
Yellow-bellied Sapsucker	1	Red-breasted Nuthatch	2
Flicker	4	Tufted Titmouse	5
Horned Lark	9	Chickadee	1
Blue Jay	7	Golden-crowned Kinglet	3
Crow	135	Robin	8
Starling	57	Bluebird	3
Meadowlark (singing)	35		

Total, 41 species, 968 individuals.

JOHN D. CARTER,
M. ALBERT LINTON,
WILLIAM B. EVANS,
GEORGE H. HALLETT, JR.

Report of the Spring Migration of 1912

COMPILED BY WITMER STONE

Forty-nine schedules were returned in 1912. We again thank those who are aiding in this important work and urge them to interest others in the study. Names of capable observers should be sent to Mr. Wm. E. Roberts, Chairman of the D. V. O. C. Migration Committee, Academy of Natural Sciences, Logan Square, Phila., who will furnish schedules or answer inquiries regarding the work.

The record increases in value with each year and should not be allowed to deteriorate. The observers for 1912 were as follows.

New Jersey.

Cape May, H. Walker Hand.
Atlantic City, Norma S. Cromie.
Vineland, Mrs. Alice K. Prince.
Downstown, Wm. W. Fair.
Yardville, Rachel E. Allinson.
Bordentown, Minnie V. Flynn.
Three miles S. E. of Trenton, Richard M. Abbott.
Beverly, J. Fletcher Street.
Bernardsville, J. D. Kuser.
Englewood, W. W. Grant.
Rancocas, Frances B. Stokes and Emily Haines.
Moorestown, Anna A. Mickle.
Moorestown, M. Albert Linton.
Moorestown, Margaret S. Roberts.
Moorestown, Elizabeth A. Roberts.
Moorestown, Agnes M. Wierman.
Haddonfield, Mr. and Mrs. Robert T. Moore.
Camden, Julian K. Potter.

Pennsylvania.

Kennett Square, Charles J. Pennock.
 Concordville, Katherine R. and Elizabeth P. Styer.
 West Chester, Isaac G. Roberts.
 West Chester (near), Mrs. Hugh P. Brinton.
 Westtown, Miss Sarah C. De Haven.
 Swarthmore, Mary S. Pusey.
 Swarthmore, Eleanor A. Bye.
 Swarthmore, Samuel C. Palmer.
 Crum Creek, S. Earl Riddle.
 Lansdowne, John D. Carter.
 Lansdowne, Edwin L. Nicholson.
 Media, Lydia G. Allen.
 Moylan, Benj. F. Whitson.
 Ardmore, Wm. L. Baily.
 Haverford, Wm. J. Serrill.
 Wayne, Mary K. Baker.
 Wayne, Leonard S. Pearson.
 Rosemont, Saml. Scoville, Jr.
 Bryn Mawr, Emily H. Thomas.
 West Philadelphia, Leonard S. Pearson.
 West Philadelphia, Thomas R. Hill.
 Darby, Jesse E. Packer.
 Holmesburg, Henry W. Fowler.
 Frankford, Richard F. Miller.
 Fox Chase, Alexander Patman.
 George School, W. W. Swayne.
 Collegeville, Henry Fox.
 Doylestown, Russell Mason.
 Norristown, Martha Simpson.
 Harrisburg, A. F. and Elizabeth A. Satterthwait.
 Lopez, Otto Behr.

The month of February was marked by temperature slightly below normal. The first half of the month was the colder and snow and ice covered the ground until the 18th. A marked rise in temperature occurred on the 25th bringing numbers of Purple Grackles and Robins. Then the temperature fell, reach-

ing the lowest point March 2-4, with a mean of 24° and snow fall on March 4, 5 and 6. No migration was noted until the 8th when the snow had disappeared and flocks of Red-winged Blackbirds passed north. A gradual rise culminating on the 18th brought many Fox Sparrows, Field Sparrows, Kildeers and Flickers.

A sudden fall brought the mean temperature to 32° on the 21st and more or less rain prevailed. In spite of this a marked rise in temperature culminating on March 29 brought a flight of Flickers, Field, Chipping and Vesper Sparrows.

A marked warm wave on April 6 brought the Hermit Thrushes and one on April 16 the Ruby-crowned Kinglets. The great migration waves of the month however were on the 22d and 27th with but slight rise in temperature and cloudy weather. The former movement consisted of House Wrens, Thrashers, Yellow Palm Warblers, Barn Swallows, Chimney Swifts and Towhees; the latter of Wood Thrushes, Catbirds, Maryland Yellow-throats, Ovenbirds, and Black and White Warblers.

Then came a period of cold rain, the temperature rising again by May 2, and an immense migration of Warblers, etc. on May 3 and 4 then rain until May 9 and the greatest movement of the season on May 11, closing the migration.

The fact brought out in last year's report, that birds moving at the same time are affected in the same way by weather conditions so that early migrants may be late and late migrants early or vice versa, is clearly demonstrated by this year's record as well as the fact that the time of arrival except in the early migrants, which winter just to the south of us, does not vary to any great extent.

These facts may be seen by glancing down the appended list in which the species are arranged in order of their arrival, the dates being the average of eleven years' bulk arrivals at Philadelphia computed in the usual way. The + or - figures represent the number of days that the 1912 dates were earlier or later than the average.

Purple Grackle	Feb. 28	+	1
Robin	Mar. 1	—	5
Meadowlark	" 7	—	8
Fox Sparrow	" 7	—	9
Red-winged Blackbird	" 9	—	5
Flicker	" 14	—	6
Phoebe	" 21	—	2
Cowbird	" 24	—	3
Kingfisher	" 29	—	7
Vesper Sparrow	" 30	—	1
Chipping Sparrow	" 31		0
Sapsucker	Apr. 7	—	2
Hermit Thrush	" 11	+	5
Ruby-crowned Kinglet	" 14		0
Yellow Palm Warbler	" 17		0
Towhee	" 19	—	2
Barn Swallow	" 22	+	1
Bank Swallow	" 23	+	2
Chimney Swift	" 23	+	3
Brown Thrasher	" 23	+	2
House Wren	" 26	—	1
Black and White Warbler	" 26	—	1
Spotted Sandpiper	" 27	—	1
Maryland Yellow-throat	" 28		0
Grasshopper Sparrow	" 29	—	3
Yellow Warbler	" 30	+	2
Catbird	" 30	+	2
Ovenbird	" 30	+	2
Wood Thrush	" 30	+	2
Redstart	May 4	+	2
Black-throated Blue Warbler	" 4		0
Parula Warbler	" 4	+	1
Crested Flycatcher	" 4	+	1
Kingbird	" 5	+	1
Baltimore Oriole	" 5	—	2
Scarlet Tanager	" 6	+	2
Blue-winged Warbler	" 6	+	3
Chestnut-sided Warbler	" 7	+	3

Red-eyed Vireo	"	8	+	3
Chat	"	8	—	3
Rose-breasted Grosbeak	"	8	—	1
Indigobird	"	8	—	2
Magnolia Warbler	"	8	—	3
Bobolink	"	9	—	2
Olive-backed Thrush	"	9	—	2
Hummingbird	"	10		0
Wood Pewee	"	11		0
Yellow-billed Cuckoo	"	11	—	3
Blackpoll Warbler	"	12	+	1
Canada Warbler	"	12	+	1

Two striking features of this spring's migration were the scarcity of Bluebirds and the unusual abundance of Goldfinches in April.

NAME.	Ranocas, N. J. E. 16; N. 4.	Moorestown, N. J. E. 12.	Garden, N. J. N. 0; E. 2.	Media, Pa. S. 3; W. 12.	Swarthmore, Pa. S. 3; W. 10.	Lansdowne, Pa. S. 1; W. 6.	Darby, Pa. S. 4; W. 8.	Haverford— Ardmore, Pa. N. 4; W. 8.	Bryn Mawr— Rosemont, Pa. N. 4; W. 9.	Wayne, Pa. N. 6; W. 11.	West Phila. N. 0; W. 2.	Frankford, Phila. N. 5; E. 5.	Fox Chase, Phila. N. 9; E. 4.	Bulk Arrival, Phila., 1912.
Canada Goose	Feb. 26	Mar. 8	Mar. 24											
Green Heron	May 1	May 3	Apr. 20											Apr. 23
Night Heron		Apr. 14	Apr. 21											
Spotted Sandpiper		Apr. 27	Apr. 28	Apr. 21	Apr. 28	Apr. 25	Apr. 28	May 5		Apr. 28				Apr. 28
Solitary Sandpiper		May 2	May 19	May 4	May 18	May 18	Apr. 26			May 5	May 18			May 3
Killdeer	Mar. 18	Mar. 14	Mar. 24	Apr. 23	Mar. 18	Apr. 25	Mar. 30	Mar. 18		Apr. 12				Mar. 18
Dove	Mar. 18	Apr. 1	Mar. 17		Mar. 23	Apr. 25	Apr. 5	Mar. 23	Mar. 19	Apr. 6				Mar. 23
Osprey		Apr. 11	Apr. 20				Apr. 2	Apr. 7						Apr. 14
Turkey Vulture	Res.	Mar. 29		Mar. 31	Mar. 10	Mar. 15	Apr. 2	Apr. 16	Mar. 19	Apr. 7	May 11			May 14
Yellow-billed Cuckoo	May 9	May 28	May 7		May 5	May 24	May 19	May 25	May 19	May 4				May 15
Black-billed Cuckoo		May 12							May 19	May 25				May 18
Kingfisher	Apr. 13	Mar. 31		Apr. 28	Apr. 5	Mar. 16	Mar. 29	Apr. 5	Apr. 21	Apr. 7	May 4	Res.	Apr. 20	Apr. 5
Yellow-bellied Sapsucker		Apr. 14	Apr. 16	Apr. 14	Apr. 27	Apr. 27	Apr. 26			Apr. 6	May 18		Apr. 1	Apr. 9
Red-headed Woodpecker		Apr. 14	Apr. 16	May 12	May 9	May 9	May 19			May 19	May 18		Apr. 20	Apr. 9
Flicker	Mar. 27	Mar. 20	Mar. 20	Apr. 27	Mar. 19	Mar. 23	Feb. 18		Mar. 19	Mar. 30	Mar. 23	Res.	Mar. 25	Mar. 20
Whip-poor-will	Apr. 30	May 2			Apr. 30	Apr. 30	May 1		Apr. 27	May 26				Apr. 30
Nighthawk		May 16			May 26				May 3		May 9			May 6
Chimney Swift	Apr. 16	Apr. 20	Apr. 21	Apr. 16	Apr. 24	Apr. 24	Apr. 24	Apr. 20	Apr. 1	Apr. 24	Apr. 28	Apr. 20	Apr. 27	Apr. 20
Hummingbird	May 11	May 3		May 20	May 19	Mar. 11			May 12					May 20
Kingbird	May 7	May 3	May 11	May 5	May 1	May 1	May 1	May 4		May 4				May 4
Crested Flycatcher	May 4	Apr. 28	May 4	Apr. 28	May 4	May 4	May 4	May 3	May 3	May 5	May 11	May 1		May 3
Phoebe	Mar. 28		Mar. 23	Mar. 31	Mar. 23	Mar. 23	Mar. 31	Mar. 27	Mar. 19	Mar. 27	Apr. 13	Mar. 23	Apr. 3	Mar. 23

¹ One seen Feb. 20.

DELAWARE VALLEY ORNITHOLOGICAL CLUB.

NAME.	Ranocas, N. J.	Moorestown, N. J.	Camden, N. J.	Media, Pa.	Swarthmore, Pa.	Lansdowne, Pa.	Darby, Pa.	Haverford and Ardmore, Pa.	Bryn Mawr and Rosemont, Pa.	Wayne, Pa.	West Phila.	Frankford, Phila.	Fox Chase, Phila.	Bulk Arrival Phila., 1912.
Wood Pewee	May 11	May 11	May 11	May 12	May 11	May 10	May 3	May 11	May 12	May 5	May 5	May 13	May 21	May 11
Acadian Flycatcher	Apr. 27	Apr. 27	May 8	May 6	May 6	May 6	May 4	Apr. 28	May 18	May 19	May 18	May 15	May 15	Apr. 30
Least Flycatcher	Apr. 28	Apr. 28	May 8	May 6	May 6	May 6	May 4	Apr. 28	May 18	Apr. 28	May 18	May 15	May 15	Apr. 30
Bobolink	May 13	May 13	May 8	May 6	May 6	May 6	May 4	May 19	May 18	May 19	May 18	May 15	May 15	May 11
Cowbird	Mar. 19	Mar. 19	Res.	Mar. 18	Mar. 10	Mar. 17	Apr. 5	Mar. 23	Apr. 7	Mar. 27	Mar. 27	Mar. 23	Apr. 19	Mar. 27
Red-winged Blackbird	Res.	Res.	Res.	Mar. 18	Mar. 10	Mar. 14	Mar. 26	Mar. 16	Mar. 31	Mar. 31	Apr. 6	Mar. 14	Mar. 25	Mar. 14
Meadowlark	Apr. 30	Apr. 30	Res.	Mar. 10	Res.	May 22	Res.	Mar. 16	Mar. 19	Mar. 18	Mar. 16	Mar. 18	Mar. 30	May 6
Orchard Oriole	May 4	May 4	May 3	May 10	May 5	May 4	May 18	May 5	May 9	May 11	May 13	May 7	May 19	May 6
Baltimore Oriole	May 4	May 4	May 3	May 10	May 5	May 4	May 18	May 5	May 9	May 11	May 13	May 7	May 19	May 6
Rusty Blackbird	May 4	May 4	May 3	May 10	May 5	May 4	May 18	May 5	May 9	May 11	May 13	May 7	May 19	May 6
Purple Grackle	Feb. 26	Feb. 26	Mar. 17	Mar. 20	Feb. 25	Feb. 23	Feb. 25	Feb. 16	Mar. 12	Apr. 27	Mar. 23	Mar. 23	Mar. 23	Feb. 27
Vesper Sparrow	Mar. 30	Mar. 27	Mar. 2	Mar. 20	Apr. 5	Feb. 23	Mar. 31	Mar. 30	Mar. 31	Apr. 5	Apr. 15	Mar. 27	Apr. 7	Mar. 31
Savannah Sparrow	May 7	May 2	Mar. 24	Mar. 24	Apr. 21	Apr. 6	Apr. 6	Mar. 30	Mar. 30	Apr. 6	Mar. 17	Mar. 17	Mar. 17	Mar. 31
Grasshopper Sparrow	May 7	May 2	Mar. 24	Mar. 24	Apr. 21	Apr. 6	Apr. 6	Mar. 30	Mar. 30	Apr. 6	Mar. 17	Mar. 17	Mar. 17	Mar. 31
Chipping Sparrow	Mar. 28	Mar. 28	Mar. 31	Mar. 30	Mar. 28	Apr. 2	Apr. 3	Apr. 4	Apr. 19	Mar. 31	Apr. 6	Apr. 1	Apr. 10	Mar. 31
Field Sparrow	Mar. 30	Mar. 31	Mar. 20	Mar. 28	Mar. 17	Mar. 18	Mar. 30	Mar. 30	Mar. 27	Mar. 31	Mar. 23	Mar. 17	Apr. 19	Mar. 27
Swamp Sparrow	May 4	Apr. 27	Mar. 12	Mar. 12	Mar. 31	Mar. 31	Mar. 31	Apr. 20	Mar. 27	Mar. 31	Mar. 23	Mar. 17	Apr. 19	Mar. 27
Fox Sparrow	Mar. 21	Mar. 22	Mar. 20	Mar. 17	Mar. 5	Mar. 20	Mar. 17	Mar. 3	Mar. 30	Apr. 21	Mar. 23	Mar. 17	May 1	Mar. 17
Chewink	Apr. 11	Apr. 27	Apr. 16	Apr. 18	Apr. 21	Apr. 25	Apr. 20	Apr. 28	Mar. 31	Apr. 6	Apr. 21	Apr. 20	May 1	Apr. 21
Rose-breasted Grosbeak	May 7	May 9	May 1	May 17	May 11	May 9	May 5	May 12	May 2	May 11	May 5	May 5	May 9	May 9
Indigobird	May 10	May 10	May 5	May 12	May 5	May 9	May 5	May 5	May 19	May 11	May 18	May 10	May 10	May 10
Scarlet Tanager	May 9	May 10	May 4	May 4	May 4	Apr. 29	May 5	May 11	May 7	May 5	May 18	May 7	May 21	May 5
Purple Martin	Apr. 3	Apr. 3	May 4	May 4	May 4	Apr. 29	May 5	May 11	May 7	May 5	May 18	May 7	May 21	May 5

NAME.	Randoccas, N. J.	Moorestown, N. J.	Camden, N. J.	Media, Pa.	Swarthmore, Pa.	Lansdowne, Pa.	Darby, Pa.	Haverford and Ardmore, Pa.	Bryn Mawr and Rosemont, Pa.	Wayne, Pa.	West Phila.	Frankford, Phila.	Fox Chase, Phila.	Bulk Arrival Phila., 1912.
Cliff Swallow . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	May 1	. . . . .	. . . . .	. . . . .	May 18	Apr. 20	May 7	Apr. 21
Barn Swallow	Apr. 22	Apr. 21	Apr. 21	May 3	Apr. 14	Apr. 11	Apr. 11	Apr. 28	May 19	Apr. 14	Apr. 13	Apr. 13	May 10	Apr. 15
Tree Swallow	Apr. 15	May 2	Apr. 27	. . . . .	Apr. 14	. . . . .	. . . . .	Apr. 13	Apr. 25	. . . . .	. . . . .	May 10	. . . . .	Apr. 15
Bank Swallow . . . . .	. . . . .	. . . . .	Apr. 16	. . . . .	Apr. 21	Apr. 28	Apr. 26	. . . . .	. . . . .	Apr. 21	May 18	Apr. 19	. . . . .	Apr. 21
Rough-winged Swallow	. . . . .	. . . . .	May 5	May 4	Apr. 21	May 9	Apr. 18	Apr. 28	. . . . .	Apr. 28	. . . . .	Apr. 24	. . . . .	Apr. 28
Cedarbird . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	May 25	. . . . .	. . . . .	June 8	Mar. 31	. . . . .	. . . . .	May 23	. . . . .	. . . . .
Red-eyed Vireo	May 4	May 2	May 5	May 4	May 4	May 2	May 4	May 5	May 11	May 4	May 11	May 5	. . . . .	May 4
Warbling Vireo	May 4	May 11	. . . . .	. . . . .	. . . . .	May 10	May 3	May 25	May 3	May 1	. . . . .	May 14	. . . . .	May 4
Yellow-throated Vireo	May 6	May 2	. . . . .	. . . . .	May 5	May 2	May 4	May 3	. . . . .	May 3	May 18	May 13	May 12	May 4
Solitary Vireo . . . . .	. . . . .	May 3	. . . . .	. . . . .	Apr. 28	. . . . .	May 4	Apr. 20	. . . . .	Apr. 28	. . . . .	May 1	. . . . .	Apr. 28
White-eyed Vireo	Apr. 30	Apr. 28	Apr. 27	May 3	May 4	. . . . .	Apr. 26	May 5	. . . . .	. . . . .	. . . . .	May 5	. . . . .	May 2
Black and White Warbler	Apr. 28	Apr. 20	Apr. 20	Apr. 28	Apr. 28	Apr. 26	Apr. 16	Apr. 28	Apr. 28	Apr. 27	Apr. 27	Apr. 30	. . . . .	Apr. 27
Worm-eating Warbler . . . . .	. . . . .	May 12	May 8	. . . . .	May 9	. . . . .	. . . . .	. . . . .	. . . . .	May 11	. . . . .	Apr. 27	. . . . .	Apr. 27
Blue-winged Warbler	May 12	May 5	May 8	May 4	May 4	. . . . .	May 5	May 4	. . . . .	Apr. 28	May 11	May 5	. . . . .	May 4
Parula Warbler	May 7	Apr. 28	Apr. 27	. . . . .	May 5	Apr. 26	May 1	May 5	May 3	May 4	Apr. 27	May 14	. . . . .	May 3
Yellow Warbler	Apr. 26	Apr. 28	Apr. 24	. . . . .	May 5	Apr. 27	Apr. 25	. . . . .	. . . . .	Apr. 28	May 9	May 1	May 10	Apr. 28
Black-throated Blue Warbler	May 11	May 4	May 4	May 12	May 4	May 4	May 2	May 2	May 2	Apr. 28	May 4	May 4	. . . . .	May 4
Myrtle Warbler	Apr. 28	Apr. 21	Apr. 7	May 1	Apr. 21	Apr. 26	Apr. 26	Mar. 17	Apr. 21	Apr. 27	Apr. 27	Apr. 20	. . . . .	Apr. 26
Magnolia Warbler	May 12	May 8	May 15	. . . . .	May 12	May 11	May 4	May 11	May 11	May 11	May 18	May 10	. . . . .	May 11
Chestnut-sided Warbler	May 9	May 4	May 8	. . . . .	May 4	May 4	May 4	May 5	May 12	May 4	May 4	May 10	May 12	May 4
Black-poll Warbler	May 11	May 11	May 19	May 11	May 11	May 11	May 18	May 9	May 12	May 4	May 4	May 18	. . . . .	May 11
Blackburnian Warbler	May 10	May 10	May 8	May 12	May 11	. . . . .	. . . . .	May 4	May 11	. . . . .	May 14	May 1	. . . . .	May 10
Black-throated Green Warbler	Apr. 30	May 4	May 1	. . . . .	May 4	May 4	May 4	May 4	May 2	May 4	May 4	May 10	. . . . .	May 4

Holboell's Grebe, *Colymbus holboelli*. Kennett Square, one killed, February 15 (*Pennock*).

Horned Grebe, *Colymbus auritus*. Fish House, N. J., April 20 (*Potter*).

Pied-billed Grebe, *Podilymbus podiceps*. Delaware River at Riegelsville, March 30 (*Carter*); Fish House, N. J., March 31–April 6 (*Potter*); George School, April 1 (*Swayne*); Beverly, April 9 (*Street*); Maurice River, N. J., Oct. 12 (*Prince*).

Loon, *Gavia immer*. Petty's Island, N. J., one shot February 21 (*Miller*); Fish House, N. J., May 4–5 (*Potter*).

Herring Gull, *Larus argentatus*. Bridesburg, September 1–May 19 (*Miller*); Delaware River, Oct. 4 to May 25 (*Mickle*); Oct. 12 to May 13 (*Potter*); one at Swarthmore, March 23 (*Palmer*); up the Delaware as far as Holland, March 29 (*Carter*); five flying northeast over Darby, April 6 (*Packer*); Yardville, N. J., one, April 14 (*Allinson*).

Caspian Tern, *Sterna caspia*. Two shot on the Brandywine at Lenape, Chester Co., Pa., September 28 (*R. P. Sharples*).

Common Tern, *Sterna hirundo*. Four on Delaware at Chester, May 17 (*Carter*); Fish House, N. J., May 7, 9 and 12, one or two each day (*Miller*).

Wilson's Petrel, *Oceanites oceanicus*. Cross Ledge Light, Delaware Bay, many flying about fishing boats, July 4 (*Prince*).

Merganser, *Mergus americanus*. Fish House, N. J., Feb. 12–May 25 (*Potter*); Schuylkill River, Phila., January 2–February 24 (*Fowler*); Buckshutem, N. J., May 28 (*Prince*).

Black Duck, *Anas rubripes*. A pair, Rancocas, N. J., January 31 (*F. B. Stokes*).

Green-winged Teal, *Nettion carolinense*. Doylestown, March 30 (*Mason*).

Pintail, *Dafla acuta*. Fish House, N. J., large flocks, February 21 (*Miller*).

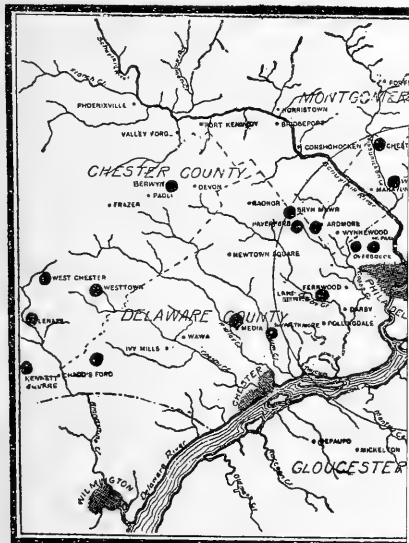
Wood Duck, *Aix sponsa*. Holmesburg, April 9 (*Miller*); Doylestown, May 14 (*Mason*).

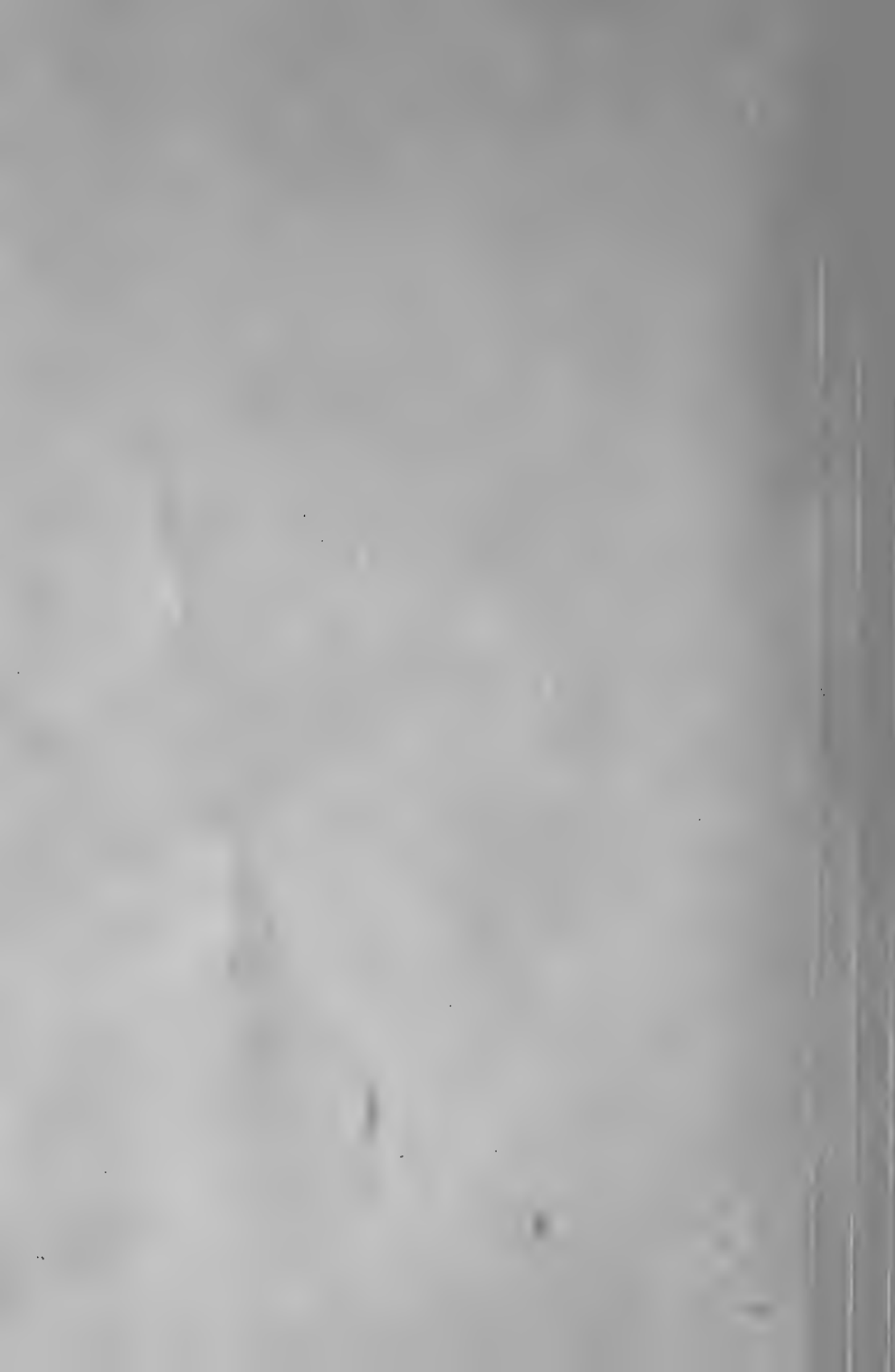
Redhead, *Marila americana*. Pensauken Creek, N. J., common, November 4–5 (*Miller*); Fish House, N. J., March 23–May 10 (*Potter*).

Canvasback, *Marila valisineria*. Fish House, N. J., March 23–31 (*Potter*).

NAMES.

	Cape May, N. J. E. 13; S. 72.	Atlantic City, N. J. E 42; S. 42.
Flicker.....	Mar. 27	Mar. 31
Whip-poor-will.....	Apr. 19	.....
Nighthawk.....	.....	.....
Chimney Swift.....	Apr. 25	.....
Hummingbird.....	May 9	.....
Kingbird.....	Apr. 22	May 11
Crested Flycatcher...	.....	.....
Phoebe.....	Apr. 5	.....
Bobolink.....	.....	.....
Cowbird.....	.....	Jan. 13
Red-winged Blackbird..	Feb. 21	Mar. 17
Baltimore Oriole.....	May 8	May 10
Purple Grackle.....	Feb. 27	.....
Chipping Sparrow.....	Apr. 5	.....
Chewink.....	Mar. 27	Apr. 21
Indigobird.....	Apr. 22	.....
Scarlet Tanager.....	Apr. 30	May 12
Purple Martin.....	Apr. 2	.....
Barn Swallow.....	Apr. 5	.....
Red-eyed Vireo.....	.....	May 11
Black and White Warbler..	Apr. 28	Apr. 7
Chestnut-sided Warbler.....	.....	May 19
Ovenbird.....	.....	May 7
Maryland Yellow-throat. .	Apr. 25	Apr. 25
Chat.....	.....	.....
Catbird.....	Apr. 30	Apr. 28
Brown Thrasher.....	Apr. 5	.....
House Wren.....	Apr. 28	.....
Wood Thrush.....	.....	Apr. 27
Hermit Thrush.....	.....	Apr. 20
Robin.....	.....	Jan. 7
Bluebird.....	.....	Apr. 7





NAMES.

	Cape May, N. J. E. 13; S. 72.	Atlantic City, N. J. E. 42; S. 42.	Vineyard, N. J. E. 7; S. 32.	Downtown, N. J. E. 11; S. 28.	Kennett Square, Pa. W. 30; S. 8.	Concordville, Pa. W. 20; S. 5.	West Chester, Pa. W. 24; N. 0.	Westtown, Pa. W. 21; S. 2.	Bortletown, N. J. E. 25; N. 13.	Yardville, N. J. E. 23; N. 15.	Trenton, N. J. E. 23; N. 16.	Brynardsville, N. J. E. 30; N. 54.	Englewood, N. J. E. 60; N. 63.	George School, Pa. E. 11; N. 18.	Doyletown, Pa. E. 1; N. 26.	Collegeville, Pa. W. 16; N. 16.	Norristown, Pa. W. 10; N. 10.	Harrisburg, Pa. W. 87; N. 20.	Lopez, Pa. W. 60; N. 103.
Flicker.....	Mar. 27	Mar. 31	Mar. 10	Mar. 28	.....	Mar. 20	Mar. 27	Mar. 29	Mar. 17	Res.	Mar. 27	Apr. 13	Apr. 27	Mar. 7	Res.	Mar. 27	.....	Apr. 28	Apr. 30
Whip-poor-will.....	Apr. 19	.....	Apr. 25	Apr. 25	.....	Apr. 26	May 9	.....	.....	May 10	.....	May 18	May 18	May 4	.....	May 25	.....	Apr. 28	Apr. 30
Nighthawk.....	.....	.....	.....	.....	.....	.....	May 18	.....	.....	May 18	.....	May 18	May 18	May 4	.....	May 25	.....	May 1	.....
Chimney Swift.....	Apr. 25	.....	Apr. 22	Apr. 27	Apr. 16	Apr. 14	Apr. 11	Apr. 24	Apr. 12	Apr. 28	Apr. 25	May 1	Apr. 23	Apr. 16	Apr. 14	Apr. 22	May 5	Apr. 15	May 4
Hummingbird.....	May 9	.....	May 9	.....	May 7	.....	May 10	May 4	May 8	May 17	May 2	May 11	.....	May 9	May 5	.....	.....	.....	May 20
Kingbird.....	Apr. 22	May 11	Apr. 28	May 5	.....	Apr. 26	May 11	May 11	Apr. 20	May 16	May 10	May 4	May 12	May 4	Apr. 28	.....	May 5	May 26	May 11
Crested Flycatcher.....	.....	.....	May 7	May 4	.....	May 4	May 2	May 10	Apr. 25	May 4	May 2	May 8	May 12	May 3	May 4	May 10	May 5	May 19	.....
Phoebe.....	Apr. 5	.....	Mar. 18	.....	.....	Mar. 20	Mar. 19	Mar. 23	Apr. 1	Mar. 20	Mar. 28	Apr. 20	Mar. 30	Mar. 30	Mar. 30	Mar. 30	Mar. 31	May 26	Mar. 31
Bobolink.....	.....	.....	May 8	.....	.....	May 11	May 7	.....	.....	.....	.....	May 11	May 12	May 5	May 11	May 15	May 10	.....	May 18
Cowbird.....	.....	Jan. 13	Apr. 3	.....	.....	Mar. 20	Mar. 28	May 11	Feb. 27	May 26	Apr. 17	.....	Apr. 28	Apr. 2	Mar. 15	May 6	.....	.....	May 4
Red-winged Blackbird.....	Feb. 21	Mar. 17	Feb. 19	Feb. 27	Mar. 17	Feb. 23	Mar. 14	Mar. 27	Mar. 15	Mar. 16	Feb. 25	Apr. 25	Apr. 25	Mar. 11	Feb. 23	Mar. 19	Apr. 5	May 26	Mar. 18
Baltimore Oriole.....	May 8	May 10	Apr. 30	.....	.....	May 14	May 2	May 6	May 1	May 12	May 6	May 2	May 10	May 9	May 4	May 6	May 5	May 3	May 10
Purple Grackle.....	Feb. 27	.....	Feb. 19	Mar. 20	Mar. 14	Feb. 23	Jan. 25	Feb. 24	Apr. 25	Feb. 15	Feb. 26	Apr. 13	Mar. 9	Mar. 9	Feb. 25	Mar. 13	Feb. 25	Apr. 2	.....
Chipping Sparrow.....	Apr. 5	.....	Apr. 5	Mar. 28	Apr. 6	Mar. 30	Mar. 30	Apr. 1	Apr. 2	Mar. 31	Apr. 1	Apr. 20	Mar. 21	Mar. 31	Apr. 5	Apr. 15	.....	Apr. 28	Apr. 16
Chewink.....	Mar. 27	Apr. 21	Apr. 22	Apr. 21	.....	Apr. 26	Apr. 28	May 7	Apr. 20	Apr. 24	Apr. 2	Apr. 27	Apr. 21	May 1	Apr. 28	Apr. 28	May 5	Apr. 28	May 1
Indigobird.....	Apr. 22	.....	May 7	.....	.....	May 11	May 10	May 10	May 8	May 9	May 11	May 11	May 12	.....	May 5	May 15	.....	May 19	May 17
Scarlet Tanager.....	Apr. 30	May 12	May 12	May 12	.....	Apr. 27	May 1	May 11	May 2	May 12	Apr. 28	May 10	May 17	May 10	May 4	May 10	May 19	.....	May 21
Purple Martin.....	Apr. 2	.....	Apr. 7	May 12	.....	Apr. 25	Mar. 30	May 5	Apr. 19	May 19	.....	May 13	May 2	.....	Mar. 30	.....	Apr. 16	Apr. 11	.....
Barn Swallow.....	Apr. 5	.....	Apr. 22	Apr. 4	Apr. 16	Apr. 14	Apr. 15	Apr. 20	Apr. 19	Apr. 26	Apr. 21	Apr. 21	Apr. 23	Apr. 21	Apr. 28	Apr. 23	Apr. 20	.....	Apr. 17
Red-eyed Vireo.....	.....	May 11	May 9	May 12	Apr. 27	May 2	May 6	May 7	May 1	May 12	.....	May 11	May 9	May 6	May 8	May 9	May 5	May 26	May 20
Black and White Warbler.....	Apr. 28	Apr. 7	Apr. 26	Apr. 21	.....	Apr. 25	Apr. 19	May 6	Apr. 28	Apr. 28	Apr. 25	May 3	Apr. 27	May 1	May 2	May 5	.....	May 5	May 4
Chestnut-sided Warbler.....	.....	May 19	.....	.....	May 10	May 14	May 6	.....	.....	.....	May 8	May 4	May 5	.....	.....	.....	.....	.....	May 6
Ovenbird.....	.....	May 7	May 20	May 3	Apr. 28	Apr. 25	Apr. 30	May 3	May 1	May 14	May 10	May 4	Apr. 27	Apr. 30	Apr. 28	.....	May 5	.....	May 5
Maryland Yellow-throat.....	Apr. 25	Apr. 25	May 7	Apr. 21	Apr. 28	Apr. 27	May 1	May 6	May 2	Apr. 21	Apr. 20	May 4	May 2	Apr. 28	May 4	May 5	May 5	May 3	May 6
Chat.....	.....	.....	May 7	May 19	.....	May 4	May 3	.....	.....	May 9	May 6	May 11	May 18	.....	May 5	.....	.....	.....	.....
Catbird.....	Apr. 30	Apr. 28	Apr. 28	May 19	May 2	Apr. 27	Apr. 23	May 3	Apr. 20	May 2	Apr. 27	Apr. 30	May 11	Apr. 30	Apr. 28	Apr. 28	May 5	May 4	May 6
Brown Thrasher.....	Apr. 5	.....	Apr. 23	Apr. 24	Apr. 21	Apr. 14	Apr. 20	Apr. 22	Apr. 10	Apr. 22	Apr. 17	Apr. 30	Apr. 28	Apr. 19	Apr. 18	Apr. 28	Apr. 21	Apr. 28	May 4
House Wren.....	Apr. 28	.....	May 2	May 3	Apr. 28	Apr. 11	Apr. 22	Apr. 27	Apr. 28	May 3	May 1	May 2	Apr. 27	May 19	Apr. 26	Apr. 28	May 4	May 1	May 4
Wood Thrush.....	.....	Apr. 27	Apr. 28	May 12	May 1	Apr. 27	Apr. 24	May 5	May 1	May 3	Apr. 26	Apr. 30	Apr. 28	Apr. 30	May 4	May 1	May 5	May 3	May 9
Hermit Thrush.....	.....	Apr. 20	Apr. 19	.....	Apr. 16	.....	Apr. 20	.....	.....	.....	.....	.....	Jan. 1	Apr. 21	Apr. 18	.....	.....	.....	Apr. 16
Robin.....	Jan. 7	Res.	Jan. 17	Mar. 17	Feb. 20	Feb. 14	Feb. 24	.....	Res.	Res.	Res.	Res.	Jan. 1	Mar. 7	Res.	May 29	Mar. 18	Apr. 1	Mar. 26
Bluebird.....	Apr. 7	.....	Mar. 18	Feb. 24	Mar. 17	.....	Feb. 27	Mar. 19	Res.	Res.	Res.	Res.	Mar. 30	Mar. 17	.....	Feb. 25	May 4	Mar. 30	.....

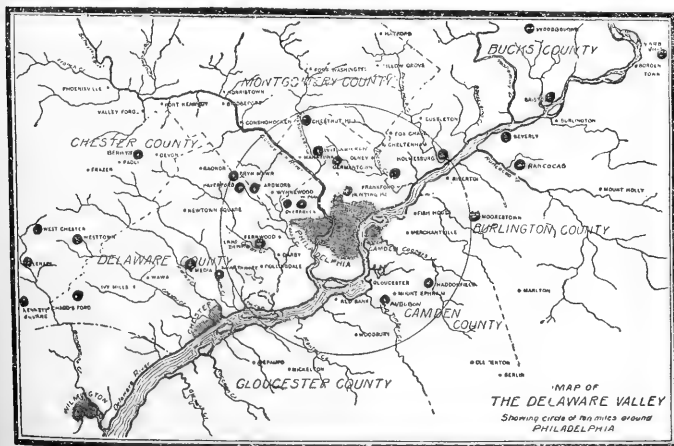
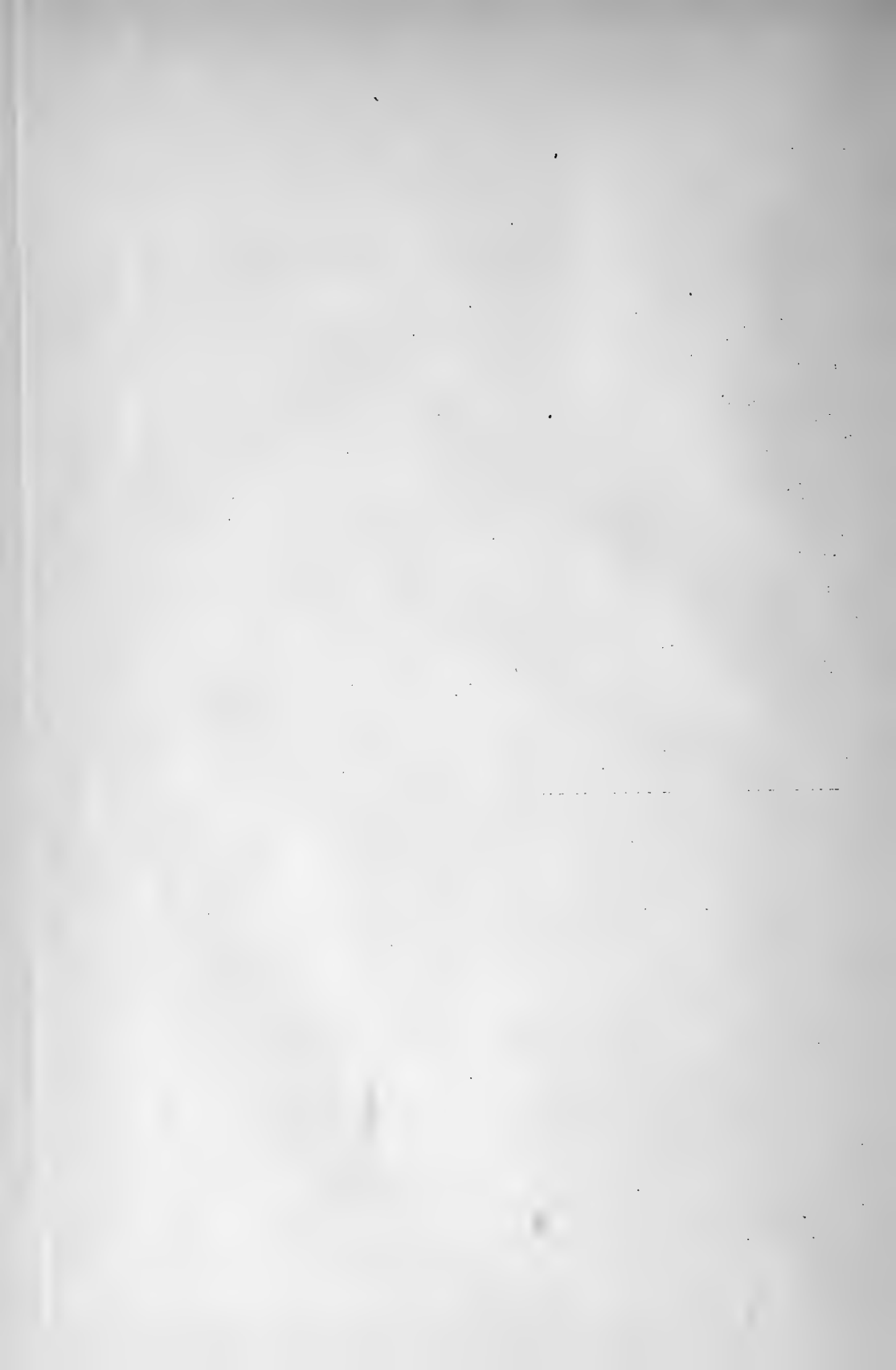


TABLE II.

SPRING MIGRATION, 1912.

EARLIEST DATES OF ARRIVAL OF THIRTY-TWO SPECIES AT NINETEEN STATIONS OUTSIDE THE PHILADELPHIA CIRCLE.



Scaup, *Marila marila*. Fish House, N. J., March 3–May 25 (*Potter*); Maurice River, Buckshutem, N. J., a pair, May 18 (*Prince*).

Goldeneye, *Clangula clangula americana*. Fish House, N. J., March 23 (*Potter*).

Ruddy Duck, *Erismatura jamaicensis*. Maurice River, Oct. 20 and July 3 (*Prince*).

Greater Snow Goose, *Chen hyperboreus nivalis*. Flock of five at Cape May, N. J., February 25 (*Hand*).

Whistling Swan, *Olor columbianus*. Trenton, N. J., two on April 27 (*Abbott*).

Bittern, *Botaurus lentiginosus*. Shores of Maurice River, N. J., November 3–May 17 and all summer (*Prince*); Haddonfield, N. J., one caught alive, January 20 (*Moore*); Wayne, one on April 21 and May 5 (*Pearson*); Pensauken, N. J., April 20 (*Potter*); Cape May, N. J., May 8 (*Hand*); Yardville, N. J., May 4 (*Allinson*); Trenton, N. J., April 11 (*Abbott*); Moorestown, N. J., May 3 (*Mickle*).

Least Bittern, *Ixobrychus exilis*. Camden, N. J., June 24 (*Potter*). None in Richmond marsh this year, a few at Bridesburg (*Miller*).

Great Blue Heron, *Ardea herodias herodias*. Moorestown, N. J., April 14 (*Mickle*); George School, April 2 (*Swayne*); Holmesburg, May 10, and Bethayres, May 15 (*Miller*).

White Egret, *Herodias egretta*. One on Newton Creek near Audubon, N. J., September 4 (*J. W. Tatum*); One on the Brandywine near West Chester for two weeks during summer of 1911 (*Brinton*); Probable the same one seen July 26 and on several other occasions, near Sugar Bridge, W. Bradford Twp. (*S. C. De Haven*).

Little Blue Heron, *Florida caerulea*. South Vineland, N. J., two seen and one examined which was killed by camper, Aug. 13, 1911 (*Potter*).

Clapper Rail, *Rallus crepitans crepitans*. Arrived Maurice River, N. J., April 5 (*Prince*); Avalon, N. J., eggs May 30 (*Miller*).

Sora, *Porzana carolina*. Buckshutem, N. J., September 14 (*Prince*).

Florida Gallinule, *Gallinula galeata*. Moorestown, N. J. Male found dead May 4 (*Mickle*); Richmond, nest and ten highly incubated eggs June 1; Bridesburg, nest with eight eggs June 12 (*Miller*).

Coot, *Fulica americana*. Caught in dense fog, Aramingo, November 11 (*Miller*).

Woodcock, *Philohela minor*. Cape May, N. J., scarce only saw 7 or 8 during the entire spring (*Hand*); Maurice River, April 25 (*Prince*); George School, April 13 (*Swayne*).

Wilson's Snipe, *Gallinula delicata*. Arrived Cape May, N. J. March 17, large flight May 7 and 8 (*Hand*); Barnegat, N. J. April 8 (*Pearson*); Beverly, N. J., April 7 (*Street*); Tinicum and Bridesburg, March 23 (*Miller*).

Least Sandpiper, *Pisobia minutilla*. Cape May, N. J., May 8 (*Hand*); Camden, N. J., May 8–May 26 (*Potter*); Bridesburg, May 18 (*Miller*); Doylestown, May 5 (*Mason*).

Semipalmated Sandpiper, *Ereunetes pusilla*. Camden, N. J., May 19 (*Potter*).

Field Plover, *Bartramia longicauda*. Bred at Westtown, Spring 1910 (*S. N. Rhoads*).

Hudsonian Curlew, *Numentus hudsonicus*. Cape May, N. J., April 14 and May 21 (*Hand*).

Greater Yellow-legs, *Totanus melanoleucus*. Pensauken Creek, N. J., May 4 (*Miller*).

Willet, *Catoptrophorus semipalmatus semipalmatus*.¹ Cape May, N. J., March 22, also flocks August 20–24, 1911 (*Hand*); Cape May, N. J., one Aug. 27, 1911 (*Potter*).

Black-bellied Plover, *Squatarola squatarola*. Cape May, N. J., May 8 and 21 (*Hand*).

Killdeer, *Oxyechus vociferus*. Buckshutem, N. J., some remained all winter (*Prince*); Pensauken, N. J., common November 4 and 5, and two pair bred at Holmesburg (*Miller*).

Semipalmated Plover, *Aegialitis semipalmata*. Three flying up Delaware River at Chester, May 16, weather foggy, wind N. E. (*Carter*); Camden, N. J., two frequented a meadow May 21–May 26 (*Potter*).

¹ Western Willet, *C. s. inornatus*?

Bob-white, *Colinus virginianus virginianus*. Plentiful at Cape May, N. J., keeping to the woods feeding on acorns (*Hand*).

Mourning Dove, *Zenaidura macroura carolinensis*. Moorestown, December 25, 1911 (*Hallett*).

Marsh Hawk, *Circus hudsonius*. Doylestown, November 11 and April 5 (*Mason*).

Cooper's Hawk, *Accipiter cooperi*. Gladwyn, eggs May 13 (*Miller*).

Red-tailed Hawk, *Buteo borealis borealis*. Camden, N. J., last seen March 2 (*Potter*).

Red-shouldered Hawk, *Buteo lineatus lineatus*. Camden, N. J., last seen March 3 (*Potter*).

Broad-winged Hawk, *Buteo platypterus*. Wayne, arrived April 21 (*Pearson*); Darby, one on April 25 (*Packer*); Holmesburg, nest with two eggs, May 20 (*Miller*); pair bred at Gladwyn (*Miller*).

Rough-legged Hawk, *Archibuteo lagopus sanctijohannis*. Tinicum, March 23, and Holmesburg, March 27 (*Miller*); one at Castle Rock, April 5 (*Riddle*); one on Darby Creek, April 20 (*Baily*).

Bald Eagle, *Haliaeetus leucocephalus leucocephalus*. Gathering nesting material, Dennis Creek, Cape May Co., N. J., April 5 (*Hand*); Buckshutem, N. J., May 28, taking fish from Osprey (*Prince*); Beverly, May 30 (*Street*); Holmesburg, November 2 (*Fowler*); seen January 10, 1911, near Strood's Mill, E. Bradford Twp., Chester Co., Pa., afterwards shot (*S. C. DeHaven*); Bernardsville, N. J., May 31 (*Kuser*).

Golden Eagle, *Aquila chrysaetos*. One shot at Germantown, November 1; and examined by Francis Windle.

Barn Owl, *Aluco pratincola*. Camden, N. J., Jan. 11, 1912 (*Potter*); Lansdowne, January 1 and March 26 (*Carter*); Huntingdon Valley, May 15 (*Miller*).

Long-eared Owl, *Asio wilsonianus*. George School, one found dead, February 16 (*Swayne*).

Barred Owl, *Strix varia varia*. Pensauken, N. J., Oct. 13, 1911 (*Potter*).

Saw-whet Owl, *Cryptoglaux acadica acadica*. Camden, N. J., Dec. 3, 1911 (*Potter*).

Yellow-billed Cuckoo, *Coccyzus americanus americanus*. Cheltenham, eggs, May 31 (*Miller*).

Black-billed Cuckoo, *Coccyzus erythrophthalmus*. Moorestown, N. J., Aug. 8, 1911, found dead (*Mickle*).

Belted Kingfisher, *Ceryle alcyon alcyon*. Holmesburg, January 23 (*Miller*).

Hairy Woodpecker, *Dryobates villosus villosus*. Camden, N. J., nested (*Potter*); Moorestown, N. J., May 3 (*Mickle*); two nests with eggs, Holmesburg, May 1 (*Miller*).

Downy Woodpecker, *Dryobates pubescens medianus*. Nest with eggs Holmesburg, May 10 (*Miller*).

Yellow-bellied Sapsucker, *Sphyrapicus varius varius*. Doylestown, January 7 (*Mason*).

Red-headed Woodpecker, *Melanerpes erythrocephalus*. Kennett Sq., January 23, one (*Pennock*); Buckshutem, N. J., young bird November 3 (*Prince*).

Flicker, *Colaptes auratus luteus*. Doylestown, seen all winter (*Mason*); Holmesburg, January 24 and February 26 (*Fowler*); Ardmore, January 14 (*Baily*); Haverford, January 27 (*Serrill*); Vineland, N. J., a few all winter (*Prince*); Holmesburg, January 23 (*Miller*).

Chimney Swift, *Chaetura pelagica*. Moorestown, N. J., Oct. 7, 1911 (*Mickle*).

Ruby-throated Hummingbird, *Archilochus colubris*. Bustleton, nest and eggs June 22 (*Miller*).

Phoebe, *Sayornis phoebe*. Frankford, December 13 (*Miller*).

Acadian Flycatcher, *Empidonax acadicus*. Bustleton, eggs June 12 (*Miller*).

Horned Lark, *Otocoris alpestris alpestris*. Six at Rancocas, N. J., January 29, 30 (*Stokes and Haines*); Camden, N. J., flock of 20, Feb. 12 (*Potter*); Kennet Sq., flock of 10, January 5 (*Pennock*); Concordville, January 4 (*Styer*); Flock of 75 at Villa Nova, January 14 (*Baily*); flock of 17 at Darby, February 9 (*Packer*); Doylestown, flock on January 1 (*Mason*); Delaware City, Del., February 5 (*Pennock*).

Blue Jay, *Cyanocitta cristata cristata*. Camden, N. J., two Jan. 14 (*Potter*); Trenton, N. J., one March 11, common in April; none during winter (*Abbott*); occasional at Wayne until

April, then common (*Pearson*); Frankford, none from October until April (*Miller*); none until March 30 at Media (*Allen*); none at Swarthmore until March 16 (*Palmer*); Darby not until April 15 (*Packer*).

Crow, *Corvus brachyrhynchos brachyrhynchos*. Young hatched April 20 Frankford (*Miller*).

Fish Crow, *Corvus ossifragus*. Pensauken Creek, N. J., eggs May 19 (*Miller*).

Starling, *Sturnus vulgaris*. Abundant all winter in north-eastern Philadelphia, and twenty nests were found in late April and May, usually in Flickers' holes. Young hatched by May 10, second sets laid after middle of June (*Miller*); George School, present all winter, increasing in numbers, several nests (*Swayne*); Phoenixville, two June 9 and breeding at Wayne May 1 (*Pearson*); four at Yardville, N. J., in autumn and early spring (*Allinson*); Westtown, occasionally since January 3, at one time a flock of 20 (*S. C. De Haven*); Holmesburg, flock all winter (*Fowler*); Swarthmore, appeared for the first time January 6 (*Palmer*); Cape May, N. J., nesting March 8 (*Hand*).

Bobolink, *Dolichonyx oryzivorus*. Moorestown, N. J., August 15, 1911 (*Mickle*).

Cowbird. Atlantic City, N. J., January 13 (*Cromie*).

Baltimore Oriole, *Icterus galbula*. One found dead at Haddonfield, N. J., January 16, 1912 (*R. T. Moore*).

Meadowlark, *Sturnella magna magna*. Nest with young just hatching, Mt. Moriah, May 26 (*Hill*).

Purple Grackle, *Quiscalus quiscula quiscula*. Holmesburg, January 22 (*Fowler*).

Purple Finch, *Carpodacus purpureus purpureus*. West Chester, September 10 to April 11, large flocks March 2 to April 11 (*Roberts*); flocks observed at Rosemont February 24, March 3, 10 and 17 (*Scoville*); very common at Haddonfield, N. J., November to January (*Moore*); Doylestown, flock of 11, February 23 (*Mason*); Wayne, March 30–May 11 (*Pearson*); Trenton, N. J., Feb. 9 to April 25 (*Abbott*); Bernardsville, N. J., April 24 (*Kuser*); Moorestown, N. J., Feb. 1–April 7 (*Wierman*); Camden, N. J., Dec. 5 and April 16 (*Potter*); three at Swarthmore January 28 (*Palmer*); Lansdowne, April 20 (*Nicholson*);

Kennett Square, February 4, six (*Pennock*); Concordville, March 5 (*Styer*).

Crossbill, *Loxia curvirostra minor*. George School, January 27, one bird (*Swayne*); four at Media, January 29 (*Allen*); three at Swarthmore, April 30 (*Palmer*); Germantown, February 1 (*F. R. Cope, Jr.*).

Lapland Longspur, *Calcarius lapponicus lapponicus*. Delaware City, Del., specimens obtained February 5, 1912 (*Pennock*).

Redpoll, *Acanthis linaria linaria*. Trenton, N. J., February 13 (*Abbott*); Doylestown, January 1 and February 4 (*Mason*); Rancocas, N. J., January 16 (*Haines*); flock of fifteen, Haddonfield, N. J., January 5-13 (*Moore*).

Goldfinch, *Astragalinus tristis tristis*. Harrisburg, flock of 50 to 100, May 3 to 5, and abundant for three weeks (*Satterthwait*); common after April 6 (*Pearson*); exceptionally abundant in early May at Ardmore (*Baily*); not common at Swarthmore until end of April (*Palmer*); unusually abundant at Downtown, N. J. (*Fair*); unusually plentiful at Yardville, N. J. (*Allinson*).

Pine Siskin, *Spinus pinus*. Doylestown, November 18 and February 23 (*Mason*); irregular, Nov. 19 to Feb. 22, on Upper Crum Creek, Delaware Co., Pa. (*Riddle*); two or three feeding on dandelion seeds, Swarthmore, April 26, 27 and 30 (*Palmer*); Wayne, several, April 27 (*Pearson*); West Chester, March 30 and May 15 (*Roberts*).

Henslow's Sparrow, *Passerherbulus henslowi henslowi*. Buckshutem, N. J., arrived May 7 (*Prince*).

Sharp-tailed Sparrow, *Passerherbulus caudacutus*. Avalon, N. J., eggs, May 30 (*Miller*).

Seaside Sparrow, *Passerherbulus maritimus maritimus*. Mouth of Maurice River, N. J., May 16, last seen 1911 on October 19 (*Prince*); Avalon, N. J., eggs, May 30 (*Miller*).

White-crowned Sparrow, *Zonotrichia leucophrys leucophrys*. Darby, one on May 19 (*Packer*); Concordville, May 11 (*Styer*); Holmesburg, May 10 (*Miller*).

White-throated Sparrow, *Zonotrichia albicollis*. Vineland, N. J., September 29-May 8 (*Prince*); Moorestown, N. J., Sept. 20 to May 15 (*Wierman*); Crum Creek, October 1-May 12

(*Riddle*); Frankford, September 27–May 15 (*Miller*); Westtown, September 19–May 6 (*S. C. De Haven*); West Chester, March 28–May 10 (*Roberts*); Wayne, March 30–May 12 (*Pearson*); last seen Swarthmore May 4 (*Palmer*); Lansdowne, April 20 (*Nicholson*); Camden, N. J., May 10 (*Potter*); George School, May 1 (*Swayne*); Harrisburg, May 19 (*Satterthwait*).

Tree Sparrow, *Spizella monticola monticola*. Westtown, December 25–March (*S. C. De Haven*); arrived at Doylestown November 18, Frankford November 5 (*Miller*); last seen at Darby March 31 (*Packer*); Crum Creek, Dec. 24–March 10 (*Riddle*); Camden, N. J., March 23 (*Potter*); West Chester, March 27 (*Roberts*).

Junco, *Junco hyemalis hyemalis*. Moorestown, N. J., Sept. 20 to May 1 (*Wierman*); Westtown, September 27–April 11 (*S. C. De Haven*); West Chester, October 9–April 17 (*Roberts*); Crum Creek, October 8–April 28 (*Riddle*); Lansdowne until April 12 (*Nicholson*); Holmesburg until April 13 (*Fowler*); Frankford, October 10–April 26 (*Miller*); Doylestown, October 8–May 5 (*Mason*); Downstown, N. J., October 15–April 14 (*Fair*); Yardville, N. J., October 25–April 24 (*Allinson*); last seen Darby, April 28 (*Packer*); Concordville, April 28 (*Styer*); Camden, N. J., April 28 (*Potter*); Trenton, N. J., April 21 (*Abbott*).

Swamp Sparrow, *Melospiza georgiana*. Bridesburg, eggs May 16 (*Miller*).

Fox Sparrow, *Passerella iliaca iliaca*. Atlantic City, N. J., January 21 (*Cromie*).

Chewink, *Pipilo erythrophthalmus erythrophthalmus*. Camden, N. J., Dec. 24, 1911 (*Potter*); Cape May, N. J., some all winter (*Hand*).

Cardinal, *Cardinalis cardinalis cardinalis*. George School, April 1 (*Swayne*); one pair in Elmwood Park, Norristown (*Simpson*); Wayne, regular resident, but local (*Pearson*); Concordville, rather more than usual (*Styer*); Vineland, young just left nest May 8 (*Prince*).

Rose-breasted Grosbeak, *Zamelodia ludoviciana*. Eddington, nest and three half-grown young June 9 (*Miller*).

Scarlet Tanager, *Piranga erythromelas*. Busleton, nest and three eggs June 18 (*Miller*).

Purple Martin, *Progne subis subis*. Moorestown, N. J., Sept. 3 (*Mickle*).

Tree Swallow, *Iridoprocne bicolor*. Avalon, N. J., eggs May 30 (*Miller*).

Red-eyed Vireo, *Vireo olivaceus*. Fox Chase, eggs June 6 (*Miller*).

Northern Shrike, *Lanius borealis*. One at Milford, N. J., November 30, 1911 (*Moore*); one at Beverly, N. J., February 10 (*Beatty*); Moorestown, N. J., March 17 (*Mickle*); Kennett Square, one on January 23 (*Pennock*); Westtown, one seen several times in January (*S. C. De Haven*); one at Swarthmore January 28 (*Palmer*); Frankford, December 13, November 17 (*Miller*).

Migrant Shrike, *Lanius ludovicianus migrans*. New London, Chester Co., September 3, and Landenburg, October 14, one bird each time (*Roberts*).

Black and White Warbler, *Mniotilta varia*. Wissahickon, young left nest June 15 (*Miller*):

Worm-eating Warbler, *Helmitheros vermivorus*. Wissahickon, nest and four eggs, June 4 (*Miller*).

Prothonotary Warbler, *Protonotaria citrea*. Seen on Egg Harbor River, May 4, and positively identified (*A. C. Emlen*).

Blue-winged Warbler, *Vermivora pinus*. Cape May Court House, May 25, and nest and eggs at Bustleton, May 23 (*Miller*).

Golden-winged Warbler, *Vermivora chrysoptera*. Kennett Square, May 10 (*Pennock*); Darby, one on May 4 and May 11 (*Packer*); Doylestown, May 6 (*Mason*); Holmesburg, May 10; Bethayres, May 15 (*Miller*).

Nashville Warbler, *Vermivora rubricapilla rubricapilla*. Doylestown, May 3 (*Mason*); Moorestown, N. J., May 4 (*Linton*); West Chester, May 4 (*Roberts*).

Tennessee Warbler, *Vermivora peregrina*. West Chester, May 2, one only (*Roberts*).

Cape May Warbler, *Dendroica tigrina*. Moorestown, N. J., May 11 (*Mickle*); unusually common and seen on four different days (*Linton*); Westtown, May 10, several (*S. C. DeHaven*).

Yellow Warbler, *Dendroica aestiva aestiva*. Building at Vine-land, N. J., May 18 (*Prince*).

Myrtle Warbler, *Dendroica coronata*. Atlantic City, N. J., January 7 (*Cromie*); Doylestown, January 9 (*Mason*).

Cerulean Warbler, *Dendroica cerulea*. Moorestown, N. J., May 14 (*Mickle*). Bird observed continually under most favorable circumstances, and song heard. Same bird seen also by Linton.

Bay-breasted Warbler, *Dendroica castanea*. Doylestown, May 10 (*Mason*); Holmesburg, four on May 10 (*Miller*); West Chester, May 15 (*Roberts*); Kennett Square, May 19 (*Pennock*); one on Crum Creek, May 19 (*Riddle*); common at Swarthmore, May 11 (*Palmer*); Rancocas, N. J., May 12 (*Stokes and Haines*); Moorestown, N. J., May 10 (*Mickle*); May 10 and 19 and two intervening days, unusually plentiful (*Linton*); Trenton, N. J., May 6 (*Abbott*); Bernardsville, N. J., May 11 (*Kuser*).

Black-poll Warbler, *Dendroica striata*. Kennett Sq., until May 28 (*Pennock*); Moorestown, N. J., May 29 (*Mickle*).

Blackburnian Warbler, *Dendroica fusca*. Moorestown, N. J., unusually abundant (*Mickle*).

Yellow Palm Warbler, *Dendroica palmarum hypochrysea*. Moorestown, N. J., December 25, 1911 (*Hallett*).

Ovenbird, *Seiurus aurocapillus*. Bustleton, eggs May 27 (*Miller*).

Louisiana Water Thrush, *Seiurus motacilla*. Doylestown, April 18, and one in same place April 8, 1911 (*Mason*); Wissahickon, adults and young June 15 and 19 (*Miller*); Wayne, May 26 (*Pearson*).

Kentucky Warbler, *Oporornis formosus*. Valley Falls, eggs May 29 (*Miller*).

Mourning Warbler, *Oporornis philadelphia*. Westtown, May 25 (*S. C. De Haven*).

Maryland Yellow-throat, *Geothlypis trichas trichas*. Bustleton, eggs May 23 (*Miller*).

Hooded Warbler, *Wilsonia citrina*. Doylestown, one on May 5 and 6 (*Mason*); Colledgeville, May 6 (*Fox*); West Chester, May 4 (*Roberts*).

Wilson's Warbler, *Wilsonia pusilla pusilla*. Doylestown, May 6 (*Mason*); West Chester, May 15 (*Roberts*); Bernardsville, N. J., May 11 (*Kuser*); Beverly, N. J., May 19 (*Street*); Moores-

town, N. J., May 18 (*Linton*); Mt. Moriah, May 18 (*Hill*); Darby, one on May 11 and 19 (*Packer*).

Redstart, *Setophaga ruticilla*. Cape May Court House, two birds seen May 25 (*Miller*); South Vineland, N. J., June 29 in full song (*Potter*).

Titlark, *Anthus rubescens*. West Chester, flock on May 2 (*Roberts*), and another some miles west of West Grove, October 8, 1911 (*Roberts*); Cheney, November 3, 1912 (*S. Trotter*); Doylestown, flock of 200 April 6 (*Mason*); Trenton, N. J., March 20 (*Abbott*); Kennett Sq., flock of 100 April 11 (*Pennock*); Concordville, May 1 (*Styer*).

Mockingbird, *Mimus polyglottos polyglottos*. Kennett Square, one observed from about December 15 to January 4 (*Pennock*); Concordville, one seen from December 2 through the winter (*Styer*); same bird observed during very cold weather, January 14, by (*S. C. Palmer*).

Brown Thrasher, *Toxostoma rufum*. Atlantic City, N. J., January 21 (*Cromie*); Pensauken, N. J., eggs May 4 (*Miller*).

Carolina Wren, *Thryothorus ludovicianus ludovicianus*. Concordville, scarcer than usual (*Styer*); Camden, N. J., less common than usual, seen Nov. 14 and Dec. 3 (*Potter*).

Winter Wren, *Nannus hiemalis hiemalis*. Downstown, N. J., January 9-16 (*Fair*); Swarthmore, January 17 and 28 (*Palmer*); Crum Creek, November 7-April 14 (*Riddle*); first seen Frankford, September 18 (*Miller*); last seen Darby, April 20 (*Packer*); Wayne, April 13, scarce (*Pearson*); Trenton, N. J., March 27 (*Abbott*).

Long-billed Marsh Wren, *Telmatodytes palustris palustris*. Richmond, eggs June 1 (*Miller*).

Brown Creeper, *Certhia familiaris americana*. Doylestown, November-April 26 (*Mason*); West Chester, October 14 to April 20 (*Roberts*); Wayne, frequent March 30-April 24 (*Pearson*); Upper Crum Creek, October 12-April 5, not common (*Riddle*); Swarthmore, common in January (*Palmer*); Frankford, October 2-April 24 (*Miller*); Moorestown, N. J., Feb. 26 and March 10 (*Mickle*); Sept. 25 (*Wierman*); Last seen, Darby, April 28 (*Packer*); Camden, N. J., April 20 (*Potter*); Kennett Square, April 14 (*Pennock*).

Black-capped Chickadee, *Penthestes atricapillus atricapillus*. Doylestown, November 15–May 5 (*Mason*); Westtown arrived November 14 (*S. C. De Haven*); More frequent than usual at Media (*Allen*); Common all winter at Swarthmore (*Palmer*).

Carolina Chickadee, *Penthestes carolinensis carolinensis*. West Grove, one pair observed near West Grove July 28–September 11, 1911, none at West Chester (*Roberts*).

Golden-crowned Kinglet, *Regulus satrapa satrapa*. Doylestown, November 19–April 18, not common (*Mason*); Frankford, September 5–April 24 (*Miller*); West Chester, October 3–April 12 (*Roberts*); Crum Creek, October 1 to April 5, not common (*Riddle*); Wayne, March 17–April 13, a few (*Pearson*); arrived Westtown October 12 (*S. C. De Haven*); Moorestown, N. J., Sept. 20 (*Wierman*); last seen at Darby April 15 (*Packer*); more frequent than usual at Media (*Allen*); not common at Swarthmore (*Palmer*).

Hermit Thrush, *Hylocichla guttata pallasi*. Frankford, one December 7 (*Miller*).

Robin, *Planesticus migratorius migratorius*. Atlantic City, N. J., January 7 (*Cromie*); Frankford, January 17 (*Miller*); Downstown, N. J., January 17 (*Fair*); Trenton, large flocks in January (*Abbott*); West Chester, one all winter (*Brinton*); Darby, January 1 (*Packer*); Wayne, January 6 (*Pearson*); Frankford and Holmesburg occasionally during January (*Fowler*); Mt. Moriah, January 28 (*Hill*); Ardmore, January 13 (*Baily*); Lansdowne, January 28 (*Nicholson*); one bird passed the winter at Media (*Allen*); and five were at Concordville January 6 (*Styer*); several at Swarthmore all winter (*Palmer*); West Chester, one all winter (*Brinton*); Doylestown, several wintered, sometimes six seen at once in January and February (*Mason*); also resident at other points (see schedules).

Bluebird, *Sialia sialis sialis*. Common at Swarthmore during January and February, but rarely seen afterwards (*Palmer*); decidedly scarce in northeastern Philadelphia, have not seen more than two dozen this year, and none after April (*Miller*); vrey scarce at Media (*Allen*). Only two seen at Ardmore after February 17 (*Baily*).

Abstract of the Proceedings of the D. V. O. C.,
1912

January 4, 1912. Twenty-second Annual Meeting. Twenty-seven members present. The following officers were elected for the ensuing year:

President. Samuel N. Rhoads.

Vice-President. Stewardson Brown.

Secretary. J. Fletcher Street.

Treasurer. Samuel C. Palmer.

The following standing committees were appointed to serve during 1912:

On Publication. Cope, Moore and Morris.

On Migration. Carter, Roberts and Stone.

On Field Work. Baily, Pennock and Street.

Mr. Stone made a report on "Bird Migration of 1911." Mr. Morris read a biography of the Catbird.

The meeting adjourned to the annual collation.

January 18, 1912. Twenty-four members and two visitors present. Mr. William L. Baily addressed the Club upon "A Trip to the Magdalen Islands", illustrated with lantern slides. The bird life of Bird and Little Bird Rock was described, with reference to the life and habits of the Gannets, Murres, Kittiwakes, Puffins, Petrels and Razor-billed Auks inhabiting these islands. Mr. Moore supplemented Mr. Baily's remarks with a description of the flight of the Gannet.

February 1, 1912. Twenty-six members present. Mr. Stone made a communication entitled "Another Word on the Formicariidae." Mr. Stone illustrated how these groups, although belonging strictly to South America, bear superficial resemblance to our song birds.

February 15, 1912. Twenty-three members present. Mr. Mr. Samuel Rhoads was appointed a delegate to the Academy Centennial Celebration to be held March 19th to 21st inclusive. Mr. Rhoads spoke on "A Trip to Ecuador with Special Reference to the Tierra Templada." The talk was illustrated with lantern slides depicting the character of country traversed and illustrative of many interesting associations. In the neighborhood of Mt. Pichincha sixteen species of humming birds were observed.

March 7, 1912. Three visitors and twenty members present. Mr. Moore gave an interesting account of the "Birds of the Magdalen Islands." The talk was illustrated by lantern slides. Photographs depicting the nesting habits of several species of birds were shown. A report on the field trip to Haddonfield was made. This revealed that nine enthusiasts braved the wintry blasts and were amply rewarded with a good list of birds and most enjoyable refreshments provided by their host, Mr. Moore.

March 21, 1912. On account of the Academy Centennial celebration, extending from March 19th to 21st, the D. V. O. C. meeting was omitted.

April 4, 1912. Twenty members present. Mr. Emlen discoursed upon the "Distribution of Some Breeding Birds in the Delaware Valley." Mr. Emlen's compilation of data on the breeding of our common birds within the limit of the map published in Stone's "Birds of Pennsylvania and New Jersey" comprises some exceedingly valuable records. Mr. Stone in commenting upon the Centennial Celebration of the Academy, gave a brief and interesting account of the growth and development of the Academy with particular reference to its ornithological collections.

April 18, 1912. Fourteen members present. Mr. Potter spoke upon the subject, "Some Local Bird Notes." Mr. Potter related some interesting and unusual experiences with birds, and gave extensive notes upon the mortality among nesting birds.

A list of species nesting within the limits of Camden city was reported.

May 2, 1912. One visitor and twenty-one members present. Dr. Trotter addressed the Club upon "The Classification of Birds." The speaker emphasized the divergence of opinion among writers as to the exact classification of birds, pointing out, however, their agreement as to the reptilian origin of birds.

May 16, 1912. Twenty-three members present. Messrs. Charles Platt 3d, Dr. William Pepper and Frank B. Foster were proposed for associate membership. Mr. Pennock and Mr. Fowler addressed the Club upon "Some Birds of the Coast of Delaware and Virginia." Mr. Pennock spoke of the general northern movement of shore birds as observed at Rehoboth, Del. The observance of Blue-gray Gnatcatchers was mentioned. Mr. Fowler spoke of observances made among the shore birds of the Chincoteague Islands, Virginia.

October 3, 1912. Thirty members present. Mr. Rhoads spoke upon the subject, "Exhibition of Audubon's Favorite Fowling Piece, with Some Facts and Fancies as to its Identity." Mr. Rhoads exhibited the gun in question, which was in excellent condition. Upon its barrel was engraved "John James Audubon, Citizen of the United States, F. L. S. L." The gun bore the maker's name, Conway of Manchester, a prominent manufacturer of firearms during Audubon's time. Mr. Rhoads read a great deal from correspondence with Edward Harris, Jr., Brewster and others relative to its identity. Mr. Rhoads also exhibited the gun used by Edward Harris upon the Fort Union Expedition in 1843. Mr. Stone made mention of the Club's collection of birds, stating that of the one hundred and fifty-five species known to breed in Pennsylvania, there are now on exhibition one hundred and thirty with nests and eggs.

October 17, 1912. Nineteen members present. The name of Mr. Shippen Lewis was proposed for associate membership. Mr. Stone spoke upon the subject, "A Year of the Auk", reviewing the growth of the *Auk* and commenting upon the

excellent work of its former editor. A discussion on the status of the Grackle was indulged in by members.

November 7, 1912. One visitor and fifteen members present. Messrs. Charles Platt 3rd, Frank B. Foster, Shippen Lewis and Dr. William Pepper were elected associate members. Mr. Poole spoke on "The Summer Birds of McKenzie Pond, Adirondacks." A detailed account of the species observed was given. The occurrence of the Evening Grosbeak was noted.

November 21, 1912. Twenty-three members present. Mr. Palmer addressed the members upon "The Embryology of a Bird." The talk was illustrated by slides showing the development of the embryo through its various stages of growth. Mr. Stone described in general the proceedings of the annual meeting of the American Ornithologist Union.

December 3, 1912. Twenty members present. Upon the subject, "General Discussion of the Roosting Habits of the Purple Grackle", Mr. Stone gave a detailed description of the Grackle Roost at Kirkbride's, West Philadelphia. Mr. Potter followed with an account of a newly discovered roost at North Woodbury, which was abandoned and re-established at South Westville. Mr. Emlen mentioned his observations among the Grackles of the Awbury roost. Dr. Trotter mentioned the absence of Grackles this year from the Media roost.

December 19, 1912. One visitor and eighteen members present. Mr. Pearson spoke upon the subject "Birds and Chestnut Blight." The speaker's remarks related to species observed during the past summer in Huntington Co., Pa. The Wild Turkey was observed. Mr. Stone read a paper by Wells W. Cooke, entitled "Bird Migration in Pennsylvania One Hundred Years Ago."

Club Notes

FIFTEEN meetings were held by the Club during the year, the average attendance being twenty-two. This is a gratifying return toward the high-water mark of 1905, 1906 and 1907, when the average was twenty-four for each year. In fifteen years it has only once (1902) fallen below nineteen.

* * *

The attendance of D. V. O. C. members at the A. O. U. meeting in Cambridge was lamentably small, Messrs. Stone and Pennock active, and Mr. W. D. W. Miller corresponding, being the only ones present.

* * *

As usual Club members were away during the summer; Stone in Wisconsin and Minnesota, Rehn in Texas, Weygant in New Hampshire, Palmer in Maine, Brown in Bermuda, Hughes in South America, Trotter in the Orkneys, and Moore in Germany.

* * *

Mr. Chas. J. Pennock was appointed on December 3, 1912, Curator of the Oological Collection of the Academy of Natural Sciences, Philadelphia, and is making an earnest effort to build up a thoroughly representative collection of eggs and nests, about the nucleus left by the egg collectors of early days.

* * *

The Club enjoyed three outings during the spring, the first at Haddonfield on Washington's Birthday, the second at Ardmore on Good Friday, and the third at Beverly on Decoration Day. Seven members participated in the first, ten in the second and eight in the third.

* * *

We are indebted to Mr. Wm. A. McCall for the loan of the engraving, from which the plate for the frontispiece of Gen. McCall was made.

WILLIAM H. WERNER

1842—1912

William H. Werner, a Corresponding Member of the Club, died at his home in Atlantic City, N. J., May 13, 1912, aged seventy years. Mr. Werner was born at Nazareth, Pennsylvania, January 18, 1842 and at an early age became interested in collecting birds and in taxidermy.

He traveled in various parts of the United States, Mexico and the Bahamas in search of specimens which he mounted with much skill. For many years past his collection has been on exhibition on the "Boardwalk" at Atlantic City and is familiar to visitors as the "Wonderland." Previously some of them were exhibited at the Centennial Exposition in 1876 and were pronounced by Mr. William Brewster as "masterpieces of taxidermal skill".

Mr. Werner was an unassuming man, with no ambition for such reputation as may be gained from publication, and who found fulfillment of all his desires in the collecting and mounting of his specimens. Unfortunately his modesty has deprived ornithology of many valuable facts concerning the habits and distribution of the birds which he met with. It must not be supposed however that he withheld the information which he had acquired, for on the contrary he cheerfully shared it with anyone who was interested and placed no restriction upon its use.

In the "Nuttall Bulletin" for 1879 (pp. 75, 80, 99, 103) Mr. Brewster discusses briefly several rare birds and eggs which formed part of "a superb collection" obtained by Mr. Werner in Comal County, Texas during April and May 1878, and publishes accounts supplied by Mr. Werner on the breeding of the Golden-cheeked Warbler and Black-capped Vireo. Later in the October number for the same year appears a colored plate of a pair of the Vireos and their nest from an exquisite little study in water colors by Mr. Werner himself.

Of late years Mr. Werner has been taxidermist for the New Jersey State Museum, and the writer has been indebted to him for valuable data on New Jersey birds, which appeared in the recent report on birds of the State.—W. S.

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OFFICERS AND MEMBERS

OF THE

Delaware Valley Ornithological Club.

1913.

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LEWIS S. BYROM, 127 W. Susquehanna Ave., Phila..... 1909

* Date indicates year of election to Club.

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JESSE PACKER, 444 So. West St., Darby, Pa.	1911
CHARLES W. PALMER, Westtown Boarding School, Chester Co., Pa. 1910	
DR. WILLIAM PEPPER, 1811 Spruce St., Phila.....	1912
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E. L. POOLE, 2027 N. 25th St., Phila.....	1910
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NORMAN W. SWAYNE, George School, Pa.	1906
SAMUEL A. TATNALL, 409 Chestnut St., Phila.	1910
JOSEPH W. TATUM, Audubon, N. J.	1892
FRANCIS H. TOMLIN, DDS., Haddonfield, N. J.	1909
WILLIAM H. TROTTER, Chestnut Hill, Phila.	1899
HENRY TUCKER, M. D., 2000 Pine St., Phila.	1906
CHARLES A. VOELKER, Aldan, Delaware Co., Pa.	Founder.
PAUL VOSBERG, 1710 Green St., Phila.	1905
CHARLES S. WELLES, Elwyn, Delaware Co., Pa.	1900
A. L. WHEELER, PH. D., Bryn Mawr, Pa.	1905
ALBERT L. WHITAKER, Cedar Grove, Frankford, Phila.	1896
JAMES L. WHITAKER, Cedar Grove, Frankford, Phila.	1904
WALTER R. WHITE, Lansdowne, Delaware Co., Pa.	1903
FRANCIS WINDLE, West Chester, Pa.	1910
EDWARD W. WOOLMAN, 44 N. Thirty-eighth St., W. Phila.	1902

HONORARY MEMBER.

WILLIAM LOUIS ABBOTT, M. D., Berlin, Germany.	1912
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CHARLES H. BAKER, Verona, Alleghany Co., Pa.	1900
O. E. BAYNARD, Clearwater, Fla.	1911
THOMAS J. BEANS, Moorestown, N. J.	1895
HERMAN BEHR, Jennings, Md.	1897
OTTO BEHR, Lopez, Sullivan Co., Pa.	1897
W. H. BULLER, Marietta, Lancaster Co., Pa.	1895
CHARLES BUVINGER, M. D., Newark, N. J.	1900
HERBERT L. COGGINS, 770 Mission St., San Francisco, Cal.	1897
WILLIAM J. CRESSON, Box 249, Pittsburg, Pa.	1899
WILLIAM B. CRISPIN, Salem, N. J.	1911
THOMAS C. DESMOND, Cambridge, Mass.	1905
LIEUT. FRANK B. EASTMAN, U. S. A., Chester Military Academy, Pa.	1898
MARCUS S. FARR, Princeton, N. J.	1901
ALFRED M. GITHENS, New York City	1895
HARRY L. GRAHAM, Redlands, Cal.	1897
ALLEN H. GROSE, York, York Co., Pa.	1900
HENRY HALES, Ridgewood, N. J.	1895
H. WALKER HAND, 1002 Washington St., Cape May, N. J.	1900

WM. E. HANNUM, Lynn, Mass.	1901
RICHARD C. HARLOW, State College, Pa.	1904
CHRESWELL J. HUNT, Oak Park, Ill.	1902
THOMAS H. JACKSON, West Chester, Pa.	1895
J. WARREN JACOBS, Waynesburg, Greene Co., Pa.	1895
THOMAS D. KEIM, 405 Radcliffe St., Bristol, Pa.	1902
SAMUEL B. LADD, Reading, Pa.	1895
PAUL L. LORRILLIERE, 108 E. Lexington St., Baltimore, Md.	1904
EDW. J. F. MARX, Easton, Pa.	1909
WALDRON DE W. MILLER, Plainfield, N. J.	1900
HOWARD Y. PENNELL, M. D., Downingtown, Pa.	1894
A. H. PHILLIPS, Princeton, N. J.	1895
M. W. RAUB, M. D., Lancaster, Pa.	1895
ALFRED C. REDFIELD, Cambridge, Mass.	1908
H. JUSTIN RODDY, State Normal School, Millersville, Lanc. Co., Pa.	1895
CHAS. H. ROGERS, 240 So. Broad St., Elizabeth, N. J.	1905
ROBERT P. SHARPLES, West Chester, Pa.	1906
R. B. SIMPSON, Warren, Warren Co., Pa.	1907
FREDERICK SÖRENSEN, Chalmersgarten, Göthenburg, Sweden	1900
REYNOLD A. SPAETH, Cambridge, Mass.	1901
FREDERICK W. STACK, Doubleday Page and Co., N. Y. City	1905
HUGH E. STONE, Coatesville, Pa.	1895
H. A. SURFACE, Harrisburg, Pa.	1900
C. F. SYLVESTER, Princeton, N. J.	1901
W. E. CLYDE TODD, Carnegie Museum, Pittsburg, Pa.	1895
HENRY WARRINGTON, San Francisco, Cal.	1896
ASA P. WAX, Bridgeton, N. J.	1902
WILLIAM L. WHITAKER, Ada, Okla.	1893
J. JAY WISLER, Columbia, Pa.	1904
ROBERT T. YOUNG, State University, N. Dakota.	1892

DECEASED MEMBERS.

Died.

JOHN FARNUM BROWN, Active member.	May 13, 1894
WALTER D. BUSH, Corresponding member.	August 11, 1904
JOHN W. DETWILLER, M. D., Corresponding member	September 26, 1898
ERNEST M. EVANS, Associate member.	June 29, 1911
LARUE K. HOLMES, Corresponding member	May 10, 1900
JOSIAH HOOPES, Corresponding member.	January 16, 1904
AUGUST KOCH, Corresponding member	February 15, 1907
GILBERT H. MOORE, Associate member	May 28, 1899
FREDERICK N. OWEN, Associate member	December 27, 1905
WILLIAM PATTERSON, Corresponding member	August 27, 1900
FRANCIS W. RAWLE, Associate member	June 12, 1911
EDWIN SHEPPARD, Associate member	April 7, 1904
WILLIAM W. SMITH, Associate member	July 3, 1892
WILLIAM H. WERNER, Corresponding member.	May 13, 1912
SAMUEL W. WOODHOUSE, M. D., Honorary member. ...	October 23, 1904

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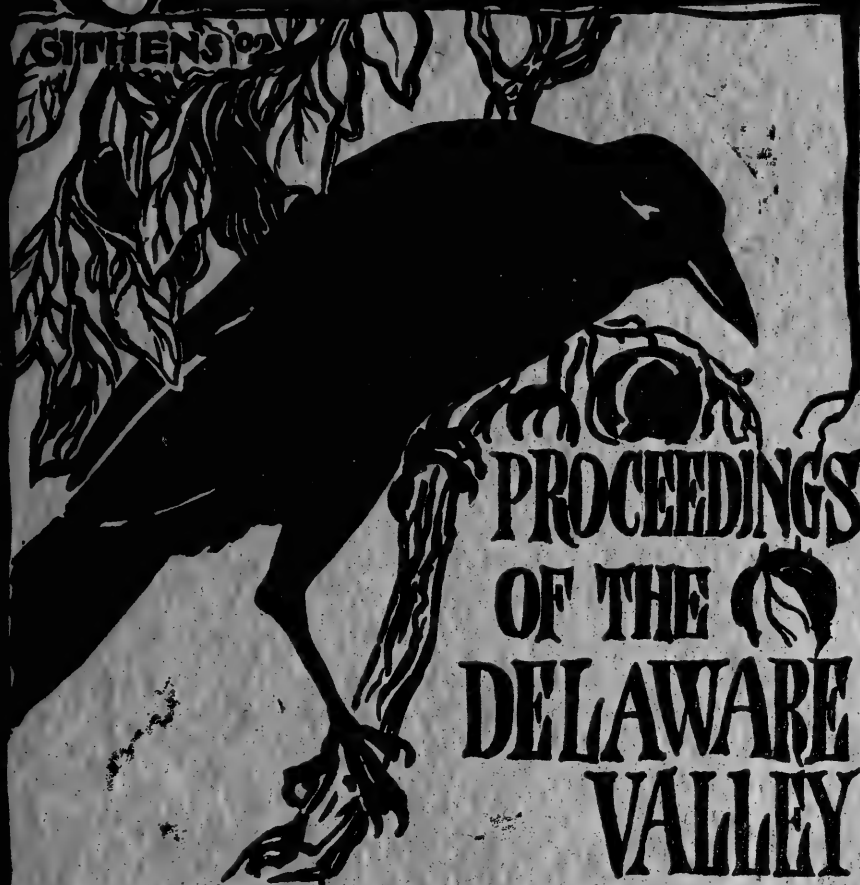


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A BIRD ANNUAL

GITHENS '02



PROCEEDINGS
OF THE
DELAWARE
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ORNITHOLOGICAL CLUB
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1913

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CASSINIA

An Annual Devoted to the Ornithology of
Pennsylvania, New Jersey, and Delaware

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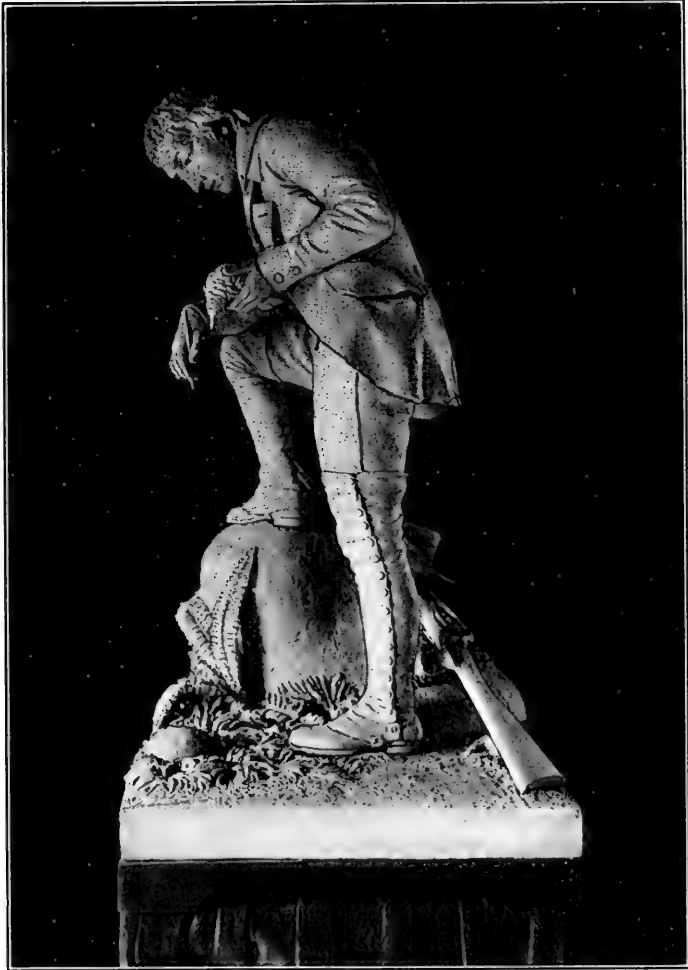
- The Birds of Eastern Pennsylvania and New Jersey, by
Witmer Stone, pp. 176 with two maps and portrait of
Alex. Wilson. One Dollar and a half. (Post paid \$1.62)
- Abstract of Proceedings, Full Set Nos. I-IV. (1890-1900) pp. 98, Fifty cents
- Cassinia, published annually beginning with 1901; comprising
papers relating to the Ornithology of Pennsylvania,
New Jersey and Delaware, and an abstract of the pro-
ceedings of the Club. Edited beginning with No. XV,
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ALEXANDER WILSON

STATUETTE BY ALEX. CALDER

PRESENTED BY HIM TO

THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA

CASSINIA

PROCEEDINGS OF THE DELAWARE VALLEY ORNITHOLOGICAL CLUB

No. XVII.

PHILADELPHIA, PA.

1913.

Wilsoniana

BY WITMER STONE

IN the United States Gazette for August 23, 1813, just one hundred years ago, there appears the following notice: "Died, this morning, Mr. Alexander Wilson, author of the American Ornithology. His friends and acquaintances are invited to attend his funeral, from Mr. William Jones', No. 233 Spruce Street, Philadelphia, at 9 o'clock to-morrow morning."

Thus briefly is chronicled one of the greatest blows that has ever befallen American Ornithology. Wilson was but forty-seven years of age, and in the prime of life. His great work was little more than half completed, and he had reaped no financial return for the labor and privation that the publication had cost him, while that return ever dearer to the author's heart, the praise of the scientific world, had scarcely begun to reach him.

As we contemplate Wilson's career, its premature termination stands out with striking prominence. We often hear his work compared with that of Audubon, yet the impossibility of such comparison is obvious. Audubon's ornithological interests



date from his earliest days, and he was permitted to round out the usual term of years allotted to man, while Wilson's entire ornithological career, from the day he announced his intention of making a collection of "all our finest birds," to his premature demise, covered but ten years. Who of us, with no artistic training, could learn in that time to depict birds as well as Wilson did, and who could have produced such a book as his, with only such works as those of Catesby, Bartram and Pennant to supplement his own observations. Baron Cuvier, in commenting on Wilson's Ornithology, stated that "he has treated of American Birds better than those of Europe have yet been treated," and his work was one of the first scientific productions of America, one that opened the eyes of Europe to the possibilities of the New World in a field that up to that time had been regarded as belonging exclusively to countries of long established literary and scientific reputations.

It is difficult after the lapse of one hundred years to find much that is new in the history of a man, whose life has been so carefully traced as has been that of Alexander Wilson, and the two items that have come under my observation and lay claim to place under the head of *Wilsoniana*, have really nothing to do with the ornithologist's life.

About a year ago I was surprised to learn that there was in Philadelphia a statue of Alexander Wilson, which had been exhibited at the Academy of Fine Arts, sometime in the seventies. Since then this has been presented to the Academy of Natural Sciences, and now adorns the library. It is by Alex. Calder, a well known sculptor, and represents the Ornithologist in pursuit of his favorite study. He is bending over with one foot on a boulder, upon which his gun and note-book are resting, while his cap and knapsack are on the ground; in one hand he holds a pencil, in the other a freshly killed bird, which he is studying intently. Mr. Calder informs me that the gun was copied from Wilson's own fowling-piece, in possession of Mr. J. M. Wade, then of Philadelphia, while the features of the ornithologist were based on a study of all the available engravings. The result, however closely it may agree with any one of the engravings, is strikingly like the water-color now in

the possession of the Academy, and formerly the property of George Ord, but which Mr. Calder assured me he had never seen until I showed it to him.

This statue attracted much attention when exhibited and the suggestion was made that it be cast in life-size bronze and placed in Fairmount Park. Although this was never realized, it seems very desirable that the idea should now be carried out and the statue be located in the park or on the new Parkway, which will pass by the front of the Academy.

My second item under Wilsoniana deals with a certain trunk belonging to Wilson, which was in the possession of a member of the Rittenhouse family¹ of Germantown and came to the notice of Wm. Redwood Wright Esq. In response to my request Mr. Wright has furnished the following memorandum regarding his experience with this trunk.

“October 27th, 1913.

“My dear Mr. Stone: You ask me for some particulars in reference to my purchase of Alexander Wilson's trunk and contents.

“As a boy I had become very fond of observing bird life, and was a great admirer of Alexander Wilson's Ornithology, a copy of which I had access to in a friend's library.

“Sometime not long after my return from the army in 1865, I learned (just how I have forgotten) that Wilson had been very intimate with a member of the Rittenhouse family, who in his time lived in a house on the bank of the Wissahickon below where Poor House Lane (now Rittenhouse Street) joins the Wissahickon Drive, and that when Wilson died he left his trunk and contents to this person. Knowing at that time, by sight at least, every man, woman and child, in Germantown, and most of the dogs and horses, I very soon located the trunk in the possession of a lady living on Poor House Lane near Greene Street, and by the exercise of a little diplomacy got her to show me the contents, which consisted almost entirely of printed matter and papers connected with Wilson's lifework.

¹ A descendant, apparently, of Sarah Miller, to whom Wilson was engaged to be married and who with George Ord was an executor of his estate.

“It seemed a great ‘find’ to me, but the price she put upon it (\$100) seemed an immense amount of money, and I did not quite see how the deal could be financed. I mentioned the matter to a Scotch friend and ornithologist, Wm. P. Turnbull, who at once said, ‘I will furnish the money and we will divide the contents,’ which was accordingly done, very much on the lines of the celebrated division between white man and Indian of a gamebag consisting of a turkey and a turkey buzzard.

“My share, however, was about as much as I could carry, and when I toted it home and arranged the ‘odds and ends’ that fell to my lot, I found I had a complete set of the letter press and plates, a good many duplicates and some original matter that must have been hidden in the letter press. I believe the part that did not fall to my share enriched the collection of some institution in Scotland, but I was never furnished with an inventory of what Mr. Turnbull considered as the capitalist’s share.

“I enclose you a few papers that may be of interest.

“It is somewhat of a coincidence, that while my sympathies and enthusiasm were all with Wilson, my great-grandfather (Miers Fisher) was the legal adviser of the Audubon family, and Audubon, the naturalist, was much at ‘Ury’, Miers Fisher’s residence near Fox Chase, now in the 23d Ward. The tradition in the family is that the naturalist Audubon was not only a good shot with a gun, but was capable of drawing a very ‘long bow’.

Very sincerely yours,

“WM. REDWOOD WRIGHT.”

The papers consisted of two original drawings, supposed to be by Alex. Wilson, one being a sketch of Wilson’s schoolhouse at Kingsessing, and the other a portrait of Michael Heinego. Also a manuscript account of Michael Heinego, of York Co., evidently written at request of Alex. Wilson by an unknown correspondent, after Wilson’s visit to Heinego; and uncolored plates 57 and 64.

In response to an inquiry Mr. Ruthven Deane writes me as follows concerning some of the contents of the trunk that constituted Mr. Turnbull’s share. “Certain of these Wilsoniana relics

were in the possession of Mrs. Elizabeth Gray of Edinburgh, Scotland and were originally presented to her husband Robert Gray by his friend Wm. P. Turnbull. Among them were a long letter from Wilson to Miss Sarah Miller dated Nashville, Tenn., May 1, 1810, which was published in 'Poems and Literary Prose of Alexander Wilson' by Alex. B. Grosart 1876, pp. 203-206; the negative of Wilson's Silhouette (the original is now in the National Portrait Gallery in Edinburgh); a colored drawing of the Hermit Thrush, under glass with the following inscription on the back: 'This drawing by Alexr. Wilson (and cut by him so as to occupy its place in the plate) being part of the contents of his trunk, left by his will to Miss Sarah Miller who afterward married a Rittenhouse) and purchased by me from her son's widow E. R. Rittenhouse, William P. Turnbull, Phila. 1866.'"

No one realizes better than I the comparatively trivial nature of the items I have described, but every scrap of information about such men as Wilson seems worthy of our notice. If only as an excuse to bring to our attention for a moment the man and his work, they have perhaps served a good purpose. The impetus that such a work as Wilson's produced in America and by the support of American subscribers gave to American science is hard to estimate, as is also the attention that it must have directed toward America, as a country which not only possessed a rich fauna and flora, but which gave promise of producing men thoroughly capable of making known its riches to the scientific world, and in the van of this assemblage will ever stand Alexander Wilson, a Scotchman by birth but an American in his interests and sympathies.

Some Local Fish-eating Birds

BY HENRY W. FOWLER

THE water-birds of the Delaware Valley have always been of primary interest to me in my studies of natural history. Living near the Delaware River, and close to one of its smaller tributaries, my opportunities for study have been more advantageous than many other investigators. Added to this are many opportunities while studying fishes along the coast, or off the shores of our adjacent States. A number of the more important notes, made at odd moments, are here embodied as a slight contribution to science, and in the hope that they may stimulate further efforts in this direction by our ornithologists. Acknowledgment should be made to Messrs. David McCadden, D. E. Culver and Richard F. Miller, who have supplied me with notes, as well as material, used in these studies.

The information gathered is at best fragmentary, and refers largely to our commoner species of birds. The element of fish-eaters is doubtless larger than here outlined, though the list is characteristic for the fresh-water tidal regions about Philadelphia. Off the coast are hosts of water birds, feeding on marine life of one form or another. Such are gannets, shearwaters, various gulls and terns, smaller species of auks, murrets, guillemots, jaegers, petrels, ducks, geese, skimmers, etc. No local information appears available, and many of the statements given in Wilson and Audubon will remain as purely conjectural about their vague "fish" diet, until detailed studies are made.

Three methods of observation are open to the study of the food of fish-eating birds. The first, and most important, is the examination of stomach contents, or such remains as are in the alimentary canal, of the freshly-killed bird. The second method is the observation of the living bird, feeding about waters where the fish-life has been previously examined. The last method is

the examination of nests, with their fragments of food, bones, etc. In the first case, it is often remarkable how well preserved some specimens found in the gullets of their captors may be. I have frequently secured very interesting or valuable specimens of fish in this way. Often the important bones are not completely dissolved, and usually the pharyngeal bones of cyprinoids remain intact. As these latter are the chief, and thus nearly certain clues, the identification of the fish is usually easy.

The most important conclusion which the writer may premise is that the evidence shows our fish-eating birds in a very favorable, if not altogether harmless, light. The fishes they devour are rarely, and in the case of the majority, of slight or no direct importance to man. Even among marine fishes very few of commercial value are taken by birds, and never in appreciable numbers. In fresh-water streams, the herons and kingfishers seldom do much damage, except occasionally taking a trout or bass. There is thus no legitimate reason whatever for the destruction of any of our fish-eating birds.

Horned Grebe (*Colymbus auritus*). An irregular, though sometimes abundant species along the tidal reaches of the Delaware River. I have examined the stomachs of several birds killed near Philadelphia, and in each case they contained the remains of small fishes. Some of these were identified as killifish (*Fundulus heteroclitus macrolepidotus* and *F. diaphanus*). Very likely other small fishes, as cyprinoids, catostomoids and centrarchids, may also be devoured, as they are frequently active in cold weather. The occurrence of several birds, or a solitary individual, about ponds near the river, may be explained by the great abundance of small fish which I have noted in such locations during all seasons of the year.

Dabchick (*Tachybaptus podiceps*). Our most abundant species, and migratory, in the Delaware River tidal regions. Its favorite haunts are about the breasts of dams, of water-falls, mill-ponds, quiet coves, and usually where the water is still. It is often confiding, even permitting a close approach, though quickly diving if alarmed. Like the other grebes, as it is a good swimmer and diver, it doubtless secures an ample supply of food from the vast schools of small fishes. I have not exam-

ined any stomachs, though I have caught numerous small fishes in the very locations from which the birds were driven on numerous occasions. Such fishes were largely small cyprinoids, etc. (*Abramis crysoleucas*, *Notropis bifrenatus*, *Notropis whipplii analostanus*, *Notropis cornutus*, *Notropis chalybaeus*, and *Erinnyzon sucetta oblongus*). It is reasonably certain that most of these, as well as some others, are devoured.

Loon (*Gavia immer*). About our inland lakes solitary birds, or pairs, are usually seen. In rivers nearer the coast, small flocks often occur. The loon is mostly found in the Delaware River tidal regions in the spring and fall. Though a shy and wary bird, it is frequently reported by river fishermen as becoming entangled in their set-nets. It devours larger fishes than the grebes, and such as are more characteristic of open, deeper waters. Warren mentions that fall fish (*Semotilus bullaris*), suckers, carp (*Cyprinus carpio*) and the brook trout (*Salvelinus fontinalis*) are sometimes eaten by loons. In one he found a brook trout seven inches long. In fresh-waters, where loons were noted, I have found mostly cyprinoids (*Hybognathus nuchalis regius*, *Notropis hudsonius amarus* and *N. whipplii analostanus*), and in salt-water, white perch (*Morone americana*), silversides (*Menidia menidia notata*), mullets (*Mugil curema*) and pampanos (*Trachinotus carolinus*). All these fish very likely are devoured, though I have not made any examinations of stomachs.

Herring Gull (*Larus argentatus*). A common winter visitor along the New Jersey coast and the Delaware River tidal, and sometimes straggling inland in small numbers. This gull probably does not capture living fish, though it will occasionally nibble at dead fish, as alewives (*Pomolobus pseudoharengus*) floating about with the tides. They will also feed on offal and bits of sewage. Along the coast they sometimes devour dead killifish (*Fundulus heteroclitus macrolepidotus* when frozen in the salt ponds and then thawed out.

Laughing Gull (*Larus tricolor*). Found along our larger rivers during migrations. I reported this bird some years ago¹

¹ CASSINIA, 1903, p. 46.

from the Delaware, feeding on dead alewives during the shad season. Like the herring gull they feed on floating offal, though they do not disturb living fish.

Common Tern (*Sterna hirundo*). Occurs in small numbers along our rivers and other inland waters, during migrations. Along the coast it feeds chiefly on small fish, as silversides (*Menidia menidia notata*), and crustaceans.¹ I have frequently seen this tern at Atlantic City, Great Bay and Ocean City, fly by with a bright silvery fish grasped in its bill, likely a silversides. In fresh water the tern doubtless secures cyprinoids (*Hybognathus nuchalis regius* and *Notropis hudsonius amarus*), and killifish (*Fundulus heteroclitus macrolepidotus* and *F. diaphanus*).

Double-crested Cormorant (*Phalacrocorax auritus*). Occurs along the coast, and in the Delaware River tidal during spring and fall. The cormorant is an adept fisher, and devours great quantities of the smaller fishes along our coast, such as anchovies (*Anchovia brownii*, *A. mitchilli*), silversides (*Menidia menidia notata*), young pampanos (*Trachinotus carolinus*), etc. The above list is from the schools of small fish I found about the pounds in Delaware Bay, and off the shores of New Jersey, Delaware, Maryland and Virginia. In such places cormorants were abundant. I only examined the stomachs of two birds, killed in Pennsylvania, and they were empty.

Common Merganser (*Mergus americanus*). Abundant in winter on our larger rivers, sometimes in large flocks. Though often killed and brought into the markets of Philadelphia, it is not highly valued, on account of its poor and often fishy flavor. This merganser often frequents reservoirs in cities, where it finds security and a food-supply in the fishes living in such places. These usually consist of carp (*Cyprinus carpio*), silver-fins (*Notropis whipplii analostanus*), spot-tails (*N. hudsonius amarus*), and sunfish (*Eupomotis gibbosus*). The variety of fish eaten is likely very great, as I have several gobies (*Gobiosoma bosci*) and a small sole (*Achirus fasciatus*) taken from an example secured at Chincoteague, Virginia, by Mr. I. N. De

¹Rep. N. J. State Mus., 1911 (1912), p. 363.

Haven, about ten years ago. Dr. Mearns (Bull. Amer. Mus. Nat. Hist. N. Y., x, 1898, p. 322) says the sole is often found in the gullets of our Mergansers (*Mergus americanus* and *M. serrator*). Recently, the contents of two stomachs were given to me for examination by Mr. D. E. Culver. These birds were taken at the same locality in January, 1913. One contained two silversides (*Menidia menidia notata*), about $3\frac{1}{2}$ inches long, and a mullet (*Mugil cephalus*) $7\frac{1}{2}$ inches long, the last in the gullet. Apparently such prey is quite large. The other bird contained two partly-digested white perch (*Morone americana*), $6\frac{1}{4}$ and 4 inches in length respectively. This merganser is often fond of eels (*Anguilla chrisypa*), and one taken near Philadelphia was reported to have contained an eel ten inches long. The fishes usually devoured here are killies (*Fundulus heteroclitus macrolepidotus* and *F. diaphanus*), and roach (*Abramis crysoleucas*). These, and various shiners (*Notropis*), will often collect in shoals about the mouths of little estuaries after the ice breaks in the spring, and then the mergansers may be seen in small flocks, all on the lookout or chasing their prey.

Red-breasted Merganser (*Mergus serrator*). This occurs in similar situations as the last, and in flocks of various size. They feed on small fish, Mr. R. F. Miller having opened one killed at Bristol on November 5th, 1910, which contained nine unidentified "minnows." One example from the Delaware River which I examined contained remains of killifish (*Fundulus diaphanus*).

Black Duck (*Anas rubripes*). A most highly valued game-bird, and, while feeding largely on vegetable matter, it sometimes devours small fish. I have examined several stomachs from Sea Isle City and Cape May that contained large killifish (*Fundulus heteroclitus macrolepidotus*) entire.

Golden-eye (*Clangula clangula americana*). This duck is credited by Wilson as a fish-eater, as he mentions that it feeds on "small fry." Several examples in the Philadelphia markets which I examined had their stomachs crammed full of the small river-snail (*Goniobasis virginica*), so common in the Delaware.

Bittern (*Botaurus lentiginosus*). Usually occurs in migrations, lurking about swamps and marshes. I have found the stomach

contents of several to consist of killifish (*Fundulus diaphanus*) almost exclusively, and sometimes roach (*Abramis crysoleucas*).

Least Bittern (*Ixobrychus exilis*). A summer resident on the Delaware River marshes, and seldom noticed on account of its secretive habits. Six examples which I examined contained remains of small fishes and insects, and in one were three quite large killifish (*Fundulus diaphanus*).

Great Blue Heron (*Ardea herodias*). Frequent in spring and fall migrations, and occasionally occurs in winter. Wilson mentions¹ a specimen, the stomach of which "was entirely filled with small fish, among which were some small eels" (*Anguilla chrisypa*). This heron doubtless feeds on various of our cyprinoids and killifish, though I have no data. Audubon mentions² a bird he captured at Key West, which contained the undigested large head of a fish which lodged among the viscera, and thus rendered it sickly. Apparently these large herons swallow extraordinarily large fish, as I found a Great White Heron (*Ardea occidentalis*) on Sugar Loaf Key in Florida, which appeared greatly inconvenienced after swallowing a large sheepshead.³

Little Blue Heron (*Florida cærulea*). Occurs occasionally in late summer in the Delaware River valley, or about streams along the coast. In the white plumage it is usually confused with the Egret by sportsmen and others. Recently I had the opportunity of examining the contents of the stomachs of two of these birds, killed near Sea Isle City, on August 13, 1913. They were obtained by Mr. W. J. Fox, and both were in the white plumage. Both also contained killifish exclusively. In one example were 46 mummichogs (*Fundulus heteroclitus macrolepidotus*), of which several of the largest were 2½ inches long, and 14 small pury minnows (*Cyprinodon variegatus*). The other bird had 62 small mummichogs and one adult pury minnow. These show it to be quite a voracious feeder.

Green Heron (*Butorides virescens*). Our most abundant and

¹ Amer. Ornith., iii, 1829, p. 63.

² Birds of America, vi, 1842, p. 127.

³ Auk, xxiii, 1906, p. 397.

familiar heron. It is usually seen along our creek or river-shores, moving stealthily over the mud in search of prey, or silently standing motionless on the lookout. Green Herons are very partial to small killies (*Fundulus heteroclitus macrolepidotus* and *F. diaphanus*) along our tidal regions. They also devour young roach (*Abramis crysoleucas*) and minnows (*Notropis whipplii analostanus* and *N. cornutus*). The birds are very agile in capturing young fishes, which they seize by suddenly darting the long sharp beak into the water. The victim is quickly gulped down, head first, with equal dexterity. Often the bird may appear to crouch, even if the head and neck are not completely folded on the shoulders. An examination of a number of stomachs shows that their food varies, consisting of insects, grubs, dragon-flies, etc. One bird was reported to have swallowed a dead bullhead (*Ameiurus nebulosus*), though this is likely exceptional, living prey being preferred.

Night Heron (*Nycticorax nycticorax nœvius*). Next to the last, this is our most common heron. It is a summer resident, appearing generally distributed about our larger bodies of water. Examples I examined had fed on roach (*Abramis crysoleucas*), killifish (*Fundulus diaphanus*), and sunfish (*Eupomotis gibbosus*).

Greater Yellow-legs (*Totanus melanoleucus*). This occurs along our rivers sometimes, in the spring and fall. They often feed on small fish, as roach (*Abramis crysoleucas*), and other shiners. It is interesting to note Le Sueur in his remarks on the killifish (virtually *Fundulus heteroclitus macrolepidotus*), mentions it is preyed on by the Yellowlegs ("Scolopax melanoleuca and *S. flavipes*").¹

Solitary Sandpiper (*Totanus solitarius*). A common visitor during the spring and fall migrations. Most examples I examined contained insects, though in one case a small killifish (*Fundulus diaphanus*).

Bald Eagle (*Haliaeetus leucocephalus*). In my experience an occasional resident. Its habit of stealing fish from the Fish Hawk is well known. I have seen it feeding on alewives (*Pomolobus pseudoharengus*) thrown out from the fisheries along the

¹Journ. Acad. Nat. Sci. Phila., i, pt. 1, 1817, p. 131.

shores of the North East River, in Maryland. Haldeman mentions¹ that it dives for fish in the Susquehanna, when not able to rob the Fish Hawk. Audubon gives an interesting note of its fish-eating habits.² In the Perkiomen Creek he saw one secure a number of redfins (*Notropis cornutus*) by wading through the water and striking at the fish with its bill.

Turkey Vulture (*Cathartes aura septentrionalis*). This familiar bird frequently devours dead fish along our river shores. I have seen numbers eating dead alewives (*Pomolobus pseudoharengus*) along the shores of the Bohemia River, in Maryland.

Fish Hawk (*Pandion haliaetus carolinensis*). Found in our region, except during the cold weather, the Fish Hawk is our most formidable fish-eater.

Wilson gives³ the following interesting notes:

“A shad was taken from a Fish Hawk near Great Egg Harbor, on which he had begun to regale himself, and had already eaten a considerable portion of it, the remainder weighed six pounds. Another Fish Hawk was passing Mr. Beasley's, at the same place, with a large flounder in his grasp, which struggled and shook him so, that he dropped it on the shore. The flounder was picked up, and served the whole family for dinner. * * * The hawk, however, in his fishing pursuits, sometimes mistakes his mark, or overrates his strength, by striking fish too large and powerful for him to manage, by whom he is suddenly dragged under; and though he sometimes succeeds in extricating himself, after being taken three or four times down, yet oftener both parties perish. The bodies of sturgeon and several other large fish, with that of the Fish Hawk fast grappled in them, have at different times been found dead on the shore cast up by the waves.”

Ekström also mentions⁴ that in the back of a large pike (*Esox lucius*) he found the skeleton of an Osprey, which had been drawn below the water and drowned. Similar stories of other European birds, as Sea Eagles, have also been told.

¹ Proc. Acad. Nat. Sci. Phila., 1863, p. 2.

² Birds of America, i, 1840, p. 58.

³ Amer. Ornith., i, 1828, p. 74.

⁴ Vet.-Akad. Handligar, 1831, p. 79.

Audubon figures¹ the Fish Hawk grasping a weakfish (*Cynoscion regalis*).

I have frequently seen Fish Hawks capture alewives (*Pomolobus pseudoharengus*), menhaden (*Brevoortia tyrannus*), roach (*Abramis crysoleucas*), and carp (*Cyprinus carpio*), along the Delaware River. Once at Cape May, New Jersey, I saw a Fish Hawk fly over with a large writhing eel in its talons, which shortly forced it to alight in a near-by field. At the off-shore pounds, off Rehoboth in Delaware, and Ocean City in Maryland, numbers of Fish Hawks resort. They sit on the posts supporting the nets, and, as they desire, fly down and lift out a fish. The species I have seen them secure in this fashion are sea-robins (*Prionotus evolans strigatus*), croakers (*Micropogon undulatus*), weak-fish (*Cynoscion regalis*), flounders (*Paralichthys dentatus*), and alewives. Doubtless from the multitudes of fish entrapped they also secure many others.

Kingfisher (*Ceryle alcyon*). The Kingfisher appears to bear the same ecological relation to our smaller bodies of water that the Fish Hawk does to the larger. Often it is resident in the Delaware River valley.

The food of the Kingfisher appears to consist entirely of small fishes, of which he takes a continual and heavy toll. Mr. Richard F. Miller says that along the Wissinoming Creek, in Philadelphia, he flushed a Kingfisher from a favorite perch. This was on February 10th 1902, and as snow covered the ground, a dead minnow (*Fundulus diaphanus*?), and several disgorged balls of fish-scales and bones, probably of minnows, and large as small grapes, were found underneath the perch.

On May 8th, 1913, Mr. Miller sent me a lot of fragments of food belonging to a nest dug out of a burrow in a bank, about eight feet in elevation. This was located along the Pennypack Creek near Vereeville, in Philadelphia, and contained seven fresh eggs. The enlarged end of the nest was seventeen inches deep, the tunnel fifty inches deep and four inches wide at the aperture. The fragments consisted of crawfishes (*Cambarus bartonii*), roach (*Abramis crysoleucas*), redfins (*Notropis cornutus*) and suckers (*Catostomus commersonii*).

¹ Birds of America, i, 1840, Pl. 15.

I have frequently seen the Kingfisher dive into the water and capture a roach (*Abramis crysoleucas*), which in many places seems to be its chief food. This is doubtless the case, as the roach is one of the most common and easily secured of all our small fishes. Other minnows it takes are fat-heads (*Pimephales notatus*), spawn-eaters (*Notropis hudsonius amarus*), bridled minnows (*N. bifrenatus*), silver-fins (*N. whippelii analostanus*), besides those already referred to. Its menu is likely still greater, as most all of our small cyprinoids are devoured.

Crow (*Corvus brachyrhynchos*). A familiar resident, and especially abundant along our rivers in cold weather. Though the examples I examined usually contained vegetable matter, occasionally remains of small fish were noted, evidently roach (*Abramis crysoleucas*), and killifish (*Fundulus heteroclitus macrolepidotus*).

Purple Grackle (*Quiscalus quiscula*). Occurs in the summer months scattered along our streams, where it will sometimes devour young minnows, left by the tides or otherwise accessible. I have seen them take young roach (*Abramis crysoleucas*), when less than two inches in length, along the shores of the Delaware. Mr. Joseph Wilcox has reported the habit of grackles feeding on fish many years ago.¹

In concluding it may be interesting to note that the larger and more powerful predatory fishes are able to capture and overcome birds which may frequent the shores, swim on the water, wade through it, or dive below its surface. Large pike (*Esox lucius*) and eels (*Anguilla anguilla*) are known to capture water birds in Europe. Regan² mentions, "not many years ago a large eel was captured in a pond near Sherborne by a laborer, who noticed a swan in difficulties and went to see what was the matter; the bird had put its head under water and this had been seized by the eel, who would not let go until it was in the grasp of the man who landed it." The most famous of bird-eating fishes is the angler (*Lophius piscatorius*), also called goose-fish, as some "have been known to swallow live geese." Storer

¹Proc. Acad. Nat. Sci. Phila., 1877, p. 38.

²British Freshwater Fishes, 1911, p. 156.

mentions, on the authority of two quite reliable Cape Cod fishermen, that "when opened, entire sea-fowl such as large gulls, are frequently found in their stomachs, which they supposed them to catch in the night, when they are floating upon the surface of the water." He also notes he was "informed by Captain Leonard West, of Chilmark, that he had known a goose-fish to be taken having in its stomach six coots in a fresh condition. These he considered to have been swallowed when they had been diving to the bottom in search of food." According to Brown-Goode, a fisherman informed him "he once saw a struggle in the water, and found that a goose-fish had swallowed the head and neck of a large loon, which had pulled it to the surface and was trying to escape. There is authentic record of seven wild ducks having been taken from the stomach of one of them. Slyly approaching from below, they seize birds as they float upon the surface."¹ Bigelow recently mentions² two goose-fish taken in North Carolina, which contained ducks in good preservation. One had a Lesser Scaup and the other a Red-breasted Merganser.

¹ Gill, *Smiths. Misc. Coll.*, xlvii, 1905, pp. 507-508.

² *Forest and Stream*, lxxx, February 8th, 1913, p. 173.

The Ovenbird's Call-Song

BY ROBERT THOMAS MOORE

I have used the term "call-song" to differentiate the Ovenbird's common song from the more ornate flight-song. Any other term I can think of seems a misnomer. Perch-song, sometimes used, implies that the song is sung from a perch, whereas in my experience it is more often sung from the ground. "Call-song" is at least not misleading, for it connotes a musical production made up of call-notes, and that is what the common song generally is, a series of identical couplets, any of which would sound like the slurred call-note of some species, if issued alone.

I suppose there is no bird-production which has claimed so much attention and provoked such divergent opinions as the common song of this species. From that early work¹ of Mr. John Borroughs, who suggested the "teacher" designation to the present time, there has been an intermittent discussion of the problem, which note of each couplet receives the accent. That the first note received it was Mr. Borroughs' opinion, and with this Simeon Pease Cheney² agreed, illustrating his belief by means of an interesting musical record. But in 1904 Mr. F. Schuyler Mathew's³ declared that both were at fault, insisting that the accent is placed "on the second syllable, thus: Teachér." He, too, offered musical records as proof of his contention. Mr. Chapman, who in his "Handbook" had praised Mr. Borroughs' syllabic rendering, wrote in his excellent compilation⁴ on the warblers: "Formerly, singing Ovenbirds said, to my ear, with remarkable distinctness and deci-

¹ Wake-Robin, 1865, p. 52.

² Wood Notes Wild, 1891, p. 63.

³ Field Book of Wild Birds and their Music, 1907, p. 199.

⁴ The Warblers of N. America, 1907, p. 222.

sion, téacher, téacher, etc. - - -, but as I now hear the song the accent is placed on the last syllable." To this Miss Paddock¹ assented, but Mr. Gerald Thayer,² unlike all the rest, noted some variation. He wrote: "Its tone-quality is, I believe, practically changeless, but its volume, speed and accentuation vary somewhat. Often, for instance, it is accented on the second syllable of each teacher, instead of on the first." This last, though it suggests a solution in variation of product, lacks authority, because it does not produce musical data to substantiate the position taken.

Believing that the real solution would be found by securing a large series of accurate records from different localities, the author has taken every opportunity to do this during the past four years and has now a considerable number, obtained largely from three localities; southern New Jersey, central New Jersey and central Maine. These throw so much light on the problem cited, as well as on other matters of interest connected with the call-song, that the most notable seem worthy of publication. They are not the result of snap judgment, but of careful decision after hours of concentration in the field. Indeed, whole days were devoted to the task of stealing up to singing Oven-birds and deciphering their enigmatic vocalizations, so that the records, I believe, are practically free from error.

There seems to be a general impression that the call-song is subject to little variation. If this were so, the wide divergence of opinion, cited above, would be incomprehensible, except by another supposition that the song-properties are ambiguous. A careful study of my records proves the last supposition correct and the general impression false. One of the song-properties, quality of tone, is extremely ambiguous, but the difficulty lies in the great *variation* the song undergoes at the throats of various Oven-birds. No two birds sing the same song and most individuals during hours of repetition change their productions considerably. There is not one song-property that does not at sometime or other vary or vanish. Even the tone-quality, generally a thick breathy whistle, is subject to some variation, for

¹ Quoted in "Warblers of N. America," p. 224.

² Thayer, MS.



Oven-bird Songs.

1. $\text{♩} = 160$ $28va$ p cres f

er, Teach- er, Teach- er, Teach- er, Teach- er, Teach!

* 2. $\text{♩} = 200$ $28va$ f cres ff

er, Teach- er, Teach- er, Teach!

3. $28va$

* 4. $\text{♩} = 220$ $28va$ $cres$ pp ff

Teach! Teach! Teach! Teacher, Teacher, Teacher, Teacher, Teacher, Teach!

5. $\text{♩} = 200$ $28va$ mf no cres mf

er, Teach er, Teacher Teacher, Teach! Teacher, Teacher, Teacher, Teacher, Teacher

6. $28va$ p $cres.$ pp $tr.$ ff

er, Teach- er, Teach er, Teach er, etc.

7. $\text{♩} = 200$ mf $38va$ p

er. Teacher, Teacher, Teacher, Teacher, Teacher, Teacher, Teach! Teach!

* 8. $\text{♩} = 200$ $38va$ p mp

er, Teacher, Teach! Teacher, Teach! Teach- er, Teach!

* These records have been shortened for convenience. Recs. 2 and 4 should have two more identical couplets and Rec. 8, four more. It should be noted that Recs. 7 and 8 are written 38va, while the rest are 28va.

the author of Rec. 5 went to the other extreme and used a thin, weak tone, decidedly warbler-like, while the author of Recs. 7 and 8 differed greatly from most Oven-birds in the possession of a just and distinct intonation. Still more in the other song-properties is variation common. The rate of speed is slow or rapid, the pitch is high or low, the couplets alter in number from three to eleven, the position of the accent shifts here and there, the unaccented note ("er") is sometimes dropped completely and that famous crescendo, to which so many have pinned their faith as to an immutable ear-mark of identification, exhibits the extreme limits of deviation possible to a musical expression! I have known songs to increase in power during the deliverance of six "teachers" from ppp to fff, or in other words the first notes carried no farther than a few feet and the last half a mile, while other songs betrayed the merest suspicion of crescendo!

A comparison of the records (Plate II) indicates these variations precisely. For instance, the rate of speed in Record 2 is marked as $\text{♩} = 200$, which means it was rendered presto quick, while Rec. 4 is still faster, $\text{♩} = 220$. On the other hand, Rec. 9 ($\text{♩} = 160$) is about two-thirds as fast, while Rec. 3 was sung in such slow irregular rhythm that it could not be timed with a metronome. An illustration of a typical crescendo effect is found in Rec. 4. In the space of eleven couplets it increases in intensity from a soft tone (pp) to a very loud tone (ff). On the other hand, Rec. 5 exhibits no crescendo whatever! The general pitch of Rec. 9, (page 21), is low, while that of Rec. 5 is an *octave higher*. When we come to the position of the unaccented note ("er") we find it is higher than the accented one ("teách") in Rec. 1, while in Rec. 2 just the contrary is true, and in Rec. 4 the unaccented note in the first four couplets is *dropped entirely!* This omission seems rather common, for it occurs in four of my records.

But these variations, of tone-quality, time, intensity and pitch, are, after all, not more than one would expect from a persistent songster, whose song is not nearly so constant as bird-students have supposed. Far more unusual is the occa-

sional presence of aberrant notes, which add greatly to the difficulty of deciding exactly what the bird is doing and may have confused many reliable students. These perplexing notes may be divided into two classes: those which interrupt the regular couplets and those which do not, the latter being mere ornaments to the couplets, which are sounded at the same time. Rec. 8 is a good example of the first class. Here the aberrant triplets (sets of three notes barred with two lines) break up the couplets ("teacher" notes) which cease while the triplets are being sung. The latter differ in tone-quality and are pitched about an octave higher than the couplets. Probably the triplets are plagiarized from the flight-song, for the combined effect is similar to that of the flight-music and approaches, I doubt not, the aberrant utterances mentioned by Mr. Thayer.¹ Unlike Mr. Thayer's song, this was probably not a prelude to the flight-song, for it was rendered from a tree in the middle of the day and continued for three-quarters of an hour, after which the bird *dropped* to the ground.


The second class of aberrant notes is more extraordinary and has not been mentioned, so far as I am aware, in the literature of the Oven-bird. I have caught it on several occasions, both in Maine and New Jersey, and in not one case was it a prelude to a flight-song. Sometimes it was a trill (Rec. 6), sometimes the repetition of a single note (Rec. 9, p. 21) and sometimes an extra series of high couplets (Rec. 7), but in most cases the regular couplets are continued to the end.² When I first detected this supplementary series of notes, I did not ascribe it to the Oven-bird above my head, but to some unknown warbler farther away, because it was rendered an octave higher than the main part of the song and with an entirely different tone-quality. On this occasion it was a rapid trill, like a Pine Warbler's song, for which my companion mistook it, but delivered with the tone-quality of a violin string. Though it generally entered about the middle of the song, it often did so at any point from the beginning to the end, and occasionally it

¹ Quoted in "Warblers of N. America," p. 223.

² Rec. 7 is an exception, in which one aberrant triplet breaks the couplets at the end.

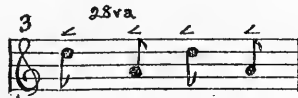
was whistled very softly without the lower couplets at all. With its inception the regular call-couplets sometimes reversed the accent (after the manner of Rec. 5, which I will explain later) to correspond to the accent of the trill. The remarkable feature of this performance is the "double-noted" effect, an effect which is the almost peculiar possession of the great songsters, notably the thrushes. Potentially, at least, this places the Oven-bird in their ranks, a position which he may actually attain, if he continues to experiment with these remarkable musical devices. It indicates that he has not yet attained and accomplished, but even now, perhaps, is ascending to some rare achievement, possible only to an evolving genius.

It is a suggestive fact that Rec. 7 was produced by the same bird which sang Rec. 8, the example chosen to illustrate the first class of aberrant songs. And this indicates the diversity that exists in the productions of individual Oven-birds. A more remarkable example of this is the following group of five songs which were all sung by one bird on May 19, 1911, during a period of three and a half hours. One other record, which has not been inserted, was sung by the same bird. I was with him from 11 a. m. until 2:30 p. m. He was not once out of my sight! At 11:00 he sang thus,

9. 

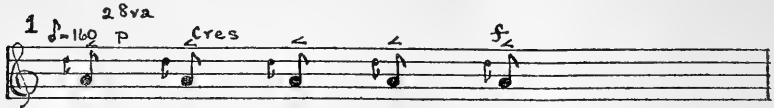
Teacher, Teacher, Teacher, Teacher, Teacher, etc.

employing crescendo, a moderate rate of speed (♩ = 160) and the aberrant repeated note. This he sang a number of times with slight variations until 11:30, when he raised it a "third" in pitch. About noon, which was unseasonably hot, the song gradually deteriorated. The trill and crescendo were dropped



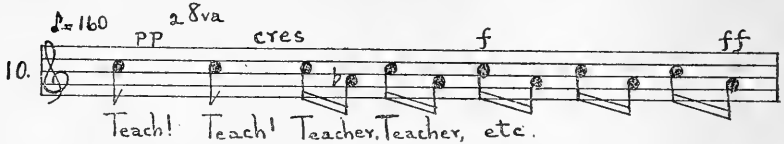
and the couplets reduced to two. At the same time the accented

note lost its characteristic sledge-stroke, so that both notes were struck with equal languor and the rate of speed became very slow. Shortly after this the song went to pieces on single couplets and ceased for an hour. At 1:30 p. m. it was resumed in the form of a typical song, while the rate of speed and accent

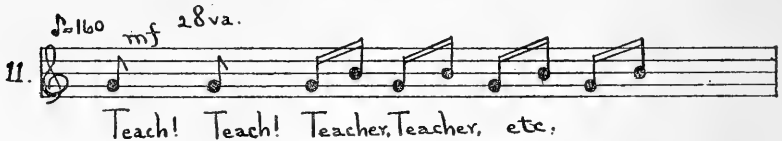


er, Teach- er, Teach- er, Teach- er, Teach- er, Teach!

were restored. In this rendering the unaccented note came first: "er-Téach, er-Téach, etc." But at 2 p. m. this eccentric individual reversed the accent, and sang Mr. Borroughs' song, although he elided the unaccented note from the first two coup-



lets. But this was not all! A half-hour later the accented note was placed lower than the unaccented and the song dropped in pitch. This Oven-bird was a versatile individual, far beyond



the ordinary, no doubt, and yet every Oven-bird, to which I have devoted an hour's patience, has exhibited the same tendency towards variation.

In this description I have alluded to a "change of accent," which brings up *the* problem of the call-song. Every one is acquainted with Mr. Borroughs' syllabic rendering, the best of its kind, "Teacher, teacher, TEACHER, TEACHER, TEACHER," which provoked the popular question: "Does the first or second syllable receive the accent?" To begin with, this does not state the problem correctly. It is bad enough to force an unmusical word down a bird's throat, but it is the last straw of

insult to accuse him of mispronouncing it! Miss Paddock¹ realized this and, though noting a song similar to Mr. Mathews' records, rendered it syllabically "cher-téa, cher-téa, cher-téa," instead of "teachèr, teachèr, teachèr." So too did Dr. Witmer Stone in his "Birds of New Jersey." The real problem after all is not whether the bird sings "téacher" or "teachèr," but whether he begins his song with an accented or unaccented musical note.² The solution of this problem may be found, not only in my records, but also in the combined records of Messrs. Mathews and Cheney, as well as in the perfectly accurate observations of Messrs. Borroughs, Chapman and Thayer. The bird does *both* of these things. Each individual places that accent just where he sees fit and shifts it when he chooses, with the result that some songs accent the first note throughout the call (Recs. 4 and 10) and most the second (Recs. 1, 2 and 6)! About fifteen per cent. do the former according to my records, and this average is probably not far wrong.

Most interesting of all, quite a few individuals shift the accent in the middle of the song, stressing the second note of each couplet during the first half and the first note during the second. So that in the single performance of one Oven-bird we have the solution of the problem which has caused so much divergence of opinion! My best example of this is Rec. 5. The break is represented syllabically at the end of the fourth couplet for the benefit of those who are not familiar with musical notation. It would not be detected, except by a keen ear, on account of the speed ($\text{♪} = 200$), with which the song is delivered, and yet it would produce an ambiguous effect upon the listener's attention. Indeed this shift of accent, as it may occur unexpectedly at any point in the song, is a most confusing trick and probably more responsible for the divergent report of so many careful scientists than any other eccentric trick of this most eccentric warbler.

Despite the variability in the accent's point of attack, it is in one sense the most constant quality of the call-song. It is always

¹Quoted in Chapman's "Warblers of North America," p. 224.

²Mr. Mathews in one record recognizes a supplementary initial grace note, which I have detected but once.

present, so far as my experience goes, in all performances, however erratic and immature.¹ It is the characteristic trait, which together with the crescendo effect, makes all of these productions instantly recognizable as belonging to the Oven-bird. When heard at a distance, it is invariably decided, almost sledge-like in its stroke, though curiously enough at close range, muffled and obscure. Again it is beat off in exact rhythm, like the ticking of a clock with no sign of decrease or increase of speed. Occasionally interrupted for snatches of the flight-song, the regular beat is at once reasserted, when the borrowed theme has been abandoned.

The name, Golden-crowned Accentor still persists in the synonymy of this species and to a musician seems a better term than Oven-bird. Other birds have evolved roofs for their nests, notably the wrens, who have outdone our whimsical oven-builder, but no other bird in the East has developed such a remarkable accent by the most effective medium for displaying it, that of crescendo. As far as my experience goes, it is the most tremendous crescendo in the bird-world, quite capable of astounding the blasé intruder into its region of high oaks and beeches. There from the bush-free earth out of the heaps of restless leaves will swell that voice, which in the time of three seconds will surge from distant wood to his very feet. No musician can render it with more precision! Heard at a distance it is free of all vagaries and has that confident ring, which at once claims the woods and dominates all other songs, however much finer musically. Other birds have conceived some value in crescendo and have employed it more or less effectively, particularly the Screech Owl, who has pushed it to the extreme in the service of mystery, and the Flicker, whose product is as harsh as the Oven-bird's is soothing, but neither of them has caught the full conception of its noblest power, the ability to express unbounded exultation by one mighty surge to climax, as has this great Accentor, wee of form, but gigantic of voice.

¹ Even here I must note an exception and this only proves how variable this bird is. In Rec. 3 each note was sounded with the same intensity, so that there was no accent, but this happened when the song was deteriorating apparently under the influence of the heat.

The Snow Hill Bird-Roost

BY SAMUEL N. RHOADS.

Snow Hill is an old negro settlement, probably entitled long ago to its centennial anniversary, and located a mile or more south of Haddonfield, Camden Co., N. J. Approached from the Haddonfield side, it has a sandy, hilly appearance, but on other sides that feature is not manifest. On the northeast side of the hamlet it slopes rapidly toward the spring-heads of a branch of Cooper's Creek, and at this point is located what I have decided to call a Bird-roost, as distinguished from a Black-bird, or Robin-roost.

It may seem as strange to you as it has to me that with all my gadding about for forty years after birds, not only around home, but abroad as well, I had as yet never discovered a Blackbird or a Robin-roost. Imagine therefore my feelings on August 31, 1913, when after a few hours scouting, I found myself in a roost of that kind within rifle shot of my old home. Nor was this all, a negro, whose house stood close by the roost, said that this piece of woods had always been a fall resort for thousands of birds, and a white farmer on the other side said that he had known them to frequent the place for roosting during the fourteen years he had lived there.

This roosting place does not strike one as ideal. It is small; the wooded portion of a hillside covering only about four or five acres. The higher portion is a sandy knoll covered with bushy pines twelve to eighteen feet high; below these, oaks, gums and chestnuts, of twenty to thirty-five feet, thickly cover the slope, and at the bottom, which is swampy, oaks, red maples and black gums, some forty to fifty feet high, reach out to the cleared meadow and brush lands of the true swamp. The roost is thus isolated from other pieces of woods in the vicinity by cleared or partially cleared areas on all sides. This fact may

afford some protection for the assembling birds from the gunners who frequently disturb them; at least it gives them a chance to reconnoitre before entering the roost, a precaution which many flocks take, except those coming in at very late hours. The shape of the roost is like that of a reversed map of Africa, and the widest portion is on highest ground.

In observing the birds assemble, I selected the Haddonfield or northern side, where was a swampy meadow commanding a wide view of the horizon north and west, out of which the great bulk of birds approached. It should be stated that my discovery of the roost was primarily due to observing the regular flight of Crow Blackbirds from 5.30 to 6 p. m. over my home, 81 Haddon Avenue, Haddonfield, during the latter part of August of the present year. Every evening the line of flight was remarkably true to a course over my little garden and certain lofty trees in my aunts' yard, thence over the Town Hall, southward. The elevation of this aerial course was about one hundred and twenty feet, or well above the highest tree-tops. Occasionally the Blackbirds would alight in the woods just behind the garden and gather acorns or pick gumberries with the flocks of Robins there gathered, but that would be earlier in the afternoon. There were about three or four thousand Blackbirds in these flocks, and I supposed on discovering the roost that there would be practically nothing but Blackbirds in it. In this I was greatly mistaken, for though they formed the bulk of roosting birds, there were hundreds of Robins, scores of Starlings, dozens of Doves, and a large number of migratory warblers, finches, thrushes and woodpeckers, nightly associated with them in various parts of the wood.

Probably a version of my verbatim field-notes, taken on the ground, will give the most real picture of what went on at the roost after the "roosters" began to arrive.

"First visit. 4.30 p. m., searching for roost, walked beyond it, when saw some Starlings flying over and back of me, as if to shelter, so asked some boys who directed me to go back $\frac{1}{4}$ mile. Found roost, and a few Starlings in top of high tree near-by, about 200 yards east of Snow Hill School House. More Starlings circle around, then all clear out. 5.12: first Grackles

coming from Haddonfield way, 15 or 20 alighting in top of big gum over spring. 5.20: about 60 Swamp Blackbirds (or are they Cowbirds?) fly swiftly clear over and beyond roost (not seen again). 5.30: a Dove came in. (A clear, calm, hot night this; fine for observations.) 5.40: a dozen Crow-blacks from Haddonfield way go to big gum; many warblers in swamp, scolding and calling; many Night Hawks appear above trees, circling about, not migrating? 5.45: about 50 Crow-blacks leave roost, fly toward Haddonfield, also the Dove. 5.54: Blackbird flocks coming from Haddonfield way, together with 3 Robins, also first Starling from that way. 6.15: 100 Crow-blacks and 4 Starlings. 6.20: 20 Doves in twos and sixes and 150 Crow-blacks, with 30 Starlings, all from Haddonfield way, being first to settle down and begin palaver in roost, also some Flickers, Robins and Brown Thrushes come in. 6.38: 15 Doves, many Robins continually dropping in, mostly from Haddonfield way, also Doves in twos and threes, continuously from same point, about 18 more in all. 6.40: 150 Crow-blacks and another 109 from a new point, viz., eastward. 6.45: large flocks from Haddonfield way, continue; big bunch Starlings from Audubon way, viz., westward, also more Doves, all of which latter appear to settle among pine-scrub on sandy knoll, away from Blackbird roost, most Robins settle in and around same locality, the Blackbirds confining themselves to central portions of taller wood, over space of 2 acres; getting dusk, bats flying, 100 Crow-blacks from east; see a planet; Robins increasing, dashing in low from all points; Brown Thrushes, Veery and Chewinks calling in bush margins of wood. 6.50: Doves and lot of Crow-blacks in continual streams, just over tree tops, dropping in, the latter quite noisy. 7.05: scattering Robins dashing in close to me, out of the dusk. 7.10: no more birds appear to come in, so I leave the roost for home."

Unfortunately, two weeks intervened between my first visit and the next one. The second visit was made on the afternoon of September 15th. The weather was clear, cool and hazy. I arrived at the roost on my bicycle about 4 p. m., and took five photo-views of the roost from various positions. My notes on this visit run substantially as follows:

“4.15: a few Robins already in wood. 5.15: 3 Crow-blacks flew over roost toward Haddon Heights, viz., westward. 5.30: flock of 30 Robins flew into big gum. 5.50: 15 Crow-blacks flew over and came back in three minutes. 5.55: growing dark and apparently no Blackbirds likely to come, when suddenly a flock of 150 drop in from the east, Robins meanwhile coming in fives and tens, scatteringly from Haddonfield way, many others descending from a great height from Audubon way; Night Hawks dashing about high up; some Cedar Birds seen. 6.05: 50 Crow-blacks from the west; Wood Thrushes scolding, also Chewinks, Brown Thrushes and Robins making quite a commotion in woods, probably caused by Owls there, also noted Cat Birds, and a Least Flycatcher, plainly seen, earlier. 6.15: quite dark, but saw 25 to 30 Doves come in, in close file, just over swamp bushes, evidently in much fear. As many Robins as on my first visit. 6.30: went home.”

The great reduction in numbers of roosting birds observed on my second visit was evidently not due to lack of birds in the region or to migration, as my observations in neighboring localities proved, but was undoubtedly due almost entirely to gunners, who, I was informed, had, on several evenings since my first visit, been shooting the Blackbirds as they came in.

Third visit, Sunday, September 28th. “Arrived at roost on my wheel. 5.50 p. m., many Robins coming, in irregular flocks from Haddonfield way, which, I do not doubt, are the same flocks observed in the gum trees back of my house that afternoon, where there seemed to be several hundred. No Blackbirds nor Starlings appeared that night in any direction viewed from the roost, though flocks of the former were in my woods and vicinity that day at Haddonfield. Remained till late dusk, 6.20, and heard a Wood Thrush and Chewink. About 30 Doves came to their roost in the pines in twos and threes, over a period of about twenty minutes. Fine clear day and evening, neither cold nor hot. Should say there was no diminution in number of Robins coming to roost from that noted on previous visit.”

This was my last visit. These observations can be considered merely as a preliminary report on a Roost which will bear further and more careful investigation next year, and it is my hope

to be able to take the matter up with greater thoroughness in the future, as this old-established Bird-Roost appears to be of a much more cosmopolitan character than those which have been reported in last year's issue of *Cassinia*. Owing to the irregular and imperfect manner of making the above observations, it will be best to reserve any deductions or conclusions, which may have occurred to me, for a future paper.

HADDONFIELD, N. J. *Jan. 1st 1913.*

A Census of the Turkey Vulture in Delaware

BY CHARLES J. PENNOCK

So far as the writer has found there has been but little published on efforts at an enumeration of the individuals of any species of birds, resident in any extended territory. In Illinois a few years ago there was a careful bird census reported,¹ and various writers have mentioned points bearing on this subject.² It is obvious that the larger birds may be counted with more accurate results. They are to be seen farther and hereabouts are fewer in numbers.

My notes on the occurrence of the Turkey Vulture in Delaware extend over several years and may prove of interest. The deductions are probably subject to criticism, but are intended to be conservative. The territory covered is for the most part level, except in the extreme northern part (less than one-tenth of the total area of the state), and there the species are less numerous than elsewhere in Delaware. Many of these notes were taken from railway trains and trolleys, but this bird is so readily recognized even at a long distance that there is little chance for an error in identification. Probably this would hold true for comparatively few species of birds. It will be noted that the count in winter sometimes equals or exceeds that for warmer weather. This may not exactly reflect actual conditions, as in May and June incubation takes place and fewer birds would be moving; in summer more dense foliage would usually interfere with a full count. Nevertheless, this bird is strictly resident throughout the state, unless there is a slight increase in the colder weather from birds that drifted northward in summer, Delaware being almost the northern breeding

¹ An Ornithological Cross Section of Illinois in Autumn. Bull. of the Ill. State Lab. of N. Hist., Vol. VII, Article IX, April, 1907, by S. A. Forbes, Ph. D.

² Knight, Birds of Maine, 1898, pp. 236-237, and p. 348. Wilson Bulletin, No. 14, etc.

limit of the Turkey Vulture along the Atlantic seacoast. The factor of timber land interposing has been used, because the birds can be observed at such a long distance, that woods close at hand would cut off open country beyond, and again this species may be found in woods, feeding when opportunity offers, and frequently roosting there in the day time, and then they are not likely to be seen in passing.

The separate figures represent separate observations (birds close together or in the same immediate neighborhood) and are given to indicate better the distribution of this bird throughout the region.

It has been assumed that the observer was able to see a belt one mile wide, an arbitrary assumption dependent on various conditions, including height of the bird above the earth, but numerous observations suggest this distance as being within bounds.

	Number.	Distance in miles.	To square mile.
Dec. 18, 1900. Odessa to River Farm. Driving	18	3	6.
Mar. 8, 1901. Wilmington to Dover. From car window. (8 per cent. added)	49	48	1.
Oct. 8, 1904. Hockessin. From trolley.	10	4	2.5
Oct. 11, 1906. Hockessin. Walk, various.	6	1	6.
Feb. 9, 1907. Greenbank. Trolley. 75 (not considered). These birds were feeding and probably had been attracted from a distance.	..	..	..
Dec. 27, 1907. Middletown to Lewes. From car window. 1-1-1-2-2-1-2-2-2-2-3-23-3-2-3-3-2-2-1-3-3-3-3-2-1-2-2-2-1-2-2-1-10-3-2-2-3-2-2-2-9-1-19-1-1-2-1-3-1-2-12-2-2-1-3-2. 57 observations, 174 birds seen. Add 8 per cent. for loss from woods, 14.	188	77.5	2.4
			<u>17.9</u>

	Number.	Distance in miles.	To square mile.
			17.9
Dec. 30, 1907. Lewes and vicinity. Walking. 129 were counted in 3 days' tramping. Different routes taken each day, and none counted on homeward bound trip, say. . . .	50	10	5.
May 15, 1908. Rehoboth and vicinity. Walking. 2-1-2-2-4-3-4-2-2	22	3	7.
May 16, 1908. Morning, Rehoboth. Walk. 1-5-1-1-3-1	12	3	4.
May 16, 1908. Afternoon, Rehoboth. Walk. 1-3-2-3-3-4-1	17	3½	5.
June 6, 1908. Porters and vicinity. Walking. 1-1-2-3-4-3-2-5-1.	22	2½	8.8
Sept. 29, 1908. Rehoboth to Wilmington. From car window. To Georgetown, 20 miles, 1-1-5-1-8-5-2-1-1-1-10-1-6-1-2-13 = 59. To Harrington, 23 m., 7-3-5-5-2-3-1-1-2-1-1-2-3-4-4-1-2-2-3-2-7 = 61. To Dover, 17 m., 3-2-1-2-1-1-1-5-1-1-1-3-11-3-2-1-1-1-1 = 42. To Wilmington, 47.5 m., 1-1-1-1-1-2-2-4-1-1-2-1-1-1-3-41-1-1 = 66. 72 observations. Total 228 counted one side of car only, add 8 per cent. for loss by woods and then ½ for other side of car	369	107.5	3.4
Jan. 2, 1909. State Line to Summit Hill. Trolley, various	10	4	2.5
March 29, 1909. State Line to Summit Hill. Trolley, 3-3-2.	8	4	2.
Sept. 11, 1909. Yorklyn. Walk, 1-3-2	6	1	6.
Sept. 30, 1909. Summit Hill. Walk, 1-1-2-3-1	8	2	4.
Oct. 13, 1909. Wilmington to Dover. Railroad, 6-1-1-2-3-1-1-1-1-2-1-2-2-1-1-1-1-2-2-4-1-2-1-1-3-1-2-1-3-1-5-2 = 60. Add 8 per cent, (5)	65	48	1.3
			66.9

	Number.	Distance in miles.	To square mile.
Nov. 12, 1909. State Line to Wilmington. Trolley, 1-5-3-4-2-3.	18	9	2.
May 14, 1910. State Line to Yorklyn. Walk, 3-2	5	1	5.
Oct. 29, 1910. Springs to Newport. Walk, 1-1-3-2-2-4-3-2-5-2-3	28	3	9.3
May 27, 1911. Henderson to Clayton. From car window. Seen 76 birds, add 10 per cent. for heavier timbered country. (Both sides of car were observed, but opposite side only in part.) Equals about	84	16.6	5.
November 30, 1912. Newport. Walk, 1-2-4.	7	1	7.
Dec. 30, 1912. Brenford to Rehoboth. From car window. To Dover, 8.2 miles, 8-20-5-1-1-1-2-2-1-3-2-2-1-1-1-4-6 = 61. Dover to Harrington, 16.7 miles, 2-5-2-4-2-3-1-3-3-1-2-1-3-1-1-1-1-5-2-5-2-3-2-1 = 56. To Rehoboth, 43.6 miles, 2-1-1-2-1-4-1-1-1-2-1-1-2-2-1-2-3-1-1-2-1-1-2-1-2-1-1-3-1-1-1-1-1-1-1-7-12-1-1-5-1-1-1-1-1-1-1-1-1 = 87. Total of 204. Add 8 per cent., say 16. 91 observations.	220	68.5	3.2
Number of trips 22	..	22	98.4
Average	..	..	4.47

It is to be noted that the observations *off* the cars average 6.1 while from a car window the average is only 2.53 which would indicate that many birds are missed on hurried trips, as might be expected. Taking the average of all of these Records we have 4.47. It is probable that such a method in counting would not embrace over 50 to 60 per cent of the entire Vulture popu-

lation, as many birds would not be moving. Granted that two-thirds of all these birds were seen and we would have an average of 6.71 birds to the square mile. About $\frac{1}{1\frac{1}{2}}$ of the area of the state may be included in the hilly section of the North, where the Turkey Vulture is less numerous than in the remainder of the state. Again *assuming*, and taking 3, per square mile as a fair number for this hilly region we would have the *general average* for the entire State as 6.40 birds to the square mile. The area of Delaware is somewhat over 2100 square miles so that under such a system of reckoning we have a total of about 13.440. It would appear that we might almost ignore the R. R. records, as they are so constantly lower than the others and by so doing and adding $\frac{1}{2}$ would have an average about 8.5 to square mi., and a total of about 17.850,¹ as a number for the Turkey Vulture population of the state. It is evident that the factor of uncertainty has appeared several times in the forgoing estimate and that the result may be far from exact. However the records are given as taken and those interested may draw their own conclusions.

For reference Wilson Bulletin No. 74, March, 1911, p. 41 and other "Bird Horizons." Bunes in Wilson Bulletin No. 37, Dec., 1901, and Osprey, Vol. II, p. 48. Gault in Wilson Bulletin No. 28, Vol. 6, No. 5, p. 65.

¹With one exception no Records *on cars* equalled $3\frac{1}{2}$ to the square mi., while off the cars none was below 4.

Bird Notes

RECORDS OF UNUSUAL OCCURRENCES FOR 1913.¹

- Green Heron. Camden, N. J. (*Potter*), Nov. 30.
Florida Gallinule. Bridesburg, Pa. (*R. F. Miller*), Feb. 12.
Wilson's Phalarope. Pocono, Pa. (*Carter*), Sept. 10.
Saw-whet Owl. Westtown, Pa. (*Carter*), Dec. 7.
Saw-whet Owl. Camden, N. J., (*Potter*), Nov. 27.
Arkansas Kingbird.² Rehoboth, Pa. (*Pennock and Trotter*),
Dec. 31, 1912.
Olive-sided Flycatcher. Marple, Pa. (*Culver*), Aug. 29.
Savannah Sparrow. Lester, Pa. (*Pearson*), Jan. 29.
Chewink. Melrose, Pa. (*Barker*), Jan. 1 and 3.
Rose-breasted Grosbeak. Nesting Pensauken, N. J. (*R. F. Miller*), July 7.
Rose-breasted Grosbeak. Nesting Beverly, N. J. (*Street*),
summer.
Cape May Warbler. Unusually common. Reported by
Abbott, Baily, Kuser, Mason, Palmer, Serrill, Stone and Styer.
See Migration Report.
Mourning Warbler. Paoli, Pa. (*Baily*), May 18.
Mourning Warbler. Aldan, Pa. (*Culver*), May 25.
Hooded Warbler. Swarthmore, Pa. (*Harrower*), May 5.
Hooded Warbler. Bustleton, Pa. (*R F Miller*) May 8.
Short-billed Marsh Wren. Breeding Haddonfield, N. J.
(*Rhoads*), July 1.
Gnatcatcher. Atlantic City, N. J. (*Cromie*), April 23.
Gnatcatcher. Fish House, N. J. (*Potter*), March 28.

BACK-YARD OBSERVATIONS IN PHILADELPHIA.

These are the birds observed by Mrs. Stone and myself in our 20x40 ft. garden, in a thickly built-up section of West Philadelphia. A series of similar yards runs along for the

¹ These records are unusual, either on account of locality or date. For details see Migration Report.

² Reported in *Auk*, 1913, p. 573.

whole block, backed by a similar series belonging to houses on the next street. Ours is protected from cats by a chicken-wire extension to the open iron fence:

Mar. 26. Flicker (on chimney).	Sept. 30. Cape May Warbler
April 20. Hermit Thrush.	(2 juv.).
May 11. Maryland Yellow-throat.	Brown Thrasher.
Nighthawk (flying over).	White-throated Sparrow.
May 13. Towhee (female).	Oct. 1. Junco.
May 15. Purple Martin (flying over).	Oct. 2. Catbird.
May 18, 27, 28. Maryland Yellow-throat.	Oct. 3. Myrtle Warbler (2).
	Oct. 4. Brown Thrasher.
	Catbird.
	5. Hermit Thrush.
Aug. 31. Maryland Yellow-throat.	Oct. 16. Maryland Yellow-throat.
Least Flycatcher.	Oct. 17. House Wren.
Sept. 8. Maryland Yellow-throat.	Oct. 18. Maryland Yellow-throat.
Sept. 10. Blackpoll Warbler.	Oct. 19. House Wren.
Sept. 12. Tennessee Warbler.	Ruby-crowned Kinglet.
Maryland Yellow-throat.	White-throated Sparrow.
Sept. 14. Oven-bird.	Junco.
Sept. 21. Cape May Warbler (1 ad 2 juv.).	Oct. 23. Ruby-crowned Kinglet.
Sept. 22. Brown Thrasher.	Oct. 25, 27. White-throated Sparrow.
Sept. 24. Black-poll Warbler.	Oct. 29, 30. Ruby-crowned Kinglet.
Black-throated Blue Warbler.	Oct. 30. Woodcock.
Sept. 25. Hummingbird.	
Sept. 28, 30. Maryland Yellow-throat.	

As all these birds were unquestionably migrating, the dates throw some interesting light on the length of time of the migration period for certain species, as for instance the Maryland Yellow-throat.

WITMER STONE.

Report on the Spring Migration of 1913

COMPILED BY WITMER STONE

Only thirty-eight schedules were received for the spring of 1913. The increasing importance of this series of migration records makes it imperative that the observations should be kept up and that the corps of observers should be increased. Arrangements have been made, by which inquiries will be answered promptly and schedules furnished to any one applying to Dr. Witmer Stone, Academy of Natural Sciences, Logan Square, Philadelphia.

The observers for 1913 were the following:

New Jersey.

Cape May, H. Walker Hand.
Atlantic City, Mrs. Norma S. Cromie.
Vineland, Mrs. Alice K. Prince.
Downtown, Wm. W. Fair.
Yardville, Rachel E. Allinson.
Bordentown, Minnie V. Flynn.
Three miles S. E. of Trenton, Richard M. Abbott.
Beverly, J. Fletcher Street.
Bernardsville, J. D. Kuser.
Rancocas, Frances B. Stokes and Emily Haines.
Moorestown, Anna A. Mickle.
Moorestown, Agnes M. Wierman.
Camden, Julian K. Potter.

Pennsylvania.

Concordville, Katherine R. and Elizabeth P. Styer.
West Chester, Isaac G. Roberts.
West Chester, Robt. P. Sharples.
Westtown, E. L. Nicholson.

Westtown, E. M. Webster.
Swarthmore, H. M. Harrower.
Swarthmore, Samuel C. Palmer.
Addingham, D. E. Culver.
Lansdowne, John D. Carter.
Media, Lydia G. Allen.
Ardmore, Wm. L. Baily.
Haverford, Wm. J. Serrill.
Wayne, Mary K. Baker.
Wayne, Leonard S. Pearson.
Rosemont, Saml. Scoville, Jr.
Bryn Mawr, Emily H. Thomas.
West Philadelphia, Thomas R. Hill.
Norwood, Jesse E. Packer.
Germantown, Arthur C. Emlen.
Holmesburg, Henry W. Fowler.
Frankford, Richard F. Miller.
Newtown, Alexander Patman.
Newtown, Cornelia Hicks.
Newtown, Nancy Emhardt.
Melrose, Saml. H. Barker.
Doylestown, Russell Mason.
Easton, Edw. J. F. Marx.
Lopez, Otto Behr.

The weather during the first half of February, 1913, was cold, but the last two weeks were for the most part mild, the temperature reaching its maximum on the 20th, on which date Purple Grackles, Robins and Killdeers were reported.

Early March was cold, with rising temperature March 12-15 accompanied by rain. The highest temperature of the month was registered on March 21, following a heavy rain, marked by arrivals of Phoebes and Field Sparrows. A considerable migration took place on the 28th and 29th, clear days following rain—Kingfishers, Grackles, Vesper Sparrows and Chipping Sparrows.

The first half of April was generally rainy, clearing on the 17th, with no more rain until the 27th. There was a marked

migratory movement on the 18th and 19th and another on the 25th and 26th and on the 30th, which was a clear day, following three days of rain.

The first of these waves brought the Towhee, Tree Swallow, Myrtle Warbler and Brown Thrasher; the second the Chimney Swift, Black and White Warbler, Yellow-throat and House Wren; and the last the Spotted Sandpiper, Whip-poor-will, Ovenbird, Catbird and Wood Thrush.

May was clear until the 13th, with an enormous migratory movement on the 3d and 4th.

The spring was noteworthy for the great number of rarer warblers observed, notably the Cape May, Bay-breasted and Wilson's.

The autumn of 1912 was characterized by the great abundance of Red-breasted Nuthatches, which remained through the winter and well into the spring at a number of stations. In the autumn of 1913 came an unusual influx of Black-capped Chickadees.

A table similar to that prepared last year is appended showing the number of days earlier (+) or later (—), by which the 1913 bulk-arrival dates for the Philadelphia district differed from the average.

Purple Grackle	Feb. 28	+	7
Robin	Mar. 1	+	9
Fox Sparrow	" 7	+	12
Red-winged Blackbird	" 9	+	6
Flicker	" 14	+	1
Phoebe	" 21		0
Cowbird	" 24	—	1
Kingfisher	" 29		0
Vesper Sparrow.	" 30	+	2
Chipping Sparrow	" 31	+	2
Sapsucker	Apr. 7	+	3
Hermit Thrush	" 11	—	4
Ruby-crowned Kinglet	" 14	+	9
Yellow Palm Warbler	" 17	+	4
Towhee	" 19	+	1
Barn Swallow	" 22	+	3

Chimney Swift	“ 23	0
Brown Thrasher	“ 23	+ 3
House Wren	“ 26	+ 2
Black and White Warbler	“ 26	+ 2
Spotted Sandpiper	“ 27	— 3
Maryland Yellow-throat	“ 28	+ 2
Grasshopper Sparrow	“ 29	— 4
Yellow Warbler	“ 30	+ 2
Catbird	“ 30	0
Oven-bird	“ 30	0
Wood Thrush	“ 30	+ 2
Redstart	May 4	0
Black-throated Blue Warbler	“ 4	0
Parula Warbler	“ 4	0
Crested Flycatcher	“ 4	0
Kingbird	“ 5	+ 1
Baltimore Oriole	“ 5	0
Scarlet Tanager	“ 6	+ 2
Blue-winged Warbler	“ 6	+ 3
Chestnut-sided Warbler	“ 7	+ 2
Red-eyed Vireo	“ 8	+ 3
Chat	“ 8	+ 4
Rose-breasted Grosbeak	“ 8	+ 3
Indigobird	“ 8	+ 2
Magnolia Warbler	“ 8	— 2
Bobolink	“ 9	+ 4
Olive-backed Thrush	“ 9	+ 1
Hummingbird	“ 10	— 6
Wood Pewee	“ 11	— 5
Yellow-billed Cuckoo	“ 11	— 5
Blackpoll Warbler	“ 12	+ 5
Canada Warbler	“ 12	— 2

Horned Grebe, *Colymbus auritus* Westtown, April 5 (*Webster*).

Pied-billed Grebe, *Podilymbus podiceps*. Holmesburg, March 31 (*Miller*).

Loon, *Gavia immer*. Fish House, N. J., April 12-16 (*Potter*); Atlantic City, N. J., May 3 (*Cromie*).

Wilson's Petrel, *Oceanicus oceanites*. Delaware Bay below Ledge Light, June 5 (*Prince*).

Bonapart's Gull, *Larus philadelphia*. Delaware River at Chester, April 8, five; April 9, one; April 15, 16, numerous; and a few April 18 (*Carter*); Fish House, N. J., April 9-24 (*Potter*).

Laughing Gull, *Larus atricilla*. Delaware River at Chester, one, April 29 (*Carter*); mouth of Maurice River, N. J., August 22-23, 1912, several (*Prince*).

Black-backed Gull, *Larus marinus*. Atlantic City, N. J., January 5 (*Cromie*).

Common Tern, *Sterna hirundo*. Gloucester, N. J., Sept. 2, 1912 (*Potter*).

Black Tern, *Hydrochelidon nigra surinamensis*. Pensauken Creek, N. J., July 8-9 (*Miller*).

Merganser, *Mergus americanus*. Delaware River at Camden, N. J., Feb. 2-April 27 (*Potter*).

Red-breasted Merganser, *Mergus serrator*. Buckshutem, N. J., April 6 (*Prince*).

Black Duck, *Anas rubripes*. Swarthmore, April 17, three (*Harrower*); Buckshutem, N. J., July 25, 1912, flock of 7 (*Prince*).

Redhead, *Marila americana*. Fish House, N. J., March 30, four (*Potter*).

Scaup, *Marila marila*. Delaware River at Camden, N. J., March 16-May 4 (*Potter*); a pair seen in a little cove of Maurice River, N. J., May 30, 31, and June 5, nesting? (*Prince*).

Goldeneye, *Clangula americana*. Fish House, N. J., April 18, two seen (*Potter*).

Bufflehead, *Charitonetta albeola*. Buckshutem, N. J., pair shot, Nov. 28, 1912 (*Prince*).

Old Squaw, *Harelda hyemalis*. Tinicum, one shot April 5 (*Pearson*).

Ruddy Duck, *Erismatura jamaicensis*. Maurice River, N. J., Oct. 15, 1912; Delaware Bay, May 22 (*Prince*).

Canada Goose, *Branta c. canadensis*. Six over river at Chester, May 6 (*Carter*); Buckshutem Pond, N. J., over 30 left each day, flying down Maurice River and returning at night for two

weeks in November (*Prince*); Richmond, two on river May 4 (*Miller*).

Brant, *Branta bernicla glaucogaster*. Several at Buckshutem, N. J., for two weeks in November (*Prince*).

Bittern, *Botaurus lentiginosus*. Trenton, N. J., April 12 (*Abbott*); last seen at Buckshutem, N. J., Nov. 2, 1912, were present all summer (*Prince*); Bridesburg, May 22, and Pensauken, N. J., July 7 (*Miller*).

Least Bittern, *Ixobrychus exilis*. Bridesburg, May 19, three nests with eggs (*Miller*).

Great Blue Heron, *Ardea h. herodias*. Moorestown, N. J., March 9 (*Mickle*); Yardville, N. J., May 26 (*Allinson*); Atlantic City, N. J., Nov. 28, 1912, and Jan. 19. Counted over 400 on Grassy Bay, Aug. 31, 1912 (*Cromie*); Tinicum, Jan. 29, two (*Pearson*); first seen at Maurice River, N. J., June 10–July 16; last, October 4 (*Prince*); Wayne, Oct. 4–6, 1912, May 10 (*Baker*); Lester, January 29 (*Pearson*); Riverside, N. J., February 17–18 (*Street*).

Green Heron, *Butorides v. virescens*. Last seen 1912, Nov. 30, Camden, N. J. (*Potter*).

Clapper Rail, *Rallus c. crepitans*. Many at mouth of Maurice River, N. J., May 21 (*Prince*).

Florida Gallinule, *Gallinula galeata*. Richmond, Feb. 12 caught alive; also nest and 12 eggs at Bridesburg May 29 (*Miller*).

Coot, *Fulica americana*. Fish House, N. J., April 9–11 (*Potter*).

Woodcock, *Philohela minor*. Yardville, N. J., Jan. 18 (*Allinson*); Trenton, N. J., March 29 (*Abbott*); Buckshutem, N. J., Nov. 2 (*Prince*); Haverford, May 4 (*Serrill*).

Wilson's Snipe, *Gallinago delicata*. Addingham, April 19 (*Culver*); Tinicum, April 5, Ocean City, N. J., April 11 and Wayne, May 18 (*Pearson*); Buckshutem, March 9–11 (*Prince*); Aramingo, March 29 (*Miller*).

Least Sandpiper, *Pisobia minutilla*. Camden, N. J., May 15 and 30 (*Potter*); Atlantic City, N. J., May 30 (*Cromie*).

Yellow-legs, *Totanus melanoleucus*. Camden, N. J., April 6–May 25; Bernardsville, N. J., May 6 (*Kuser*); Atlantic City,

N. J., April 23 (*Cromie*); Pensauken, N. J., April 26; Tinicum, April 28, and Bridesburg, May 19 (*Miller*).

Upland Plover, *Bartramia longicauda*. Swarthmore, April 26 (*Palmer*); Doylestown, May 11, one (*Mason*).

Semipalmated Plover, *Aegialitis semipalmatus*. Camden, N. J., May 20–June 1 (*Potter*); Atlantic City, May 14 (*Cromie*).

Bobwhite, *Colinus v. virginianus*. Covey of 15 wintered at Yardville, N. J. (*Allinson*).

Mourning Dove, *Zenaidura macroura carolinensis*. Nest and eggs, Swarthmore, April 12 (*Harrower*); Buckshutem, N. J., all winter, a roost at Buckshutem Pond contained over 60 doves Sept. 8, 1912 (*Prince*); Haverford, Jan. 26 (*Serrill*).

Osprey, *Pandion haliaëtus carolinensis*. Arrived Maurice River, N. J., March 18, and began repairing old nest. Young leaving nest July 17 (*Prince*).

Barn Owl, *Aluco pratincola*. Gloucester, N. J., March 21 (*Potter*); Timber Creek, N. J., August 24, 1912 (*Potter*); Vine-land, N. J., Sept. 20 (*Prince*); Lansdowne, Feb. 4 (*Carter*); Tinicum, nest and six eggs, Feb. 22 (*Pearson*).

Long-eared Owl, *Asio wilsonianus*. Camden, N. J., Feb. 9 (*Potter*).

Great-horned Owl, *Bubo v. virginianus*. Fish House, N. J., April 24 (*Potter*); nest and eggs, Tuckahoe, N. J., April 10–20, 1906 (*R. T. Moore*).

Saw-whet Owl, *Nyctala acadica*. Frankford, Jan. 22 and Feb. 22 (*Miller*).

Kingfisher, *Ceryle a. alcyon*. Haverford, Feb. 9 (*Serrill*). Melrose, Jan. 7 (*Barker*).

Flicker, *Colaptes a. luteus*. Holmesburg, Jan. 24 and Feb. 28 (*Miller*).

Red-headed Woodpecker, *Melanerpes erythrocephalus*. Swarthmore, May 20 and 23 (*Palmer*); Norwood, March 15 (*Packer*).

Yellow-bellied Flycatcher, *Empidonax flaviventris*. Trenton, N. J., May 6 (*Abbott*).

Olive-sided Flycatcher, *Nuttallornis borealis*. Marple, one shot August 29 (*Culver*).

Horned Lark, *Otocoris a. alpestris*. Rosemont, February 16, six (*Scoville*); Easton, Oct. 26, 1912, March 17 (*Marx*).

Blue Jay, *Cyanocitta c. cristata*. Several wintered at Wayne (Pearson); and in New Jersey, but at most localities they were not recorded till spring; Walnut Hill, April 29 (Miller); West Chester, April 17 (Roberts); Easton, April 27 (Marx); Camden, N. J., April 22 (Potter).

Starling, *Sturnus vulgaris*. Abundant breeder all over north-east Philadelphia. Nest with young at Sandiford April 21, young on wing May 8 at Frankford (Miller); Wayne, scattered flocks of 5-20 also at Tinicum (Pearson); Doylestown, several pairs nested in 1912, and several wintered; common spring of 1913 with Grackles (Mason); Melrose, flock of 20-50 present for over a year (Barker); Paoli, May 18 (Baily); Swarthmore, February 8-15 and May 22 (Harrower); Yardville, N. J., flock Jan. 21, but not seen after spring opened (Allinson); more abundant every year at Atlantic City, N. J. (Cromie).

Bobolink, *Dolichonyx oryzivorus*. Arrived Moorestown, N. J., Aug. 28, 1912 (Mickle); two at Pensauken Creek, July 8 (Miller).

Purple Grackle, *Quiscalus q. quiscula*. Doylestown, Nov. 15, 21; Dec. 25, 29, 1912, and Jan. 12, 16 (Mason); Rosemont, Jan. 27 (Scoville); Downstown, N. J., January 2 (Fair); Easton, Jan. 1 (Marx).

Pine Siskin, *Spinus pinus*. Swarthmore, May 4, three (Harrower); Westtown, May 2 (Webster).

Purple Finch, *Carpodacus p. purpureus*. Swarthmore, April 17, 22 and 24 (Harrower); Easton, April 20 (Marx); Ardmore, April 18 (Baily); West Chester, April 25-May 3 (Roberts); Vineland, N. J., Oct. 16-May 1 (Prince); Norwood, March 21 (Packer); Easton, April 20 (Marx); Addingham, one in January (Culver), Wayne, one January 18 (Pearson).

Tree Sparrow, *Spizella m. monticola*. West Chester, March 9 (Roberts); Doylestown, Nov. 29-April 1 (Mason).

Junco, *Junco h. hyemalis*. Last seen, Swarthmore, April 25 (Harrower); Easton, April 27 (Marx); Rosemont, May 18 (Scoville); West Chester, Oct. 16, 1912-May 3 (Roberts); Doylestown, Oct. 5, 1912-May 2 (Mason).

White-throated Sparrow, *Zonotrichia a. albicollis*. Last seen, Swarthmore, May 15 (Harrower); West Chester, March 22-May

14, few if any during winter (*Roberts*), to May 18 (*Sharples*), Doylestown, Oct. 5, 1912–May 17 (*Mason*); Rosemont, May 18 (*Seoville*).

White-crowned Sparrow, *Zonotrichia l. leucophrys*. Concordville, May 18 (*Styer*).

Swamp Sparrow, *Melospiza georgiana*. Tinicum, Jan. 29 (*Pearson*).

Fox Sparrow, *Passerella i. iliaca*. Wayne, Jan. 18, two (*Pearson*).

Towhee, *Pipilo e. erythrophthalmus*. Melrose, Jan. 1, 3 and March 28 one individual, (*Barker*).

Cardinal, *Cardinalis c. cardinalis*. Nest and eggs, Swarthmore April 15 (*Harrower*).

Rose-breasted Grosbeak, *Zamelodia ludoviciana*. Rancocas, N. J., June 19, 1912 two in song. (*Haines*). Nest, Pensauken Creek, N. J., July 7 (*Miller*).

Bank Swallow, *Riparia riparia*. A large colony nesting at Manantico, N. J. on Maurice River. (*Prince*).

Migrant Shrike, *Lanius ludovicianus migrans*. Frankford, Sept. 4 (*Miller*).

Warbling Vireo, *Vireosylva g. gilva*. Paoli, May 18, with newly made nest. (*Baily*).

Nashville Warbler, *Vermivora r. rubricapilla*. Atlantic City, N. J., May 18 (*Cromie*); Lansdowne, May 4 (*Carter*).

Golden-winged Warbler, *Vermivora chrysoptera*. Norwood, May 4 (*Packer*); Doylestown, May 6 (*Mason*).

Myrtle Warbler, *Dendroica coronata*. Lansdowne, noted frequently during February, probably one individual (*Carter*); Wayne, Jan. 12–19, several (*Pearson*).

Bay-breasted Warbler, *Dendroica castanea*. Moorestown, N. J., May 19, several (*Mickle*); Fish House, N. J., May 18 (*Potter*); Bernardsville, N. J., May 8–24 (*Kuser*); Lansdowne, May 17–24, numerous (*Carter*); Addingham, May 18 (*Culver*); Haverford, May 18 (*Serrill*); Swarthmore, May 18 and 20 (*Palmer*); Paoli, May 18 (*Baily*); Bryn Mawr, May 17, abundant (*Thomas*); Concordville, May 18 (*Styer*); Doylestown, May 18 (*Mason*).

Cape May Warbler, *Dendroica tigrina*. Trenton, N. J., May

3 (*Abbott*); Bernardsville, N. J., May 8 and 12 (*Kuser*); Swarthmore, May 12-15 and 20, a number (*Palmer*); Haverford, May 10 and 15 (*Serrill*); Paoli, May 18 (*Baily*); Concordville, May 5-18 (*Styer*); Doylestown, May 18 (*Mason*).

Louisiana Water Thrush, *Seiurus motacilla*. Swarthmore, April 17, May 14-19 (*Harrower*); Wissahickon Creek, pair at Valley Green, June 6 (*Miller*).

Mourning Warbler, *Oporornis philadelphia*. Addingham, one shot, May 25 (*Culver*); Paoli, May 18 (*Baily*).

Kentucky Warbler, *Oporornis formosa*. Fox Chase, nest and four eggs, May 27 (*Miller*).

Hooded Warbler, *Wilsonia citrina*. Swarthmore, May 5 (*Harrower*); Bustleton, May 8 (*Miller*).

Wilson's Warbler, *Wilsonia pusilla*. Swarthmore, May 15 (*Palmer*); Fish House, N. J., May 18 (*Potter*); Wayne, May 18 (*Pearson*); Doylestown, May 18 (*Mason*); Haverford, May 11 (*Serrill*); Paoli, May 18 (*Baily*).

Pipit, *Anthus rubescens*. Doylestown, November 25, 1912-April 20 and 28 (*Mason*).

Catbird, *Dumetella carolinensis*, Haverford, March 30 (*Emlen*).

Winter Wren, *Nannus h. hiemalis*. Swarthmore, April 30 (*Harrower*); Doylestown, Oct. 5, 1912 (*Mason*); Westtown, Jan. 5; West Chester, Dec. 11, 1912 (*Roberts*); Ardmore, May 4 in song (*Baily*).

Short-billed Marsh Wren, *Cistothorus stellaris*. Pair breeding near Haddonfield, N. J. Male singing and scolding about July 1, and fledgeling found in same place two weeks later. Nest not found (*S. N. Rhoads*).

Brown Creeper, *Certhia fam. americana*. Last seen, Swarthmore, April 22 (*Harrower*); Wayne, April 19 (*Baker*); West Chester, April 22 (*Roberts*); Doylestown, Nov. 21, 1912-April 20 (*Mason*); Easton, April 20 (*Marx*).

Red-breasted Nuthatch, *Sitta canadensis*. Rancocas, N. J., Oct. 13, 1912, and quite often during the winter (*Haines*); Moorestown, N. J., Aug. 28, 1912, and common all the early part of the winter (*Mickle*); Atlantic City, N. J., seen all winter and as late as May 31 (*Cromie*); at Vineland, N. J., April 30; Frankford, arrived Sept. 3, 1912, in abundance during Sept.,

disappeared in October, one on April 21 and May 3 (*Miller*); Swarthmore, April 15, 17, 21, 22, 24, May 5 (*Harrower*); Ad-dingham, Dec. 24, 1912, to March 20 (*Culver*); Haverford, April 12 (*Serrill*); Wayne, March 21 (*Pearson*); Doylestown, Sept. 9, 1912–April 20 (*Mason*); Easton, Oct. 17 (*Marx*).

Black-capped Chickadee, *Penthestes a. atricapillus*. Last seen, Swarthmore, March 24 (*Harrower*); West Chester, December 11, 1912–March 3 (*Roberts*); Doylestown, Nov. 10, 1912–April 13 (*Mason*).

Golden-crowned Kinglet, *Regulus s. satrapa*. Last seen Swarthmore, April 10 (*Harrower*); West Chester, Oct. 16, 1912, to April 9 (*Roberts*); Doylestown, Nov. 21, 1912–April 20 (*Mason*); Ardmore, April 18 (*Baily*); Wayne, April 19 (*Baker*); Easton, April 10 (*Marx*).

Blue-gray Gnatcatcher, *Polioptila c. cærulea*. Fish House, N. J., March 28 (*Potter*); Atlantic City, N. J., April 23 (*Cromie*).

Hermit Thrush, *Hylocichla guttata pallasii*. Easton, December 25, 1912, one (*Marx*); Wayne, Jan. 18 (*Pearson*).

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Wood Pewee	May 17	May 15	May 18	May 15	May 18	May 18	May 1	May 17	May 10	May 16	May 3	Mar. 20	May 16
Acadian Flycatcher . . . . .	. . . . .	. . . . .	May 8	. . . . .	May 8	May 17	. . . . .	. . . . .	May 11	May 15	. . . . .	. . . . .	May 21	. . . . .	May 4
Least Flycatcher . . . . .	. . . . .	May 4	May 4	. . . . .	May 4	. . . . .	. . . . .	. . . . .	May 4	May 4	. . . . .	May 3	May 16	May 6	May 4
Bobolink . . . . .	. . . . .	May 17	May 22	. . . . .	May 17	May 22	. . . . .	. . . . .	May 4	May 4	. . . . .	May 3	May 16	May 6	May 4
Cowbird . . . . .	. . . . .	May 1	Feb. 12	Mar. 20	Mar. 25	Apr. 5	Apr. 6	Apr. 20	Mar. 23	Mar. 25	Apr. 5	Apr. 20	Mar. 31	Apr. 18	Mar. 25
Red-winged Blackbird	Mar. 3	. . . . .	Res.	Res.	Res.	Mar. 13	Mar. 13	Mar. 21	Mar. 21	Feb. 22	Res.	Feb. 22	Res.	Res.	Mar. 15
Meadowlark	Res.	. . . . .	Res.	Res.	Res.	Mar. 2	Mar. 2	Res.	Mar. 13	Feb. 22	Res.	Feb. 22	Res.	Res.	Mar. 4
Orchard Oriole	May 4	May 4	May 3	. . . . .	May 4	May 4	May 4	May 4	May 4	May 4	May 10	May 11	May 6	May 6	May 4
Baltimore Oriole	May 5	May 3	May 4	May 4	May 5	May 5	May 11	May 4	May 5	May 18	May 10	May 11	May 2	May 6	May 5
Rusty Blackbird	Apr. 20	Apr. 20	Feb. 26	Feb. 28	Feb. 20	Mar. 1	Feb. 22	Feb. 24	Feb. 9	Feb. 25	Feb. 16	Mar. 23	Jan. 30	Feb. 22	Feb. 20
Purple Grackle	Feb. 22	Feb. 28	May 30	Apr. 6	Mar. 28	Mar. 1	Feb. 22	Mar. 21	Mar. 23	Apr. 6	. . . . .	Mar. 21	Mar. 25	May 4	. . . . .
Vesper Sparrow	Apr. 1	Apr. 29	May 30	Apr. 6	Mar. 28	. . . . .	Apr. 6	Mar. 21	Mar. 23	Apr. 6	. . . . .	Mar. 21	Mar. 14	May 4	. . . . .
Savannah Sparrow . . . . .	. . . . .	F. 2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Mar. 30	Mar. 21	. . . . .	. . . . .	. . . . .	Mar. 14	May 4	. . . . .
Grasshopper Sparrow	May 4	Apr. 23	May 18	May 18	May 1	. . . . .	. . . . .	Mar. 30	Mar. 21	. . . . .	. . . . .	. . . . .	May 6	May 4	. . . . .
Chipping Sparrow	Mar. 27	Mar. 30	Mar. 30	Apr. 6	Mar. 19	Mar. 29	Mar. 23	Apr. 8	Apr. 5	Mar. 31	Mar. 29	Apr. 5	Mar. 10	Mar. 31	Mar. 29
Field Sparrow	Mar. 8	Apr. 15	Mar. 21	Mar. 24	Apr. 5	Mar. 30	Mar. 28	Mar. 9	Mar. 12	Mar. 16	Apr. 19	Apr. 12	Jan. 15	Mar. 22	Mar. 21
Swamp Sparrow	Apr. 18	Apr. 20	Res.	. . . . .	Mar. 31	Apr. 17	Feb. 16	Apr. 26	Apr. 17	Apr. 26	. . . . .	Apr. 19	Apr. 23	. . . . .	. . . . .
Fox Sparrow	Mar. 23	Apr. 23	Feb. 20	. . . . .	Feb. 28	Mar. 15	Feb. 22	Feb. 15	Feb. 23	Feb. 23	. . . . .	Mar. 24	Mar. 10	Mar. 7	Feb. 23
Chewink	Apr. 18	Apr. 23	Apr. 18	Apr. 14	Apr. 30	Apr. 18	Apr. 19	Apr. 19	Apr. 26	Apr. 18	Apr. 17	Apr. 20	Apr. 21	. . . . .	Apr. 18
Rose-breasted Grosbeak	May 3	May 10	May 18	May 2	May 19	May 1	May 7	May 8	May 2	May 4	May 6	May 6	May 6	May 6	May 4
Indigobird	May 6	May 14	May 11	May 4	May 4	May 5	May 6	May 11	May 11	May 3	May 16	May 10	May 3	May 10	May 6
Scarlet Tanager	May 3	May 17	May 6	May 2	May 2	Apr. 30	May 4	May 4	May 3	May 5	May 10	May 10	May 6	May 4	May 4
Purple Martin	Mar. 31	Mar. 31	May 3	May 3	May 3	Apr. 21

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Cliff Swallow	Apr. 20						May 11		May 2	May 4		Apr. 30			
Barn Swallow	Apr. 26	Apr. 20	Apr. 13	Apr. 20	Apr. 17		Apr. 22	Apr. 20	Apr. 26	Apr. 24	May 1	Apr. 19	Apr. 22	May 4	Apr. 20
Tree Swallow	Apr. 29	May 8	Apr. 6		Apr. 17		May 21	Apr. 27		Apr. 19	Apr. 6	Apr. 19	Apr. 21		Apr. 19
Bank Swallow			Apr. 26					Apr. 20				Apr. 30	May 2		
Rough-winged Swallow				Apr. 20	Apr. 19				May 4		Apr. 19	Apr. 24			
Cedarbird		May 19	Apr. 13		Apr. 29						Apr. 19	Apr. 19	Mar. 19		
Red-eyed Vireo	May 3	May 4	May 4	May 4	May 3	May 4	May 4	May 4	May 4	Apr. 30	May 5	May 10	May 6	May 4	May 4
Warbling Vireo	Apr. 28	May 8	May 25		May 5	May 3		May 4	May 18	May 4	May 11				May 3
Yellow-throated Vireo	May 5	Apr. 25			May 7	May 4		May 1	May 3	May 4	May 16				May 3
Solitary Vireo		Apr. 25			Apr. 17		Apr. 20	May 1	May 12	Apr. 23	Apr. 19	May 3			Apr. 23
White-eyed Vireo	May 1	May 8	May 25		May 4	May 3	May 17		May 13	May 4			May 6		May 6
Black and White Warbler	Apr. 22	Apr. 25	Apr. 24	Apr. 24	Apr. 24	Apr. 25	Apr. 23	Apr. 25	Apr. 24	Apr. 24	May 4	Apr. 20	May 2	May 4	Apr. 24
Worm-eating Warbler				May 4	May 3			May 3	May 13	May 4				May 4	Apr. 24
Blue-winged Warbler				May 4	May 2		May 7	May 3	May 2	May 4	May 5		May 2	May 4	May 3
Parula Warbler	May 3	May 3	May 4	May 4	May 2	May 4	May 18	May 5	May 4	Apr. 19		May 10	May 5		May 4
Yellow Warbler	Apr. 24	Apr. 22	Apr. 26	May 6	May 3	May 4	May 5	Apr. 27	May 13	Apr. 18	May 18	May 3	Apr. 28	May 4	Apr. 28
Black-throated Blue Warbler	Apr. 26	Apr. 22	Apr. 26	May 6	May 4	May 4	May 11	Apr. 27	May 2	Apr. 30	May 11	May 4	Apr. 25	May 4	May 4
Myrtle Warbler	Apr. 26	Apr. 18	Apr. 9	Apr. 20	Apr. 8	Apr. 7	Apr. 20	Apr. 20	Apr. 10	Apr. 19	Apr. 19	Apr. 30	Apr. 25		Apr. 19
Magnolia Warbler		May 14	May 4	May 3	Apr. 24		May 17	May 8	Apr. 10	Apr. 15	May 18		May 6		May 10
Chestnut-sided Warbler		May 17	May 13		May 3	May 5		May 4	May 2	May 15	May 11		May 6		May 4
Black-poll Warbler	May 3	May 6	May 4	May 6	May 4	May 4	May 13	May 4	May 4	May 6	May 18	May 4	May 18	May 4	May 4
Blackburnian Warbler		May 14	May 25					May 2	May 2	May 4	May 16		May 6		May 4
Black-throated Green Warbler	May 3	May 13	May 4	May 1	Apr. 24	May 3	May 15	May 3	May 2	Apr. 30	May 10	May 3			May 3

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Pine Warbler	May 17	Mar. 28	Apr. 20	Apr. 2	Apr. 2	Apr. 2	Apr. 8	Apr. 20	Apr. 12	Apr. 19	Apr. 19	Apr. 8	Apr. 17	Apr. 17	Apr. 12
Yellow Palm Warbler	May 17	Apr. 6	Apr. 20	Apr. 17	Apr. 17	Apr. 17	Apr. 6	Apr. 30	Apr. 12	Apr. 19	Apr. 17	Apr. 8	Apr. 17	Apr. 17	Apr. 12
Prairie Warbler	May 17	May 13	May 13	May 13	May 13	May 13	May 13	May 13	May 13	May 13	May 13	May 13	May 13	May 13	May 13
Ovenbird	Apr. 30	Apr. 26	May 2	May 3	Apr. 26	Apr. 30	May 4	May 1	Apr. 26	Apr. 30	May 5	May 3	Apr. 30	May 1	Apr. 30
Water Thrush	May 19	May 13	Apr. 30	Apr. 30	May 3	May 4	May 4	May 4	May 4	May 2	May 11	May 10	May 11	May 9	May 4
Kentucky Warbler	May 1	Apr. 23	Apr. 26	May 1	Apr. 25	May 1	May 1	May 1	Apr. 27	Apr. 30	May 5	May 3	Apr. 28	May 4	Apr. 26
Maryland Yellowthroat	May 4	May 6	May 6	May 1	May 1	May 1	May 1	May 1	May 1	May 1	May 1	May 1	May 1	May 1	May 1
Chat	May 16	May 14	May 3	May 18	May 10	May 15	May 9	May 13	May 11	May 15	May 16	May 16	May 20	May 2	May 14
Canada Warbler	May 3	May 4	Apr. 24	May 18	May 3	May 3	May 4	Apr. 30	May 4	Apr. 30	May 4	May 4	May 6	May 2	May 4
Redstart	Apr. 28	Apr. 27	Apr. 30	Apr. 27	Apr. 26	May 3	Apr. 26	Apr. 27	Apr. 29	May 4	May 4	Apr. 30	May 1	May 4	Apr. 30
Catbird	Apr. 21	Apr. 20	Apr. 12	Apr. 19	Apr. 21	Apr. 24	Apr. 12	Apr. 19	Apr. 4	Apr. 12	May 4	Apr. 19	Apr. 25	Apr. 23	Apr. 19
Brown Thrasher	Apr. 24	Apr. 20	Apr. 24	Apr. 22	Apr. 22	Apr. 23	Apr. 30	Apr. 23	Apr. 25	Apr. 23	Apr. 27	Apr. 30	Apr. 24	Apr. 27	Apr. 24
House Wren	Apr. 3	Apr. 22	Apr. 6	Apr. 20	Apr. 3	Apr. 2	Apr. 6	Apr. 14	May 2	Apr. 18	Apr. 19	Apr. 7	Apr. 17	Apr. 4	Apr. 4
Long-bill'd Marsh Wren	May 4	May 9	Apr. 30	May 3	Apr. 26	Apr. 27	Apr. 26	Apr. 27	Apr. 28	Apr. 27	May 1	May 3	Apr. 25	Apr. 28	Apr. 28
Ruby-crowned Kinglet	May 4	May 9	Apr. 30	May 3	Apr. 26	Apr. 27	Apr. 26	Apr. 27	Apr. 28	Apr. 27	May 1	May 3	Apr. 25	Apr. 28	Apr. 28
Wood Thrush	May 4	May 9	Apr. 30	May 3	Apr. 26	Apr. 27	Apr. 26	Apr. 27	Apr. 28	Apr. 27	May 1	May 3	Apr. 25	Apr. 28	Apr. 28
Wilson's Thrush	May 4	May 9	Apr. 30	May 3	Apr. 26	Apr. 27	Apr. 26	Apr. 27	Apr. 28	Apr. 27	May 1	May 3	Apr. 25	Apr. 28	Apr. 28
Gray-cheeked Thrush	May 17	May 17	May 17	May 15	May 6	May 19	May 11	May 1	May 1	May 4	May 18	May 4	Apr. 25	May 4	May 4
Olive-backed Thrush	May 17	May 17	May 17	May 15	May 6	May 19	May 11	May 1	May 1	May 4	May 18	May 4	Apr. 25	May 4	May 4
Hermit Thrush	May 4	Apr. 20	Apr. 16	Apr. 21	Apr. 10	Apr. 17	Apr. 14	Apr. 8	Apr. 5	Apr. 15	Apr. 17	May 24	Apr. 3	Apr. 15	Apr. 15
Robin	Feb. 20	Feb. 7	Res.	Mar. 5	Feb. 28	Mar. 4	Res.	Mar. 11	Mar. 9	Feb. 22	Mar. 1	Feb. 12	Feb. 28	Mar. 11	Feb. 20
Bluebird	Feb. 21	Mar. 9	Res.	Res.	Feb. 28	Mar. 14	Res.	Feb. 28	Feb. 22	Feb. 22	Res.	Feb. 12	Feb. 22	Mar. 13	Feb. 22

Abstract of the Proceedings of the Delaware Valley
Ornithological Club, 1913

January 2, 1913. Twenty-third Annual Meeting. Thirty-five members and two visitors present. The following officers were elected for the ensuing year:

President. Stewardson Brown.

Vice-President. Henry W. Fowler.

Secretary. J. Fletcher Street.

Treasurer. Samuel C. Palmer.

Dr. Stone made some remarks on various North-American birds now nearly or quite extinct.

Dr. Spencer Trotter gave an account of a trip to Rehoboth, Delaware, where three Arkansas Kingbirds were observed. Mr. Pennock exhibited two specimens secured on this trip, Dec. 31, 1912. The meeting adjourned to the annual collation.

January 16, 1913. Eighteen members present. Mr. Robert Bradford was proposed for associate membership.

The following standing committees were appointed to serve during 1913 :

On Publication. Cope, Moore and Morris.

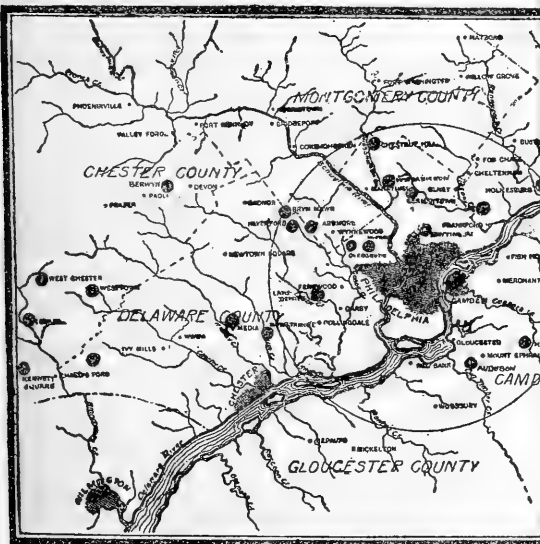
On Field Work. Baily, Rhoads and Street.

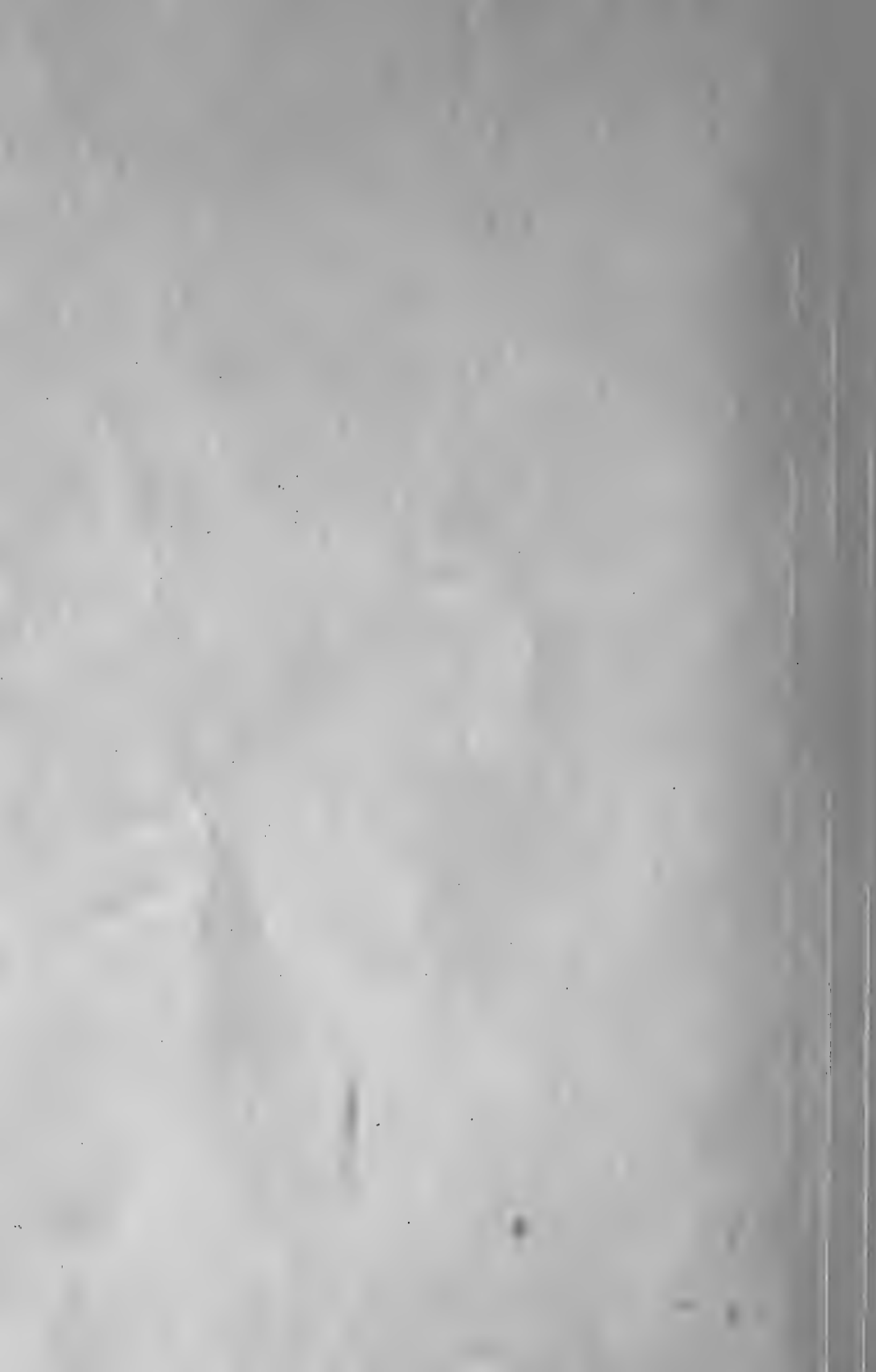
Dr. Spencer Trotter addressed the Club upon the "Birds of the Orkney Islands". The islands were described as practically treeless and consisting of rolling moorlands with numerous lochs. Characteristic birds were described.

February 6, 1913. Fifteen members present. Mr. Samuel C. Palmer gave an interesting account of the "Birds of Moose Pond, Maine." A detailed list of birds was given.

February 20, 1913. One visitor and sixteen members present. Messrs. George B. Benners, Archibald Benners and Delos P.

NAMES.	Cape May, N. J. E. 13; S. 72.	Atlantic City, N. J. E 42; S. 42.	Vineland to Maurice River, N. J. E. 7; S. 32.	Downstown, N. J. E. 11; S. 28.
Flicker.....	Res.	Jan. 19	Res.	Mar. 20
Whip-poor-will.....	Apr. 30	.....	Apr. 22	Apr. 24
Nighthawk.....	.....	.....	.....	.....
Chimney Swift.....	.....	.....	Apr. 14	Apr. 25
Hummingbird.....	.....	.....	May 4	.....
Kingbird.....	Apr. 18	May 7	May 4	Apr. 25
Crested Flycatcher.....	May 3	.....	.....	May 3
Phoebe.....	.....	.....	Mar. 20	.....
Bobolink.....	.....	.....	.....	.....
Cowbird.....	Res.	.....	.....	.....
Red-winged Blackbird.....	Res.	Mar. 9	Res.	Feb. 2
Baltimore Oriole.....	Apr. 30	May 14	May 4	May 6
Purple Grackle.....	Feb. 26	.....	Res.	Jan. 2
Chipping Sparrow.....	Apr. 4	.....	Mar. 11	Mar. 25
Chewink.....	Res.	.....	Apr. 17	Apr. 25
Indigobird.....	.....	.....	May 4	.....
Scarlet Tanager.....	.....	May 3	May 1	.....
Purple Martin.....	Apr. 12	.....	Apr. 3	Apr. 13
Barn Swallow.....	Apr. 18	.....	Apr. 17	.....
Red-eyed Vireo.....	.....	.....	Apr. 26	.....
Black and White Warbler.....	.....	Apr. 19	Apr. 17	May 4
Chestnut-sided Warbler.....	.....	May 3	.....	.....
Ovenbird.....	.....	May 4	.....	May 4
Maryland Yellow-throat.....	Apr. 30	Apr. 25	Apr. 30	Apr. 29
Chat.....	.....	.....	May 1	.....
Catbird.....	Apr. 30	.....	Apr. 8	.....
Brown Thrasher.....	Apr. 18	Apr. 29	Apr. 20	Apr. 19
House Wren.....	May 3	.....	Apr. 30	Apr. 23
Wood Thrush.....	.....	.....	.....	May 4
Hermit Thrush.....	Apr. 21	.....	Apr. 20	.....
Robin.....	Res.	Mar. 9	Res.	Jan. 4
Bluebird.....	Res.	.....	Res.	.....





NAMES.	Cape May, N. J. E. 13; S. 72.	Atlantic City, N. J. E. 42; S. 42.	Vineyard to Maurice River, N. J. E. 7; S. 32.	Downstown, N. J. E. 11; S. 28.	Concordville, Pa. W. 20; S. 5.	West Chester, Pa. W. 24; N. 0.	Westtown, Pa. W. 21; S. 2.	Beverly, N. J. E. 13; N. 8.	Bordentown, N. J. E. 25; N. 15.	Newtown, Pa. N. 19; E. 10.	Yardville, N. J. E. 25; N. 15.	Trenton, N. J. E. 23; N. 16.	Bernardsville, N. J. E. 30; N. 94.	Doylestown, Pa. E. 1; N. 26.	Easton, Pa. W. 2; N. 50.	Lopez, Pa. W. 60; N. 103.
Flicker.....	Res.	Jan. 19	Res.	Mar. 20	Feb. 28	Mar. 9	Mar. 11	Res.	Mar. 10	Mar. 28	Feb. 10	Mar. 22	Apr. 8	Res.	Mar. 30	Mar. 30
Whip-poor-will.....	Apr. 30		Apr. 22	Apr. 24	Mar. 11	Apr. 25					May 1	Apr. 23				Apr. 23
Nighthawk.....						May 18	May 8	May 16								
Chimney Swift.....			Apr. 14	Apr. 25	Apr. 20	Apr. 20	Apr. 24	Apr. 27	Apr. 18	Apr. 12	Apr. 23	Apr. 22	Apr. 27	Apr. 22	Apr. 30	
Hummingbird.....			May 4			May 5	May 25	May 18	May 2		May 4	May 18				
Kingbird.....	Apr. 18	May 7	Apr. 25	Apr. 29	Apr. 29	Apr. 26	Apr. 28	May 11	May 1		May 4	May 2	Apr. 24	May 2		
Crested Flycatcher.....	May 3		May 3	May 4	May 6	Apr. 28	Apr. 27	Apr. 25	Apr. 25	Apr. 25	May 2	Apr. 24	May 5	May 4		
Phoebe.....			Mar. 20		Mar. 18	Mar. 16	Mar. 15	Mar. 23	Mar. 20		Mar. 3	Mar. 18	Apr. 23	Mar. 21	Mar. 30	
Bobolink.....					May 3	May 9	May 11			May 14			May 18	May 10		Mar. 21
Cowbird.....	Res.				Mar. 29	Mar. 21	Mar. 9		Mar. 30	Apr. 24		Mar. 22	Apr. 23	Mar. 7	Mar. 16	
Red-winged Blackbird.....	Res.	Mar. 9	Res.	Feb. 2	Feb. 28	Mar. 1	Mar. 1	Feb. 22		Mar. 6	Feb. 28	Feb. 28	Apr. 8	Mar. 4	Mar. 7	Mar. 12
Baltimore Oriole.....	Apr. 30	May 14	May 4	May 6	May 6	Apr. 30	Apr. 28	May 4	Apr. 30	Mar. 9	May 15	May 4	May 4	May 6	May 6	May 3
Purple Grackle.....	Feb. 26		Res.	Jan. 2	Feb. 21	Feb. 20	Feb. 27		Feb. 26	Feb. 21	Feb. 21	Feb. 22		Feb. 22	Feb. 28	
Chipping Sparrow.....	Apr. 4		Mar. 11	Mar. 29	Mar. 30	Apr. 4	Mar. 28	Mar. 27	Mar. 28	Mar. 24	Apr. 3	Mar. 25		Apr. 7	Mar. 30	Apr. 23
Chewink.....	Res.		Apr. 17	Apr. 23		Apr. 19	Apr. 11	Apr. 26	Apr. 10	Apr. 9	Apr. 25	Mar. 26	Apr. 24	Apr. 20	Apr. 27	Apr. 25
Indigobird.....			May 4			May 5	May 12	May 4	May 5	May 3	Apr. 26	May 20	May 11	May 4	May 6	May 16
Scarlet Tanager.....		May 3	May 1		Apr. 30	May 5	Apr. 29	May 6	May 6	May 7	May 15	May 4	May 17	May 4	May 7	May 7
Purple Martin.....	Apr. 12		Apr. 3	Apr. 13		Mar. 25			Apr. 19					Apr. 5	May 10	
Barn Swallow.....	Apr. 18		Apr. 17		Apr. 29	Apr. 20	Apr. 4	Apr. 29	Apr. 10	Apr. 4	Apr. 27	Apr. 19	Apr. 27	Apr. 20	Apr. 29	Apr. 22
Red-eyed Vireo.....			Apr. 26		May 2	May 4	May 1	May 6	May 1	May 2			May 3	May 6		May 7
Black and White Warbler.....		Apr. 19	Apr. 17	May 4	Apr. 26	May 3	Apr. 24	May 2	Apr. 20	Apr. 26	Apr. 25	Apr. 23	Apr. 25	May 4		May 3
Chestnut-sided Warbler.....		May 3				May 14	May 6	May 6					May 4	May 4		May 4
Ovenbird.....		May 4		May 4	Apr. 30	Apr. 26	Apr. 29	May 1	Apr. 25	May 3	May 3	May 4	May 4	May 4		May 5
Maryland Yellow-throat.....	Apr. 30	Apr. 25	Apr. 30	Apr. 29	Apr. 22	Apr. 25	Apr. 29	Apr. 27	Apr. 20		Apr. 25	Apr. 23	May 4	May 4		
Chat.....			May 1			May 15	May 17	May 18		May 10		Apr. 6		May 4		
Catbird.....	Apr. 30		Apr. 8		Apr. 29	Apr. 26	Apr. 29	Mar. 27	Apr. 15	Apr. 23	May 4	May 3	Apr. 30	May 4	May 6	May 4
Brown Thrasher.....	Apr. 18	Apr. 29	Apr. 20	Apr. 19	Apr. 22	Apr. 17	Apr. 24	Apr. 19	Apr. 16	Apr. 22	Apr. 22	Apr. 18	Apr. 24	Apr. 24	May 5	Apr. 27
House Wren.....	May 3		Apr. 30	Apr. 23	Apr. 22	Apr. 19	Apr. 20	Apr. 17	Apr. 15	Apr. 24	May 3	Apr. 25	Apr. 23	Apr. 24	Apr. 27	Apr. 25
Wood Thrush.....			May 4	May 2	May 2	May 2	Apr. 27	May 2	Apr. 28	Apr. 28	May 1	May 3	May 4	Apr. 25	May 7	
Hermit Thrush.....	Apr. 21		Apr. 20		Apr. 21	Apr. 4	Apr. 8	Mar. 16		Apr. 21	Apr. 25		Apr. 20	Apr. 20	Apr. 5	Apr. 5
Robin.....	Res.	Mar. 9	Res.	Jan. 4	Mar. 9	Feb. 22	Feb. 16	Res.	Res.	Feb. 22	Mar. 5		Res.	Mar. 7	Mar. 10	Mar. 12
Bluebird.....	Res.		Res.			Feb. 16	Feb. 23	Res.	Res.	Feb. 10	Feb. 11	Jan. 15	Res.	Res.		Mar. 1

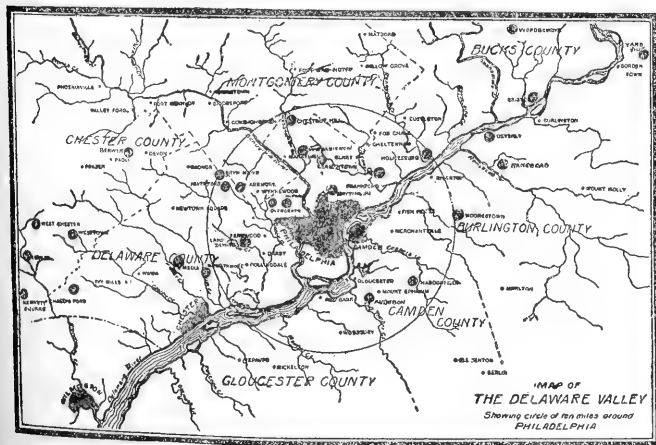


TABLE II.
SPRING MIGRATION, 1913.
EARLIEST DATES OF ARRIVAL OF
THIRTY-TWO SPECIES AT SIXTEEN
STATIONS OUTSIDE THE PHILADELPHIA
CIRCLE.



Culver were proposed for associate membership. Mr. B. S. Bowdish was proposed for corresponding membership. A resolution in the interest of bird protection was passed by the Club, that it might be presented to the Pennsylvania state legislature.

Mr. William E. Roberts discoursed upon the "New Britain Crow Roost". Mention was made of the change in locality of the roost.

March 6, 1913. Eighteen members present. Messrs. Robert Bradford, Delos E. Culver, George B. Benners and Archibald Benners were elected to associate membership. Mr. B. S. Bowdish was elected a corresponding member. An amendment to Article 1, Section 1 of the By-Laws was offered.

Mr. Arthur C. Emler made a communication entitled "More about the Breeding Distribution Maps". The results presented constitute an important contribution to the knowledge of the geographical distribution of our local species.

March 20, 1913. Five visitors and twenty-five members present. An amendment to Article 1, Section 1 of the By-laws was adopted. This section as amended now reads: Active members shall be limited to twenty in number in addition to the ex-presidents.

Mr. William L. Baily spoke upon the subject "Some Birds of Pelican Island, Florida". The talk was beautifully illustrated with lantern slides. One of these showed a fine specimen of the White Pelican. Frigate Birds, Sanderlings, Skimmers and Least Sandpipers were mentioned as being common to the locality.

April 3, 1913. Twenty-one members present. Mr. John D. Carter gave an interesting talk upon "Difficulties with the Beach Birds". The speaker's description of the voice, color and actions of the several common species were much appreciated. Observations were made principally in the vicinity of Atlantic City, N. J., and such species as the Pectoral Sandpiper, Dowitcher and Great White Egret were observed.

April 17, 1913. Two visitors and twenty-one members present. Mr. Henry S. Borneman was proposed for associate membership.

Mr. Robert T. Moore addressed the Club upon the subject "Notes on Bird Songs". This paper constituted the most valuable contribution ever presented before the Club upon this subject. The speaker explained how the pitch and value of bird tones could be accurately obtained through the use of several musical instruments. The song birds were classified as singers of several song phases. Each group was described in detail.

May 1, 1913. Twenty-five members present. Mr. Joseph S. Evans was proposed for associate membership.

Mr. Samuel N. Rhoads addressed the Club upon the subject "Bird Song versus Bird Music". The speaker quoted several books upon bird song and suggested that Thomas Nuttall was the first to study seriously the songs of American birds.

May 15, 1913. One visitor and twenty-one members present. The untimely death of William B. Crispin was reported. Mr. James A. G. Rehn gave an interesting account of "Some Birds of Texas and the Florida Keys". The speaker mentioned among the species observed among the Florida Keys such birds as White Heron, Gray Kingbird and Black-necked Stilt.

October 3, 1913. Two visitors and twenty-one members present. The death of Elmer Onderdonk was announced. Mr. W. H. Liebelsperger was proposed for associate membership.

Under the subject, "The Snow Hill Bird Roost", Mr. Samuel N. Rhoads described a very interesting general bird roost, situated in a growth of oak, maple and scrub pine. The roost was said to have been occupied for sixteen years. Grackles, Red-wings, Cowbirds, Nighthawks, Starlings, Flickers, Robins, Thrushes and Doves were noted and described.

October 16, 1913. One visitor and nineteen members present. Messrs. David G. Baird, Samuel Mason, Jr., William Henry

Newbold and Dr. Max M. Peet were proposed for associate membership. Messers. George W. Stuart and Julian K. Potter were proposed for active membership.

Under the subject, "Wilson's Phalarope at Pocono Lake", Mr. John D. Carter described the finding of this exceedingly uncommon species upon the waters of Pocono Lake. This observation is noteworthy in being the first of the species recorded from Pennsylvania. Mr. Stone outlined some "Valuable Recent Additions to the Academy's Collection".

November 6, 1913. One visitor and eighteen members present. Messers. Arthur C. Emlen, George W. Stuart and Julian K. Potter were elected to active membership. David G. Baird, Samuel Mason, Jr., Joseph S. Evans, William Henry Newbold, Dr. Max M. Peet, Henry S. Borneman and Donald S. Sherrerd were elected to associate membership. Mr. W. H. Liebelsperger was elected a corresponding member.

Mr. Julian K. Potter presented a communication entitled "A Week with the Birds at Lord's Valley, Pa". A detailed account of the species observed there was given.

November 20, 1913. Two visitors and twenty members were present. An interesting paper was read by Dr. Spencer Trotter upon the "Relation of Birds to Seasonal Conditions". The whole subject of migration and its contributory causes was freely discussed. Dr. Stone followed with a verbal report upon the proceedings of the recent Convention of the American Ornithologists Union held in New York City.

December 4, 1913. One visitor and nineteen members present. Mr. Harold M. Harrower was proposed for associate membership. The first portion of the meeting was held in conjunction with the Ornithological Section of the Academy, the report of Dr. Stone as conservator being read.

Before the Club's scientific session Dr. Stone read a paper on Alexander Wilson, the present year being the one-hundredth anniversary of Wilson's death.

December 18, 1913. One visitor and twenty-two members present. Mr. L. Carum was proposed for associate membership.

Mr. Henry W. Fowler addressed the Club upon the subject, "Some Local Fish-Eating Birds". The subject was treated from an ichthyological point of view from data prepared through the examination of the stomachs of birds. Mr. J. Fletcher Street followed with a paper entitled "Random Notes on the Food of Birds", reading from extracts, which described the feeding of several species under various conditions.

Club Notes

Fifteen meetings were held by the Club during the year, the average attendance being twenty-two, the same as last year.

* * *

The D. V. O. C. was represented at the A. O. U. meeting in New York City by Messrs. Baily, Fowler, Moore, Morris, Rhoads and Stone, active members; by Messrs. Bartram and Kuser, associate members, and by Messrs. Keim, W. De W. Miller, Rogers and Todd, corresponding members.

* * *

The Club outings this year were held in Beverly on Washington's Birthday, and in Haddonfield on Decoration Day. Twenty-two members participated in the first and eighteen in the second.

* * *

The following species are still unrepresented in the Club collection of nests and eggs of Pennsylvania and New Jersey birds. Members should keep these desiderata in mind on their outings this spring.

Pied-billed Grebe.	Black-billed Cuckoo.
Loon.	Yellow-bellied Sapsucker.
American Bittern.	Pileated Woodpecker. ¹
Sora Rail.	Red-bellied Woodpecker.
Little Black Rail.	Traill's Flycatcher.
Coot.	Prairie Horned Lark.
Solitary Sandpiper.	Bobolink.
Bartramian Sandpiper (Field Plover).	Bronzed Grackle.
Ruffed Grouse.	Pine Finch.
Wild Turkey.	Cliff Swallow. ¹
Red-tailed Hawk.	Warbling Vireo.
Broad-winged Hawk.	Black and White Warbler. ¹
Bald Eagle.	Golden-winged Warbler.
	Nashville Warbler.

¹ Only eggs desired.

Duck Hawk.	Mourning Warbler.
Long-eared Owl. ¹	Mocking-bird.
Short-eared Owl.	Bewick's Wren.
Great-Horned Owl. ¹	Red-bellied Nuthatch. ¹
Barred Owl.	Golden-crowned Kinglet.
Saw-whet Owl.	Gnatcatcher. ¹

* * *

The thanks of the Club are due to Dr. Henry Skinner for an admirable photograph of the statuette of Alexander Wilson in the Academy of Natural Sciences, and to the librarian of the Academy, Dr. Edward J. Nolan, for permission to publish it in CASSINIA.

* * *

The Club lost three members by death during the past year. Elmer Onderdonk, elected an Associate Member in 1903, died on September 4, 1913. He was for a number of years a regular attendant at the meetings, and a valuable contributor to our migration records. For some time past, however, he has been an invalid and confined to his room.

Henry Hales, one of our original correspondents, died on November 6, 1913, at an advanced age. Mr. Hales had long resided at Ridgewood, N. J., where he was a constant student of the local bird life and a frequent contributor to numerous journals dealing with nature study.

William B. Crispin, recently elected a correspondent, was well known as a collector of birds' eggs. He resided at Salem, N. J., and was thoroughly familiar with the breeding habits of the birds of that neighborhood. His death, which occurred on May 9, 1913, was tragic. He had visited the Nocka Mixon Cliffs on the Delaware River below Easton, in search of the nest of the Duck Hawk, which annually breeds there. In some way he fell from the top of the cliff, and his body was later discovered on the ground below. Mr. Crispin was a frequent contributor to *The Oölogist*, and furnished much valuable data to Stone's "Birds of New Jersey", published by the New Jersey State Museum. He was thirty-two years of age.

Bibliography 1913

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BENNERS, ARCHIE. Breeding Warblers of Harvey's Lake, Pa. *Oölogist*, 1913, p. 135.

Bewick's Wren is mentioned, but as this locality is far beyond its normal range, and no specimen was apparently secured, it would seem that there was possibility of an error.

BURLEIGH, THOS. D. Unusual Nesting Sites. *Oölogist*, 1913, p. 55.

Grackle in hole in tree, etc., near Pittsburgh, Pa.

Bird Life on the National Pike [in western Pa.] *Oölogist*, 1913, p. 253.

A July Tramp in Allegheny Co., Pa. *Oölogist*, 1913, p. 258.

Unusual Winter Birds [at Pittsburgh, Pa.] *Oölogist*, pp. 279 and 281.

CHRISTMAS LISTS. By numerous observers. *Bird-Lore*, 1913, pp. 27-30.

CRISPIN, W. B. Bald Eagle. *Oölogist*, 1913, p. 68.
Nests apparently in southern N. J.

CULVER, D. E. Two Days with the Boys of Camp Delmont. *Boy Scouts' Bulletin*, Sept. 1913, p. 9.

List of birds seen on White's Island above Trenton.

A Late Goldfinch. *Bird Lore*, 1913, p. 371.

DICKEY, S. S. The Red-shouldered Hawk a Summer Resident of Greene County, Pa. *Oölogist*, 1913, p. 23.

Nesting of the Prairie Horned Lark in Southern Pennsylvania. *Oölogist*, 1913, p. 48.

Near Waynesburg, Pa.

- Nesting of the Whip-poor-will [at Waynesburg, Pa.] *Oölogist*, 1913, p. 74.
- Nesting of the American Sparrow Hawk [in Greene Co. Pa.] *Oölogist*, 1913, p. 75.
- Nesting of Bewick's Wren [at Waynesburg, Pa.] *Oölogist*, 1913, p. 119.
- The Louisiana Water Thrush [at Waynesburg, Pa.] *Oölogist*, 1913, p. 135.
- The Northern Hairy Woodpecker [in Huntingdon Co., Pa.] *Oölogist*, 1913, p. 280.
- The Henslow's Sparrow a Summer Resident in Central Pennsylvania. *Oölogist*, 1913, p. 299.
- FOSHAY, P. M. Notes on the Robin. *Bird Lore*, 1913, p. 373
At Montclair, N. J., nest on window-sill.
- GRINNELL, GEO. BIRD. Brazilian Tree-duck (*Dendrocygna viduata*) in New Jersey. *Auk*, 1913, p. 110.
Hackensack Meadows, early October, 1912.
- GRISCOM, LUDLOW. The Orange-crowned Warbler at Englewood, N. J. *Auk*, 1913, P. 585.
- HARLOW, RICHARD C. Bittern Breeding in New Jersey. *Auk*, 1913, p. 268.
Nesting of the Black Rail (*Creciscus jamaicensis*) in New Jersey. *Auk*, 1913, p. 269.
The Marsh Hawk Nesting in New Jersey. *Auk*, 1913, p. 272.
- HEGEMAN, KATHARINE R. An Albino Pewee at Montclair, N. J. *Bird Lore*, 1913, p. 373.
- JACKSON, THOS. H. The Barn Owl's Scrap-pile. *Bird Lore*, 1913, p. 245.
- KOHLER, L. S. Preliminary List of the Birds of Northern Passaic County, New Jersey. *Wilson Bull*, June, 1913, pp. 71-85.
The Oven-bird [in Essex Co., N. J.] *Oölogist*, 1913, p. 80.
Includes notes on bird banding.
- The Hooded Warbler [in northern N. J.] *Oölogist*, 1913, p. 81.

An Albino Starling [at Bloomfield, N. J.] *Oölogist*, 1913, p. 96.

Early Roosting Flights of the Tree Swallow at Bloomfield, N. J. *Wilson Bull*, June, 1913, p. 97.

May 25 to June 10.

A Runt Crow at Pompton Lake, N. J. *Wilson Bull*, June, 1913, p. 97.

Two Brewster's Warblers at Leonards, N. J. *Wilson Bull*, June, 1913, p. 98.

Two Unusual Sets [at Bloomfield, N. J.] *Oölogist*, 1913, p. 120.

Abnormal Song Sparrow and Crow.

Migration Notes [in northern N. J.] *Oölogist*, 1913, p. 274.

KUSER, JOHN DRYDEN. Nocturnal Songsters. *Bird Lore*, 1913, p. 311.

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Princeton, N. J., January 2, 1912.

MARX, E. J. F. Moving a Robin's Nest. *Bird Lore*, 1913, p. 245.

Random Notes from Easton, Pa. *Auk*, 1913, p. 279.

Notes on 11 species.

MILLER, ANSEL B. The Song Period of the Brown Thrasher. *Bird Lore*, 1913, p. 311.

MILLER, RICHARD F. Early Solitary Sandpipers. *Oölogist*, 1913, p. 52.

Vicinity of Philadelphia.

Late Nesting of the Common Crow. *Oölogist*, 1913, p. 55.

At Avalon, N. J.

Miscellaneous Bird Notes from Philadelphia and Vicinity. *Oölogist*, 1913, p. 84.

Preliminary List of Water Birds of the Middle Delaware Valley—A Correction. *Oölogist*, 1913, p. 298.

Most of the misleading statements referred to in *Cassinia*, 1912, are admitted

to be without substantiating records, and the whole list stated to be "purposely-written to excite the professional ornithologists to adverse criticism." Why a magazine, supposedly devoted to advancing ornithology, published articles with such purpose, is difficult to understand.

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POTTER, JULIAN K. Long-eared Owl. Illustration. *Bird Lore*, 1913, p. 235.

SIMPSON, R. B. Some Raptore Notes. *Oölogist*, 1913, p. 32.

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Large Set of [Black-billed] Cuckoo. *Oölogist*, 1913, p. 53.

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Bird Nesting Time. *Oölogist*, 1913, p. 15.

In Chester Co., Pa.

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STONE, W. Bird Migration Records of William Bartram, 1802-1822. *Auk*, 1913, pp. 325-358.

From original manuscript diary.

TROTTER, SPENCER. Arkansas Kingbird (*Tyrannus verticalis*) in Delaware. *Auk*, 1913, p. 273.

WILKINSON, G. NORMAN. Horned Owl Killing a Skunk. *Bird Lore*, 1913, p. 369.

OFFICERS AND MEMBERS

OF THE

Delaware Valley Ornithological Club

1914.

STEWARDSON BROWN, *President*.
HENRY W. FOWLER, *Vice-President*.
J. FLETCHER STREET, *Secretary*, Beverly, N. J.
SAMUEL C. PALMER, *Treasurer*, Swarthmore, Pa.

ACTIVE MEMBERS.

WILLIAM L. BAILY, Ardmore, Pa..... Founder.
STEWARDSON BROWN, 20 E. Penn St., Germantown, Phila..... *1891
JOHN D. CARTER, Lansdowne, Delaware Co., Pa..... 1900
I. NORRIS DE HAVEN, Ardmore, Pa..... 1891
ARTHUR C. EMLÉN, Awbury, Germantown, Phila..... 1897
HENRY W. FOWLER, Holmesburg, Phila..... 1894
WILLIAM E. HUGHES, M. D., 3945 Chestnut St., W. Phila..... 1891
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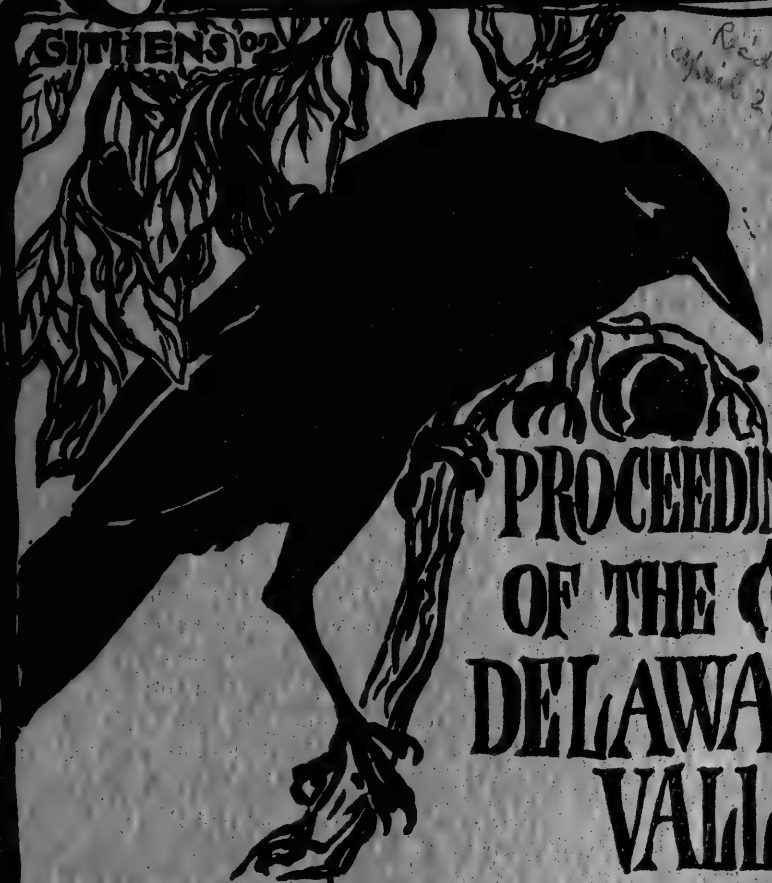


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A BIRD ANNUAL

GITHENS '02

Recd
April 27, 1915



PROCEEDINGS
OF THE
DELAWARE
VALLEY

ORNITHOLOGICAL CLUB
OF PHILADELPHIA

1914

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CASSINIA

An Annual Devoted to the Ornithology of
Pennsylvania, New Jersey, and Delaware

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- The Birds of Eastern Pennsylvania and New Jersey**, by
Witmer Stone, pp. 176 with two maps and portrait of
Alex. Wilson. One Dollar and a half. (Post paid \$1.62)
- Abstract of Proceedings, Full Set Nos. I-IV.** (1890-1900) pp. 98, Fifty cents
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JOHN KRIDER
TAXIDERMIST

CASSINIA

PROCEEDINGS OF THE DELAWARE VALLEY ORNITHOLOGICAL CLUB

No. XVIII.

PHILADELPHIA, PA.

1914.

Some Old Philadelphia Bird Collectors and Taxidermists

BY SPENCER TROTTER

“CHRIS” WOOD

During the middle years of the last century there was a type of man—type of mind would probably be a happier way of expressing it—individuals of which appeared here and there in a community, though always sparingly and often in unexpected walks of life. This race or type is apparently now extinct. It was my good fortune to know quite intimately one of these persons, to spend many hours in his company, and to become more or less familiar with this attitude of mind. Christopher D. Wood, or “Chris” Wood as he was always called, was a typical old-time bird collector and taxidermist. I first made his acquaintance in the summer of the year 1875. The picture that “Chris” Wood’s name calls up is that of a man of medium height, possibly a trifle under the average, of spare build, a rather prominent nose, dark chestnut hair with a tendency to curl, and a drooping reddish moustache. His eyes were blue—a sort of light china blue. The color of his eyes was further impressed

upon me by a circumstance which showed the peculiar streak of realism that often runs through minds of such men as "Chris". He owned a dog—a white and orange-blotched English setter called "Prince," in which he took great pride. I persuaded my father to paint a small portrait of this dog, for which "Chris" would give me a considerable number of bird skins. The dog, of course, was the prominent feature in the picture, but father painted in the middle background the small figure of a man with a gun, hardly more than an inch or so in height, which "Chris" took to be a portrait of himself and complained that the eyes of this man in the picture were dark (they were mere little pin-point spots), while his were blue. He was further dissatisfied with the shading on the dog's belly, saying that he always kept "Prince" very clean and the picture showed him to be dirty where he should be snow-white.

"Chris" lived in a small house on the north side of Market Street west of Thirty-fourth. His taxidermic shop, on the ground floor front, I can still see perfectly, and it had a smell peculiarly its own. I can see it again whenever I get a whiff of raw bird-flesh and arsenic. Back of a counter, littered with the materials of his craft, stood "Chris," in a cardigan jacket, skinning birds. I can see him very clearly as I write this—always cheerful and friendly to the boy who must have bothered him many times. I am somewhat hazy as to a row of glass-door cases, containing mounted specimens back of where he stood, but there were drawers under the cases—deep drawers filled with bird-skins thrown in helter-skelter without labels. Mrs. "Chris," a short darkish woman, used to urge "Chris" to "laybil" his specimens, but "Chris" knew where each one had been taken and the approximate date, so he said, and I believe that he was fairly accurate, though there were several hundred bird-skins in those drawers. I used to spend afternoons rummaging among these specimens and bought a good many, some very interesting ones. Twenty-five cents was the price for a fairly common species of small bird, though I paid him ten dollars for the hybrid swallow which I had described. "Chris" did a fairly good business, I think, mounting birds that were brought to him by sportsmen, and he was always

quite reasonable in his charges. He had little of the artistic instinct and his specimens were rather conventional mounts, but they came pretty close to the natural form and characteristics of a species. He was a fast and skilful worker and would strip the skin off a small bird, dose it with arsenic and push in the cotton while he talked away—one bird after another in quick succession—and the skins were all remarkably good, quite free from blemishes of any sort. I do not remember if he tied the wings—I think not in many of the smaller kinds—and he never wrapped them in any way to dry into form, just gave each one a few dextrous pinches and tossed it on the counter. Yet, as I say, they were all good skins.

“Chris” had no technical knowledge of birds. I doubt if he knew anything about genera, or what such a thing as a genus meant. He had that primitive sort of knowledge about birds that was characteristic of the early field naturalists—botanists, ornithologists and entomologists alike. It was a lively interest in the differences between one kind of animal and another, a curiosity about habits and distribution of species, a native love for color and form, and a very deep-seated feeling for the background—woods and fields and streams. I imagine this was Audubon’s attitude of mind, tinged with his artistic temperament, and also Alexander Wilson’s to a large extent, influenced by his poetical nature. Neither of these persons were what we of to-day would call strictly “scientific”. The Bartrams, Townsend and Nuttall were probably men of the same type. “Chris” was neither artist nor poet visibly, but though he never expressed himself, no one knows what inward satisfaction possessed his soul, for as Stevenson has said “the ground of a man’s joy is often hard to hit”.

When the migration was on, “Chris” was out every day. The Clifton Woods on the ridge to the right of the old West Chester railroad, between what are now the stations of Primos and Secane (then Oak Lane and Spring Hill) was a favorite collecting ground of his. I have passed by these woods every day for the last thirty years. They have been much thinned out, and their southern side opened up for building, but the sight of them often evokes a memory of “Chris”. Darby and

Crum creeks were also haunts of his, and the Lazaretto Woods on Tinicum ("the Lazarette," he used to call it). Linwood (Marcus Hook) near the Delaware state line, was another place he used to tramp over. I have known him to walk all the way out to the Clifton Woods and back again day after day during the height of the spring migration. He sold very few of the specimens he got on these trips and in the later years of his life he was much straightened for money, but still he would tramp far afield for the pure love of it. He had a wonderful eye for birds and a quick ear for their notes, but that was not remarkable since he spent his whole life in their pursuit. He was an entirely unlettered man and had many curious notions and expressions. I remember one day in the autumn many years ago, when I was loafing with him in his shop, he forboded a winter of great sickness because Red-headed Woodpeckers had appeared in unusually large numbers in the country about Philadelphia. "I never knew it to fail", he said. This is probably a remnant of some old folklore. In his earlier youth "Chris" Wood had collected birds in Panama and had suffered from an attack of Chagres fever. When only sixteen years of age he enlisted in the Rush Lancers (during the Civil War), so he told me, and was in several desperate cavalry charges.

The last I saw of "Chris" was the year I entered Swarthmore College (1889). The college collection of birds needed overhauling and I got him to come out and put the mounted specimens in shape. He seemed downcast and in poor health. The date of his death I do not know; it was not long after this, perhaps a year or so. I was busy at the college and do not remember having gone to his shop after that year. He had hardly reached the middle years of life when he died. He was altogether an interesting personality—a genial, kindly soul, and I owe him now many pleasant memories. Where his grave is I do not know, but wherever it may be, surely that exquisite, though forgotten verse of the poet Gray would be a fitting elegy—

There scatter'd oft, the earliest of the year,
By hands unseen are show'rs of violets found;
The redbreast loves to build and warble there,
And little footsteps lightly print the ground.

JOHN AND JOE KRIDER

Personally I knew little of the Kriders. John Krider's old gun shop, still standing at the northeast corner of Second and Walnut streets is an ancient landmark of local ornithology, and I remember the second story—a dingy cubbyhole where "Charlie" Wood, a brother of "Chris," presided as taxidermist. Charlie struck me as very different from "Chris"—much more of a melancholy cast of mind, but I really did not know him very well and saw him only a few times. Krider's shop was a rendezvous of the "gunning" fraternity and among them were many ornithologically inclined sportsmen. It was quite natural for men of this type to be interested in birds in a quasi-scientific way. This attitude of mind is reflected in that rare old book of D. Elisha Lewis, "The American Sportsman," and to a lesser extent in Frank Forester's "Field Sports". Such books are in a sense unique and altogether representative of the type that frequented Krider's shop. John Krider, himself, published a small book under the title, "Forty Years' Notes of a Field Ornithologist", with a sub-title as follows—"Giving a Description of All Birds Killed and Prepared by Him". It bears the imprint of 1879 from the press of Joseph H. Weston—Philadelphia—and is an annotated list, with the scientific names then current, of 335 species, beginning in the old style with the rapacious birds and ending with the guillemots and auks. The specific names all begin with a capital letter, the name of the describer following. It is by no means a local list, much of the matter relating to Iowa, where Krider and his son Joe spent their summers collecting. Ruthven Deane and I visited the old shop some years ago and were each given a copy of this book by Mr. Lee Siner, the present incumbent. Joe Krider also was a characteristic field man and a good collector, though like his father entirely unscientific.

One of these kindred spirits that I came to know was Charlie Westcott. He was an out-and-out sportsman with a strong bias toward ornithology. Charlie was in no way professional, however. At one time he was in the gun business, I think with the old firm of Philip Wilson. Westcott used to collect in a casual sort of way, shooting warblers along Crum Creek during

the migration, but I do not remember that he made skins. He just went out for the fun of it and gave his specimens to Krider or to the Woods. I met Westcott at the Academy of Natural Sciences in 1878, where he was making copies of various bird pictures on plaques from several of the larger works of ornithology. He was among the first who imported the Laverack setter into this country—a race of dogs bred in and in to such an extent that they had become degenerate. Westcott's famous dog "Pedigree" had a wonderful nose, but in every other respect was an idiot and quite useless in the field.

OTHER TAXIDERMISTS

I remember once meeting in "Chris" Wood's shop an old fellow named Ben Child who was a bird collector of the same ilk. I knew nothing further about him except that "Chris" seemed to regard him as an encroacher upon some of his collecting haunts. On Ninth street above Arch, on the east side, was a taxidermic shop kept by a man named Galbraith. He made some very good-looking mounts, but I do not recall any skins. My father purchased several mounted specimens from him as models for paintings—one of them, a Meadowlark in excellent pose, was the subject of a picture called, "On the Alert". Among other birds, which were used as the subjects of paintings, was a Junco, a Blue Jay, a Baltimore Oriole, and a pair of California Valley Quail (*Lophortyx*), all of which I fell heir to when father had finished with them. I remember carrying the Baltimore Oriole home from the studio in a bitter cold wind one afternoon in February, the paper blew away and the specimen never quite regained the original set of its tail feathers. This was somewhere about 1875.

There was another taxidermist on Thirteenth street above Market but I never knew him nor was in his shop. Dave McCadden has kindly given me his business card which I insert here as a specimen of the craft:

JAMES TAYLOR,
No. 36 N. THIRTEENTH ST.,

ONE DOOR BELOW FILBERT,

PHILADELPHIA.

PRESERVER OF

BEASTS, BIRDS, REPTILES,

FISH & INSECTS,

IN A SUPERIOR MANNER AND WARRANTED.

☞ Old Birds cleaned and repaired.

This particular card has an interesting history. It was found wrapped up in a copy of the Philadelphia Ledger for December 8th, 1858, which was used as part of the stuffing in the old bison, that long stood in the exhibition gallery of the Academy at Broad and Sansom streets and later in the Nineteenth street gallery.

All of these men, with the exception of Westcott, were professional collectors and taxidermists. There were others, not ornithologists in the real sense of the word, who took up the pursuit in a purely amateur way. One of these was John McIlvaine who lived on Baring street. He was a delightful old gentleman and I remember him always as wearing a high silk hat, even in his home. He made very artistic and natural mounts of birds, especially of warblers, in various characteristic poses. I met him once on the train, on a May morning, going out to shoot warblers at Grubb's Bridge (now Wawa). If I remember rightly he had a cane gun. The cane gun was much in vogue among collectors near the city in those days. I had one that generally hit me in the face and the bird usually flew away. The ramrod, too, was a jointed affair—and one was forever leaving the stock at home. This, I think, was the experience also of Dr. Coues—who refers to it in his "Field Ornithology" as having "only two recommendations. If you approve of shooting on Sunday and yet scruple to shock popular prejudice, you can slip out of town unsuspected. If you are shooting where the law forbids destruction of small birds—a wise and good law

that you may sometimes be inclined to defy—artfully careless handling of the deceitful implement may prevent arrest and fine.”

All this is a ramble among old memories—very pleasant memories to me. The latter-day attitude toward bird-life has put an end to the business of the professional bird-collector and few, if any, now ply their trade. There is no longer a market for such a commodity as a bird-skin. There are taxidermists still among us—born artists in their line—and far superior to the old-fashioned bird-stuffers. The money side of it was undoubtedly a very important element in the business. The conditions have changed. We value the bird for its life, its beauty of form and color, its song, its fascinating ways, far more than the mere possession of its skin. And yet there are some of us still, those of us who were born back in the last century, who have what Tom Montgomery once described to me as the absolutely illogical desire to get out and shoot specimens. It came upon him in the spring; it comes upon some of us at various seasons—always with the same old tingle of enthusiasm. And I very much doubt, if it is altogether so illogical as Montgomery imagined. It was this same tingle of enthusiasm, this desire to secure the specimen, that made life so worth while to this interesting and almost forgotten type—the old-time bird collector.

River Bird Life

BY JOHN D. CARTER

THE time has long passed when even the keenest observer can reasonably hope to find a new species of bird in the Delaware valley. Stragglers from other regions may be found, for accidents always have happened and always will happen. Such sporadic occurrences are interesting, but are not usually of much significance except in the rare cases in which a bird is shifting its range. The outstanding facts of the lives of most of our birds, the times of migration, feeding and nesting habits, plumage changes and so forth, are fairly well determined. The day of the intensive student, the observer with a metaphorical fine-toothed comb, has come. Most of us have little opportunity for such study. But if each one would record what he does observe, there must result a decrease in the great sum-total of our ignorance. So much in explanation of the publication of the following notes, made beside the Delaware River at Chester, Pa.

The time of observation has been limited to an hour or less near noon of each day. The point of vantage made use of, is the end of a dock extending into deep water. Down river, toward the southwest, the high ground near Wilmington forms the horizon. In the opposite direction the tall stacks at League Island can be seen in clear weather. In front beyond two miles of open water rise the low shores of New Jersey. Somewhat up stream and near mid-river, lies Chester Island, an expanse of reeds, relieved by a few small trees. Below the visible end of the island, a bar extends for more than a mile.

At the outset, let it be understood that the bird-life of the river differs from that of the land very strikingly, in that the winter, and not the summer, is the season of greatest activity. Even the wonderful spring migration which fills our forests and shade-trees with birds of marvelous beauty, is represented but feebly on the river.

About the middle of the 4th month (April) come the very attractive little Bonaparte Gulls. Trim and neat in figure, light

and airy in motion, they make the Herring Gulls seem heavy and awkward. Instead of pounding the water with their feet, as the Herring Gulls do, when they rise from the surface, the Bonapartes spring lightly up, more like pigeons leaving the ground. Their dark heads, when they happen to have them, are good field-marks, permitting confusion only with the Laughing Gull. These seldom stray so far from the salt water. I have seen only one at Chester in three years, so the confusion is more possible than actual. In any plumage the Bonaparte may be recognized by its three white areas, as seen from above, namely, its tail and a broad band along the front edge of each wing, from the bend of the wing outward. When flying away from one, the white of the tail flanked by two waving bars of the same color may serve for identification at any distance up to a mile. The Bonapartes tarry only a few days. With their passing, the bird life of the river dwindles rapidly. The Herring and Ring-billed Gulls gradually vanish away. An occasional flock of geese may afford brief excitement and a few Ospreys may draw their easy circles above the river. The sweet whistle of the Yellowlegs may sometimes be heard, and even less frequently, a bunch of misguided Semipalmated Sandpipers or Ring-neck Plovers may drift past. A few kinds of land birds may be seen, but these clearly have no interest in the river. To them it is but a mere accident of the landscape. The Swallows, however, do seem to use the river as a highway. Barn and Bank Swallows have been identified. It is probable that other species also should be included. What use is made of the river by night migrants, of course does not appear from these limited observations.

By the middle of 5th month (May) except for the noting of Turkey Vultures over New Jersey, (where they may be seen at any season) and an occasional Crow, the daily record begins to read thus: "no birds", "no bird life of any kind". This dearth of life continues almost unbroken until summer has begun to wane. Of course, the rails, marsh wrens, bitterns, etc. are hidden away among the reeds, and do not show themselves in the open.

Sometime in the 8th month (August) there come the Black

Terns for their annual visit. They are never seen in spring. A few wear their dark body-clothes, making them look very different from what is expected of a tern. The birds in immature plumage, appear more nearly normal. So far as I have seen they are the only terns which resort to the river at that time. They go actively about, at times uttering a rather shrill squeak. They appear never to plunge into the water, but descend lightly to the surface and at once rise again. When the reeds are well grown, the metallic clink of Reed Birds is heard, but their little forms are so lost in the expanse of air that they are not seen as frequently as might be expected.

Early in the 9th month (September) the first gulls appear. For some time there was much uncertainty in my mind regarding the identification of Herring and Ring-billed. Even yet there are cases of doubt. When it is remembered that their colors are almost identical, that either may look, black, gray, bluish, white or parti-colored according to circumstances, and that the lights and distances over the water vary interminably, this need not cause much surprise. The Ringbills are slighter in build than the ponderous Herrings, more airy in flight, rising more easily from the water, more likely to make sudden turns while flying, and work their wings more rapidly. A color difference which appears to be useful and generally reliable is that the Ringbills in immature plumage show the basal part of the tail much whiter than the Herrings in corresponding plumage. The general habits of the two appear very similar, though I have no record of the Ringbill soaring at great height, as the Herring frequently does. The voices of the two are similar, so far as I have heard them, but that of the Ringbill is rather more shrill on the squealing notes. I have never heard them cackle as the Herrings do.

At first the Ringbills have it all to themselves, but in 9th month there appear a few Herrings, fore-runners of the winter population. The two species mingle freely together, and even during keen competition for some article of food, I have never seen evidence of ill-feeling of either toward the other. The same may be said of occasions, when Crows also come to the feast. All through the bright autumn weather the two kinds of gulls

add life to the broad expanse of water. As the days become colder and drifting snow-squalls tell of the approach of winter, the Ringbills slowly decrease in numbers, while the Herrings become more numerous until they are the only species to be seen for weeks or months together. In fact the Herring Gull must be regarded as much the most notable bird of the whole river avi-fauna.

As indicated above, the Herring Gulls look very different under varying conditions. The birds in immature plumage often seem to be of one color throughout, and that so dark as to appear black, when seen against fleecy clouds or tossing white-caps. Between this and the blue and white adult plumage there are many phases, grading one into another. Some of the last to be seen in the spring, as well as the first to arrive in the fall, are in the dark plumage. When settling down upon the water they nearly always drop gently, unless in a great hurry to secure a morsel of food. If they spy something of interest while passing rapidly over it, they either apply the brakes by taking almost an upright position in the air and beating the wings directly forward, or they pass on and return by a series of spiral curves. I have never seen them check their momentum by skating along on their feet after the manner of some water birds, which have heavier bodies or less wing surface.

Frequently they endeavor to secure the food by catching it up in their beaks as they pass over. When the wind is high and the waves are running, there are many exhibitions of admirable balancing in executing this feat. Sometimes the object thus secured is at once dropped again, indicating that even gull eyes may be deceived. At other times, they settle upon the water and eat more at leisure. Even then there is no loss of time, for in a surprisingly short space, many others assemble so that there may not be enough for a taste apiece. It is probable that civilization furnishes most of their food while on the river. The only fragment which I have been able to identify was a piece of bread.

When swimming or resting on the water, the gulls carry the points of their wings well above the surface, making them look "high behind," in contrast to most, or all, of the ducks. The flight may be direct by steady beating of the wings, or this may

be interrupted by periods of sailing or by graceful circling. Sometimes, and more frequently as spring approaches, they soar in beautiful circles to great heights. At such times they may be mistaken easily for hawks. On a few occasions I have seen great numbers of them engaged in this sport,—the whole wheeling concourse drifting slowly before the wind.

As a rule the Herring Gull in winter on the river is a rather silent bird. One may sometimes fly about uttering a plaintive squeal. A less common sound is a low chuckle, not audible for more than a few yards. But when a bunch of them get together, especially in disagreement over an insufficient supply of food, they sometimes show that they have real voices. There may be only one or two notes; or these may be continued into a long cackle, not musical to be sure, but with a delicious flavor of wildness. It is a rather curious fact that during most of the winter, at the noon hour many more gulls pass up the river than move down. Sometimes the count reads about "30 up" to "2 down." Or it may reach the unusual total of nearly one hundred, divided in about the same ratio. No doubt they come back again sometime. On other days, as though by common consent, they all go foraging promiscuously, without any definite lines of flight. I have not been able to detect any relation between these movements and either tide or weather conditions.

Associated more or less with the gulls is the everyday Crow. Sometimes great flocks assemble on Chester Island or the Jersey shore. When ice is plentiful in the river they ride about on it and fly from place to place seeking food. When the surface of the water is free from ice and not too rough, they go about as the gulls do, descending and picking things from the surface. They look as though they were in danger of falling in and drowning, but I have never seen any such accidents. It should be mentioned that, a few times, I have noted Purple Grackles acting in the same way. On two occasions, when the sounds of civilization were hushed, when there was no slapping of waves nor grinding of ice, I have heard the faint voices of Crows and on looking through field-glasses have found them on the shore or treetops on the other side of the river. There were none any-

where nearer in that direction, so it seems certain that the voice of the Crow can be heard for two miles. On one of these occasions the voice of a rooster also carried across the river.

Of the ducks I can give no satisfactory account. This is because of their settled practice of keeping far from the Pennsylvania shore, or because of the limitations of human vision, or both combined. At the distance of a mile, a duck is a small object, and at two miles approaches the invisible. So although I see some thousands in the course of a season, I can rarely learn what they are. Why does not some one who knows, publish a scheme by which distant ducks may be identified? During three years I have known four Ducks to pass fairly close to the end of the dock. Two, which came along while I was not there, appeared to be American Mergansers. Another might have been a Bufflehead. The fourth deserves more particular mention. There was much ice in the river, more particularly over the bar below the island and along the Jersey shore. Perhaps for this reason, a Duck came in from mid-river and settled on the water, close to the shore, and not more than three hundred yards from my lookout. The crown was dark. Just below that on the side of the face and neck was a large light spot. These marks showed it to be a Ruddy Duck. I at once looked to see if its tail was pointed skyward and found that it was not. The bird dived frequently, doubtless in search of food in the shallow water. After some time it drifted away with the tide, without diving. Its tail then appeared to be held up, as I expected it to be at first. This suggested that perhaps the Ruddy Duck makes some special use of its stiff tail while under water, and when not expecting to dive, lifts it carefully out of the way. If this is not the reason, why *does* this duck have a stiff tail?

Throughout the winter ducks of whatever kind they are, may be seen in flocks of 10 to 80, passing either up or down, or resting on the water over the bar or near the Jersey shore. They never seem to dive. I suspect that they are chiefly Black Ducks and Pintails. Occasionally, and without notice, the ducks have a moving day. On one such day there passed up-river during an hour, 20 flocks, estimated to contain 1035 birds. There also passed down 5 flocks, containing 108 birds. This

can scarcely be considered a migration, as it happened on 1st mo. (Jan.) 21 of this year. The greatest numbers appear late in the winter or early in the spring. The flocks are so intermingled that it seems hopeless to try to estimate the numbers, and mere guesses carry such a large percentage of error that they are scarcely worth making. At such times I always feel glad that so many have escaped destruction, and wish that their numbers might be doubled and trebled. I never wish for a gun—still less for a gunner—but only that I might know what they are.

One particular incident, although briefly noted in a previous issue of *Cassinia*, is thought worthy of fuller description because of its rarity and the questions which it raises. One day in early spring, the tide was flowing rapidly but smoothly up-river. A sea-going tug, with a string of loaded coal-barges was passing down. A few Herring Gulls were doing nothing in particular, some hundreds of yards from shore. Everything was quiet and perfectly normal. Suddenly, from over the city, came a bird of medium size, carrying something in its talons. The sharp-pointed wings, the powerful figure, the swift direct flight and the dark color showed it to be a Duck Hawk. Why it was carrying its prey out over the river, where there could be no resting place for the sole of its foot, is not clear. But it soon became evident that it had made a very bad blunder. Under other circumstances, I have seen gulls and hawks in close proximity, when neither seemed to notice the other. But this time, the moment the gulls spied the hawk coming toward them they shouted "Ha! Ha!" in tones that seemed full of derision. At once the chase began. The unincumbered gulls gained rapidly on the laboring hawk. For a few seconds it tried to escape, then, in despair, dropped its prey upon the water with a splash. I expected to see the gulls descend upon the fallen quarry and wrangle for a morsel apiece. But to my surprise they seemed to have no interest in it whatever, and not very much in the hawk, except that they were determined to prevent it from recovering its lost property. Time and time again it would circle about and come near to the coveted prize, as though to lift it from the water. Whenever it came near,

one or more gulls would dive at it and force it to move on. At such times the speed of the gull seemed fully as great as that of the falcon. There was no sign of retaliation, not even any back talk, and the usually courageous bird of prey fled like a driven coward.

While this was going on, the tide had carried the whole action a quarter of a mile up river. Then the hawk gave up the struggle and flew entirely away, while the gulls scattered to their usual occupations. It seemed to be the end of the incident, but it was not. After about twenty minutes the hawk reappeared. The tug and barges were then nearly out of sight down the river, but without hesitation the hawk went to the spot where it had dropped its prey. Beating back and forth, it carefully examined the surface of the river, following the course taken during the altercation with the gulls. Naturally, it did not find what it was looking for, because by that time its prey was a half mile or more further up the river. Instead of continuing the search, the hawk gave up, at the point where it had been driven away, rose high in the air, made a few vicious-looking plunges at some gulls, which were not doing any harm just then, and finally disappeared in the distance.

I have seen gulls mob a Fish Hawk which had made a good catch. In that case there was every reason to think that the gulls would gladly have eaten the fish, if they could have secured it. But why did they assail this Duck Hawk, which had a perfect right to carry something about if it wished to, if they did not desire what it carried? Was it simple meanness for them to prevent it from recovering its property? Did the hawk go away so as to allow the troublesome gulls to disperse? If it had that much sense, why did it fail to understand that the drift of the tide would go on while it was away? Did it know anything about the tide at all? Or was the sense of time poorly developed or altogether wanting? Memory there surely was, and an accurate sense of locality, not disturbed by the removal of one of the most prominent features of the landscape. There was every indication of resentment toward those gulls. But who can say how nearly these psychic processes correspond to our own? Perhaps that is part of the work laid out for the observers of the present and the future.

The Valley of the Tacony

BY GEORGE SPENCER MORRIS

IN the minds of most ornithologists the bird and its environment are inseparably linked together. We pick up a dry and dusty museum skin and instantly there springs before our mental eye a vision of green meadow, breezy upland, tangled thicket or dense forest as a setting for the living prototype of this dead thing which we hold in our hands. Carrying the thought still further, most of us have in mind some particular spot, with which we instinctively associate a given species; some actual tree or grove or thicket where, perhaps in the distant days of boyhood, we first came to know this bird, or where years of acquaintance with it may have proved this or that spot to be its favorite dwelling or resting place. Again every ornithologist has made a more or less accurate geographic study of the region about his home, and as a result has come to have some favorite tramping ground, which he knows and loves with special intimacy in an ornithological as well as geographic sense. The careful study of these quite restricted sections may often give just as important scientific results as the mere listing of species seen over much wider areas. There is a certain intimate charm in such works as Gilbert White's "Natural History of Selborne" which is in great measure dependent on the narrow limitations of the region dealt with.

For well nigh fifty years I have lived on the edge of the valley through which winds the Tacony Creek, a stream flowing into the Delaware in the northern section of the county of Philadelphia. Each year the city creeps closer to us. That red-brick wave has almost reached to the opposite edge of our valley, yet still the quiet stream comes down as of old between its wooded hillsides, its marshy meadows, its over-hanging willows and its alder thickets. For the study of bird-life this valley is almost ideal, especially that stretch of some two miles which extends

to the north of my home. I have long felt that I should like to pay written tribute to this my favorite bird-walk.

The hillside in front of our old mansion is thickly wooded. The trees are for the most part tall and stately oaks, beeches, chestnuts or tulip poplars. Here, in summer, the Wood Thrush sings his sweetest, and several nests may invariably be found. In the early spring two or three pairs of Crows almost always build among the upper branches. Throughout the long, hot days of summer the Red-eyed Vireo reiterates his simple sentences and leaves his little cup to hang upon some naked limb, a mute reminder of happier days, when the icy winds of winter sweep down the valley. Along this wooded hillside the Carolina Wren makes the valley ring with his rollicking song on crisp winter mornings, or chatters and scolds as he searches for spiders among the logs of an old woodpile. It is a favorite bit of woods for the Flicker; the Downy Woodpecker is common, the Hairy less so, the Yellow-bellied Sapsucker is a not infrequent visitor in spring or fall, while the Red-head is intermittently common or scarce over periods of several consecutive years, as is his curious custom. In summer the mournful note of the Wood Pewee is always characteristic of the place, and migrating warblers flit in great numbers among the buds and blossoms of spring or the ripening leaves of autumn.

Over the fence at the foot of the hill lies the meadow and through it flows the placid Tacony. When I was a boy this meadow was a marsh with tussocks and rushes and skunk cabbages. The Red-wings always nested here and so did the Maryland Yellow-throat. Modern drainage, alas, has converted this delightful swamp into a commonplace, but useful bit of pasture. Therefore the Red-wings and Yellow-throats have moved on.

Our walk will be up the valley. Looking down the stream we see the water broadening into a pond, with a mill and a village clustered about the dam-breast. Going back over my notes of the past thirty years, I find quite a number of water birds recorded for this pond. I well remember the flock of geese that once alighted in the meadow on a foggy day, but were



HERE DWELLS THE BLUE-WINGED WARBLER

frightened off. Occasionally Butter-balls are seen, and once a Whistler. One Mallard and two Black Ducks are the only records I have of these species, but there have been several Red-breasted Mergansers and one American Merganser. The Pied-billed Grebe is often seen in the spring or fall, a Great Blue Heron stops occasionally, the Night Heron and the Green Heron are comparatively common, the Wilson's Snipe sometimes drops into the meadow in the early spring, the Solitary Sandpiper is a regular migrant, the cry of the Kildeer is a familiar sound, while the Spotted Sandpiper is common throughout the valley.

Turning northward we come at once to the old turnpike bridge with its two stone arches. Here looking back to boyhood, I can remember when the Rough-winged Swallows used to build in the cracks and crannies of these same stone arches, but that is very ancient history. Above the bridge we have a meadow on the right bank of the stream and a wooded hillside on the left. Then the Tacony takes a sharp bend to the eastward and immediately we find ourselves at the back doors of a crumbling, but picturesque old village. The mill which once gave employment to the community is now a ruin, and several of the houses are fast falling to decay, while the best of them give but poor shelter to the human derelicts who still inhabit them. A small and long-deserted quarry, now much overgrown, indents the hillside to the right before you come to the village. Here, years ago a few Bank Swallows nested, and on several occasions the Kingfisher selected this spot for his tunneling.

At this village we have another dam and just below it another stone bridge; this one being a three-arched structure. In the crevices of this bridge the White-bellied Swallows used to build when the Rough-winged frequented the lower bridge, but many years have passed since this occurred, and now only the Phoebe darts in and out to her mossy nest beneath the cool, gray arches. Clumps of willows and alders and tangles of swampy growth make good bird ground about the headwaters of the pond. Here dwell the Song and the Swamp Sparrows, the Maryland Yellow-throat and Red-winged Blackbird. One can frequently find the nest of the Yellow Warbler, while the Indigo Bunting

usually builds in the bushes over on the edge of the marsh. In winter this weedy, bushy bog gives good cover and food for flocks of finches. Here gather the Whitethroats, the Juncos, the Song and the Tree Sparrows, while occasionally a few Field Sparrows linger throughout the winter.

As we pass up the stream, we come to a drier bit of bottom land, yet still thickly overgrown with weeds, bushes and brambles. Here the Blue-winged Warbler almost invariably builds, as does the Yellow-breasted Chat. The Cardinal also is apt to frequent this particular part of the valley, and here I always expect to hear the first faint flutings of the Fox Sparrow in the warm winter days of late February.

Ahead of us the valley now grows narrower; the hillsides are steeper and more rocky as they draw in closer to the stream, while the water flows more swiftly as we get above the influence of the dam. Rocks protrude here and there from the stream bed and little rapids rush musically across the shallows. Here in winter the Carolina Wren and the Winter Wren greet us with their cheerful chatter as they bustle and rummage about the overhanging banks or peer and pry among the twisted roots of trees that stand by the stream side. In the migrations we often get the strident chirp of the Water Thrush, and more rarely the wonderful song.

The Hooded Warbler is a rare bird in the vicinity of Philadelphia. In fact I have never seen but two hereabout in all my ornithological experience. On May the 9th, 1885 one flashed before me in some bushes by the stream side in this narrow part of our valley. A light load of dust shot was the means of his finding a resting-place among others of his kind in my collection, gathered from regions where the Hooded is more abundant. Three years passed by all but a day, and on May the 8th, 1888, in an afternoon's stroll I approached the same clump of bushes, and lo another Hooded suddenly appeared before me, not two feet from the spot in which I had seen the first one. Is it possible that he sought his long lost brother? If so, his hope was realized; for they now rest side by side. An odd coincidence truly, that the only birds of this species that I have ever seen in this region should have been



THE HAUNT OF THE WATER THRUSH



encountered at widely separated dates, but in the same identical spot.

Along these steep, wooded hillsides we are almost certain in summer to hear the loud, rollicking note of the Kentucky Warbler. Now here is a bird that has unquestionably increased in numbers in this vicinity in recent years. When I was a boy I never saw the Kentucky along the Tacony, although I was quite familiar with the species, for it frequented certain similar valleys lying immediately to the south of Philadelphia, such as the valleys of Crum Creek, Ridley Creek, Chester Creek etc. It seemed then as though the great bulk of the city acted as a barrier to the further progress of the Kentucky so that it did not come into our more northerly valley. Be that as it may, it appeared there some twenty years ago and seems to me to have been steadily on the increase ever since.

At a certain point a small stream draws in from the northwest, coming down through a charming little wooded valley of its own. It is my custom in tramping up the Tacony to make a detour along the course of this smaller stream, returning again to the main valley. In doing this we first follow up a short stretch of open meadow and then plunge into a fine bit of thick growth some twenty feet in height, consisting of willows and alders and other low trees, overhung in some places with a curtain of wild grape vine. The ground beneath is somewhat boggy, though to the left is a high and dry wood of tall timber, and to the right an open hillside. On two occasions I have found the White-eyed Vireo breeding in this lower growth, and White-eye is a rather rare summer resident in these parts. The Tufted Titmouse for some reason seems especially fond of the high wood to the left. He is almost always there whistling or scolding, but only once have I been able to find his nest in all the years that I have passed to and fro beneath these stately trees.

A short distance beyond we enter a wider piece of woodland with a swampy centre through which the stream flows. The spring always seems to make an early start in this protected bit of marsh, and I come here to find my first Maryland Yellowthroat, just as I might go to some particular spot to find the first

hepatica or earliest arbutus. This is one of the very few places on the northern edge of the city where the Worm-eating Warbler may be found, but it now appears to breed here regularly. Its history hereabout is identical with that of the Kentucky Warbler, though it has not yet become so abundant. I never knew the bird in this immediate region until recent years, although in my boyhood it was common enough in the valleys lying just south of Philadelphia. Thus it appears that within the last thirty years our valley has lost the Rough-winged and White-bellied Swallows as breeding birds and gained the Kentucky and Worm-eating Warblers.

I do not know why the Rose-breasted Grosbeak should show such special preference for this bit of woodland through which we have been passing, but during the spring migrations I seem to meet with it here much more frequently than elsewhere. There is a certain group of fine oaks just on the edge of the wood. When their leaves are the size of squirrels' ears and dainty catkins hang trembling on every twig, then is the time one is most apt to catch the gleam of the stately Rosebreasts moving among the upper branches against the warm spring sky, though it may be a mere coincidence with no significance whatever that I should see this lovely bird so much oftener in this particular grove than elsewhere. This wood is a favorite haunt of the Ovenbird. I have several times found his kennel-like nest along the hillsides, and all day long in summer his lilting note rings high and clear among the leafy aisles. The Wood Thrush also is here heard at his best. In the early spring it is a favorite breeding ground of the Crow. A few years ago I found here a Cooper's Hawk nest and an old resident has told me that when he was a young man, a small colony of Night Herons nested in this wood.

Circling around a half-stagnant little pond, from which a Green Heron springs with dangling, yellow legs and ungainly flight, we turn back on our course and ere long come again into the valley of the Tacony. There is still a mile of splendid bird-walk ahead of us. There is meadow and marsh, thicket and woodland, steep stream banks, pebbly shores and jutting rocks. There are ripples and rapids and quiet pools, and the varied bird-life that goes with these changing conditions.

At length at the head of a long meadow we come to a good-sized village, through the centre of which the stream flows. It is the usual terminus of my walk, and it is the stretch of valley lying between this village and my home which has taught me more of bird-life and given me more ornithological thrills than any other section that I have ever known. Barring some water birds and a few upland species, I have here seen practically all the birds of eastern Pennsylvania. I have always felt most grateful to this little valley for all that it has given me, and trust that the day is far distant when the hard hand of the city shall be laid upon it.

Individual Variety of Bird Songs

BY HENRY OLDYS

Volume XVII of *Cassinia* (1913) contains a record of painstaking observations made by the editor, Robert Thomas Moore, of what the author denominates the 'call-song' of the Oven-bird. Mr. Moore settles authoritatively and finally the disputed question of whether or not John Burroughs' 'teacher' characterization of the Oven-bird's song is correct. By a series of notations that have every evidence of accuracy he demonstrates that Mr. Burroughs' characterization is correct *as far as it goes*, but that it represents only one of many forms taken by the bird's song. I was much pleased to see this article, which is amply supported in its conclusion by similar material in my own possession. If necessary I could greatly increase the variety shown, and thus give added emphasis to this demonstration of the Oven-birds' versatility as a songster. It is not my purpose to do so at this time, though I cannot refrain from publishing one unusually aberrant song I secured from an Oven-bird in the grounds of the United States Department of Agriculture at Washington some years ago (Plate IV, Rec. I). This song was delivered in the style of a Carolina Wren and with the *timbre* (quality) of a Maryland Yellow-throat. I should never have attributed it to an Oven-bird, had I not seen the singer, which, fortunately, was perched on a low tree and afforded me two or three minutes of close and perfectly satisfactory inspection.

Let me advert also to one point concerning the "teacher" song which seems to have escaped attention, viz: that it is a *northern* song. I have heard it many times, but never south of Vermont. Mr. Moore's records were obtained, he informs us, in New Jersey and Maine, and I will venture to suggest that if he will examine them, he will find that all those in which the first note of each couplet was accented were secured in Maine.

The northern birds are not confined to this form, nor are the southern birds confined to any particular form; but the "teacher" song is, apparently, used only by northern birds. Nor do they so far as my experience may be taken as a guide, ever sing it while on their migratory journeys through more southerly states.

Individual variety may be found in the songs of most, if not all, other species. Even the humbler vocalists, such as the Black-capped Chickadee, the Black and White Warbler, the Maryland Yellow-throat, and others of this less musically exalted type, exhibit marked variety in the simple songs they utter. Let us take the Chickadee as an example. My observation has been chiefly of the southern form *carolinensis*, though I have noted considerable variety in the singing of *atricapilla* also, and could doubtless show its repertoire to be as varied as that of its southern congener, had as much attention been devoted to one as to the other. In the case of the Carolina Chickadee I have notations of nineteen different songs, besides five or six slight variations of these. This does not include any of the six or seven distinct and separate call-notes; nor does it, of course, include any songs of which I made no musical record. On one warm day in late summer—the 22d of September,—when the thermometer registered a maximum temperature of 98° (a remarkable record for a period when Washington is usually enjoying its first frosts of the season), one Chickadee, out of a flock that I was observing, uttered nine or ten different songs and calls, most of them new to me. I did not note these on the staff: had I done so, the foregoing totals would have been materially increased. And there have been other occasions when I might have added to my records, but did not do so.

One common form of song with the Chickadees of the neighborhood of Washington—the southern form (I have never noted the northern form here)—is noted in Rec. 2. Another is shown in Rec. 3. This last I usually refer to in my notes as the early spring song of the Chickadee, not because it is confined to the season when the bonds of winter are beginning to relax their grip, but because it has often happened to be the first song to break the long silence of winter. It is a welcome herald of the season.

of song. Yet winter with us is not absolutely silent. Though songs are rare at this season, still even on inclement and typically wintry days one may occasionally hear a bit of cheery music from a Song Sparrow, Carolina Wren, or Chickadee; while on those calm vernal days that sometimes ensconce themselves in the very heart of winter, Cardinal, Bluebird, Tufted Titmouse, Meadowlark, White-throated Sparrow, Field Sparrow, Tree Sparrow, or Junco may try its voice; though seldom does one hear more than one or two of these species at once.

My records attest that I have heard Chickadee songs in every month of the year except June, and that this exception is merely accidental I have no doubt. Yet never have I noted the well-known two (sometimes three) note song of the northern Chickadee—the so-called ‘phœbe’ note—in this latitude. It may be that some of the minor songs—those numerous combinations of glassy notes the Chickadee delights in—which I have ascribed to the Carolina Chickadee were uttered by the northern bird, which has many similar phrases at its command; but the clearly whistled song of *atricapilla* has never greeted my ears in the vicinity of Washington.

Anent this song, so frequently referred to as the ‘phœbe’ note of the Chickadee, let me say a word or two. The name was originally used by Thoreau and was by him evidently applied to the ordinary spring song of the northern Chickadee, as it has been applied by others ever since. The characterization is only fairly good; for the Chickadee song is a clear whistle, while Phœbe’s note is of mixed quality. Phœbe’s voice is a very high tenor; that of Chickadee is nearer a childish or feminine treble. Chickadee’s note can be imitated perfectly by the human whistle, but Phœbe’s cannot. But both Chickadees utter a phrase that is truly entitled to be called the *phæbe* note—a reproduction of Phœbe’s song so nearly exact that in four successive springs it misled me into the belief that the Phœbe had arrived from the South. This is the real *phæbe* note of the Chickadee, not the clear-toned whistle of *atricapilla*.

The singing of the Robin shows great individual variety. By this I do not mean to imply that one Robin will vary his songs according to the time of day or condition of the weather—I

Song Records.

1. Oven-bird. 

2. Chickadee. *Bra.* $\text{♩} = 84$. 

3. Chickadee. $\text{♩} = 160$. 

4. Robin. $\text{♩} = 96$. 

5. Robin. $\text{♩} = 198$. 

6. Robin. $\text{♩} = 100$. 

$\text{♩} = 92$. Robin. 

$\text{♩} = 92$. Robin. 

$\text{♩} = 88$. Robin. 

$\text{♩} = 96$. Robin. 

have never observed any such adaptation of Robin music,—but that each individual Robin has his own particular phrases, by which he may be distinguished from all other Robins by the close observer. Records 4, 5, and 6 show some different Robin phrases I have secured. The phrases given in Record 4 were followed by two or three other phrases, some moving upward instead of downward ; the little run from *c* to *e* in Record 5 was very clean cut ; while the song, reproduced in Record 6, was beautifully clear.

Most Robin songs have little melodious coherency, but I have noted a number of exceptions to this rule. I once heard three related phrases (Rec. 7) sung by a Robin, usually though not invariably, in the order here given. It will be observed that the three taken together form one melodious whole. Another Robin sang a six-phrase song, as indicated in Record 8. The bird sometimes varied this song slightly and sang also a number of other combinations. I would direct especial attention to the fact that the first three of these phrases were in dominant harmony while the last three were in tonic harmony, which makes the whole song very well balanced. Other examples of more or less melodious combinations of phrases, heard at various places, both north and south, might be given did space permit.

Sometimes a Robin will depart from convention and utter a song that is very unlike the normal Robin song in style. Thus, a few years ago a Robin was wont to greet me as I returned to my home of a summer afternoon with the continuous melody shown in Record 9. And one April day I heard a Robin in the grounds of the United States Department of Agriculture singing a *sub voce* song (Rec. 10) that was also decidedly aberrant.

A notable difference is observable in the quality of voice and style of different Robins. One, as though greatly pressed by the stress and strenuousness of this life, will utter a high-pitched hurried, eager song, that communicates a spirit of unrest to the listener and creates a hope that the feverish singer may be moved to take up his summer's abode at some far-distant point. Another, disposed apparently to take life more easily, will sing

on a lower pitch and with a less excited *tempo*. Another, remembering, perhaps, that he is a thrush, will sing still more deliberately and with a thrush-like quality of tone that is a joy to hear. On the other hand there are some whose voices are thick and throaty and lack the clear bell-like tone that is usually characteristic of Robin music. On account of these differences it may or it may not be desirable from the musical point of view to have a Robin for a permanent neighbor. His singing may be a delight, or it may be very wearisome to the nerves.

Yet greater variety is noticeable in the songs of Meadowlarks. Like the Chickadee, Song Sparrow, Wood Thrush, and many other birds, each Meadowlark has a more or less extensive repertory of songs; while the individual differences are so great that it is rather rare that one hears a duplication of phrases by separate birds. I have such a wealth of Meadowlark songs among my records that it is difficult to choose which to present here. However, I shall select a few that best exhibit the great diversity that exists among them. One song (Rec. 11) I heard on the 4th of April, 1905. Another, heard on the 3rd of the following March, (Rec. 12) makes an appropriate musical response—or would do so were the two in the same key. It furnishes a pretty bit of ascending melody in waltz time. The third, (Rec. 13) heard at 5 p.m. on the 13th of the preceding June, offers a descending waltz theme. The fourth, (Rec. 14) sung on the twelfth of April, 1906, was one of four or five different themes uttered by one bird within a few minutes. These four were all heard near North Takoma, a Maryland suburb of Washington, D. C.

On May 1, 1906, two birds I heard near Washington, Pa., gave me two very diverse songs (Recs. 15 and 16). The second of these songs is quite aberrant in style from ordinary Meadowlark music. At North Takoma again, on the 7th of June, 1906, I heard the phrase shown in Record 17 sung in beautifully clear, liquid, and penetrating tones. A few days later, at the same spot—a large field that was a most popular Meadowlark resort—I heard the attractive phrases shown in Record 18 sung antiphonally by two birds. The motive of this duet might have been taken almost bodily from Verdi's '*La Donna e Mobile*'

Song Records.

11. *Meadowlark.* $\text{♩} = 168.$ 

12. *Meadowlark.* $\text{♩} = 108.$ 

13. *Meadowlark.* $\text{♩} = 68.$ 

14. *Meadowlark.* $\text{♩} = 72.$ 

15. *Meadowlark.* $\text{♩} = 120.$ 

16. *Meadowlark.* $\text{♩} = 80.$ 

17. *Meadowlark.* $\text{♩} = 80.$ 

18. *Meadowlarks.* $\text{♩} = 136.$ 

19. *Meadowlark.* $\text{♩} = 152.$ 

20. *Meadowlark.* $\text{♩} = 144.$ 

21. *Meadowlark.* $\text{♩} = 96.$ 

in the opera of *Rigoletto*. On July 14, 1909, near my present home, two miles farther into Maryland, I heard the theme, shown in Record 19 which, though it has a ponderous look, was sung with graceful slurs that robbed it of all heaviness.

Two more only will I select out of my large store—I have 118 notations of songs of the eastern Meadowlark. One was sung near my home on the 4th of July, 1911, without the usual Meadowlark *portamento* slur, and even slightly *staccato* (Rec. 20). The other was given on the 7th of June, 1913, by a Setauket, Long Island, Meadowlark (Rec. 21). In the last example the first three notes were perfectly true to our scale and were *staccato*. The last three were not quite so true. The final note was a *tsee*, like one of the afternotes of a Wood Thrush, though less emphatic and not so metallic.

I could tell also of a flight-song, an ecstatic warble like that of an Indigo Bunting and uttered in like manner while descending from a height ; of the geographic difference in voice and style of song between Meadowlarks of the Middle West and those east of the Alleghanies, birds that are not even subspecifically differentiated ; of different degrees in beauty of tone or adherence to the intervals of the diatonic scale ; of variant lengths of songs, ranging from two notes to a dozen or more ; of differences in what seems to be actual appreciation of melodic beauty on the birds' part. I could also take up many other species of song-birds and show that the same rule of individual variety holds with each. But my paper is already too long and I will content myself with letting the case rest here, satisfied if I shall have aided in awakening in the minds of any of the readers of *Cassinia* a new and fuller sense of the great variety in the songs of the birds.

Summer in the Poconos

BY CORNELIUS WEYGANDT

IT may have been that it was because our arrival was almost two weeks earlier than it had been the previous year ; it may have been because the solid fruit of the oxheart cherry was just reddening toward the sun ; it may have been because the dry weather of the previous summer prevented the usual drowning out of innumerable fledglings ;—but from some cause or other there were many more birds about our home in Buck Hill Falls when we arrived there on June 25, 1909, than there had been when we arrived there on July 6, 1908. This day of our arrival was the warmest day the summer had yet brought, almost the warmest it was to bring, but birds were about our cottage in great plenty, and in evidence through incessant song. Catbirds and Wrens and Robins were busy with broods, but unwontedly noisy for a late afternoon that was as hot and humid as mid-day. In the after supper time that on more propitious days would have been the cool of the evening Chewink and Oven-bird and Indigo Bunting sang nearby. After dark a Chipping Sparrow trilled time after time, the more often perhaps since he had had little to say earlier because of the heat. Before the Chipping Sparrow had done a Whip-poor-will began to call, coming nearer and nearer, until, when he took up his station on the woodshed roof, he was so close at hand you could here the cluck preliminary to each utterance of his cry. Next morning the Robin chorus was so loud it woke me even before there was red in the eastern sky. I lay abed until its first burst had ended, then hung out the eastern window to drink in what freshness the night had brought,—it had brought little alleviation of the heat. As I watched the glow creep into the eastern sky and then spread low over the Pike Country barrens a Catbird began to sing, sing as I had never heard a Catbird sing before, more wonderfully than even a Mockingbird I had listened to one moon-

light night fifteen years before, a night far more terrible in its heat than this had been, a night so hot that I think none of us in the Green Springs Valley, westward of Baltimore, slept at all from bedtime until sunrise. There was coolness in this Catbird's voice; his notes were cool flames, the eastern ruddiness transmuted into sound, cool flames that played up about the dooryard thicket as lovelily as Loki's fire-music in the *Rheingold*. I suppose it was the "morning redness" that brought Loki to my mind, and it was undoubtedly this that brought to me thoughts of Jacob Boehme. I wondered had any of the German immigrants to Pennsylvania, to whom Boehme was "a light in this world's darkness", thought of him on like mornings two hundred years ago, when they, too, were watching the "morning redness", perhaps with prayer on their lips and ecstasy in their hearts.

My Catbird sang long and when he did come to an end, what I thought a new song set me hunting its singer, who turned out to be, when I at length located him, a Baltimore Oriole. His song was individual, but it was not beautiful, the only unbeautiful Oriole song I ever heard among these hills. Bluebirds warbled about the house all day, and Barn Swallows again and again passed twittering, and the Solitary Vireo many times bubbled up his song from the patch of woods westward. Red-eyes were as vociferous as could be, morning, noon and evening, and Cedarbirds and Tanagers; respectively quiet and talkative, came every few minutes to help the Robins and Chipping Sparrows strip the oxheart tree of its cherries. The day's end was memorable for the two Wood Thrushes that sang from the trees of the little place, their first visit here so far as I can remember.

As soon as I began to resume my old walks all the birds so familiar hereabouts were come upon again, in the very same places as in former years; for they are very local, as indeed are the rarer birds everywhere, in my experience. The very frequent hearing of Cuckoo voices was a feature of these walks, the cooing of both the Yellowbill and the more mellow-voiced Blackbill being very often heard. The Solitary Vireos, too, had increased. I never heard their songs so often before, and each hearing of it increased my liking for its full and delightful war-

bling. There were more Redstarts, too, which, are singularly rare in this region. Woodcocks were the new bird of this summer, two families in swamps about a mile apart being frequently seen, though they were more resolute in refusing to be flushed until you were about to put your foot in the tussock where they were hiding, than even Woodcocks usually are. The varieties listed this summer totaled at sixty-nine.

Up to within four days of our leaving Buck Hill it had seemed that the summer was to pass without our having any notable experience with the birds. There had been the pleasant belief, gradually deepening until certainty was reached, that there were more Hermit Thrushes than there had been; there was the equal certainty that the Eave Swallows were greatly diminished, the barn that bore fifty-one nests in 1905 having but three in 1909; and there had been the little spectacle, interesting, and, to me, new, of seeing a Chipping Sparrow chase a female Cowbird on its every appearance one morning on our place, as, it is said, so many European birds chase the Cuckoo. But there had been nothing distinctive to the summer, only the old pleasures, deepening with each experiencing. There had been a joy in Robin song never known at home, for here many Robins sing as beautifully as Orchard Orioles. There had been eager drinkings-in of the ecstasies of the Solitary Vireo and marvelings at the swift drivings of Doves over the high barrens. There had been many things good ornithologically other than these, but no bird hitherto unmet recorded, no new song heard, no new habit of old friends discovered, save perhaps the Chipping Sparrow's behavior with the Cowbird. Nor was there to be any experience startlingly new, but there was on Wednesday, August 4, an afternoon's visit to a Cardinal swamp that brought me face to face with a miniature warbler migration.

It was about quarter after four that I came out of the darkness of the rhododendron-thicketed tall swamp into the open where the old-field white birches shivered in a light stir of wind. I heard twitters and calls as I came into the strong sunlight. For a week and more song had almost ceased. This afternoon I had heard as yet but a Song Sparrow sing, and in several days before only the Hermit Thrush and Chipping Sparrow and Tan-

ager and Redeye and Yellowbird, with broken notes from Indigo Buntings and Robins and Wrens. The warblers had been all but silent, and when you came upon one who had something to say his song was broken, as much as you could expect being a lisp from a Magnolia, a shattered trill from a Canadian or the faintest nasality from a Black-throated Blue. Not only had they been as a rule silent, but I had come upon only one or two a day. Here in the Cardinal swamp I was at once aware of many, from dartings between birch and wild-apple, and from broken bits of song and twitters on all sides. There must have been a hundred birds about, more than I had seen in any one day for a month, save where swallows were gathered on the wires preparing for their southward movement. The Black and White Creepers were most in evidence. There were young and old of them, some in half song, and all twittering and scolding. The next bird I identified was a young Chestnut-sided Warbler, rather unlike his brilliantly arrayed father of June; the next was another Chestnut-sided Warbler, and the next and the next. Then I saw Redstarts, flirting out their fantails as usual when on the move. There must have been a family of them at least, all in subdued colors. Then I came upon a Nashville Warbler, a rare bird about here, and previously come across only in the September migration. There were several of these natty fellows, bright yellow below and dark ashy and olive-green on their backs, and with prominent eye-ring of white. They moved about more slowly than most warblers, with something of the deliberation of the Redeye, who soon nosed in among them.

With the warblers was a family of Chickadees, the father, moth-eaten from his moult, still phoebeing as he secured provender for his family. More active than any of these busy little fellows, warbler or Titmouse, were the Hummingbirds, busy as bees about the many cardinal spikes in the dry wallows. A Song Sparrow, songless, fluttered about among the meadow-sweet, and a great clumsy Flicker stumbled over his feet under the tall huckleberry bushes, making as much noise as if he were a magnified Chewink. This completed the list of birds within the swamp, but from the wild-apple thicket that wedged into the tall gums and poplars and oaks of its environs a

Hermit Thrush gently swept the silver strings of his high-pitched harp. I came upon him as I started out to the road and I followed him as he flew from tree to tree, resting on a dead limb every twenty paces, to tilt gently his tail and to touch again those silver-ringing strings.

Again before I left I was to come on another gathering of warblers. A little before seven o'clock on the morning of August 6 I went down into the glen of the Buck Hill stream. I followed the drive down to where rhododendron thicket and open woods meet within hearing of the falling water. I had sat here only a few minutes when I heard chickadees, which proved to be the heralds of a little warbler host. In another few minutes they were all about me, playing their various roles of flycatcher, creeper, vireo,—all of whose ways are in the repertoire of the warblers. First I identified a Magnolia; then the little fellows, with two yellow wingbars, green back and gray breast, I took to be young Chestnut-sided Warblers. Among these was another fellow, similar save he had but one white wingbar and was yellower beneath. Canadian Warblers were very numerous and one soon sang his full song from a laurel not ten feet from me. Redstarts in dull plumage flirted by higher up in the trees and a Black-throated Blue sent out his full complement of nasal notes. Black and White Creepers were present, too, and, gradually, increased to profusion. They sang, tszitted, and worked over everything from ground to tree tops. There was no cessation of the song of the Black and White Creepers and Canadian Warblers, and every once in awhile a Redstart would sing. The Blackthroat was least noisy of them all.

What was this movement? There were fully two hundred birds in all in it,—I counted over a hundred as they crossed the road southward and I noted as I counted that very few recrossed again northward. This is a far greater number than you would see here, at least together, in June or July. Was it an assembly for migration? Against this theory is the fact that in previous years I had found Blackthroats and Black and White Creepers here in September. Perhaps it was the late summer flocking that precedes migration with most birds.

Perhaps some would be off before the morrow, the Magnolias and Canadians and Redstarts most likely. The night before I had heard in the clear starlight before the moon rose many warbler notes from low-passing southing birds.

It must have been a migration in little, I think ; perhaps only the going-down of the Redstarts and Canadians to the lower valley of Broadhead's Creek, as I had found was the self-disposal of the Great-crests that had all disappeared by July 15, but which I found in plenty two weeks later down the valley, where Stony Creek joins the larger stream. I think it was a warbler migration in little because on my walk over the same ground the next morning, August 7, I saw only Black and White Creepers and Black-throated Blues and heard no warbler songs but theirs.

On the eve of our leaving I heard no Wood Robins or when, on August 8, I got back to the Wissahickon home, but the night before we left I heard Hermit Thrushes as full-voiced and eager to sing as in June. I went up the observatory on Buck Hill for a last look over the uplands, without thought of the thrushes, for I had never heard them there. It was halfpast seven when I reached the observatory. I sat there watching the mists and the oncoming night blotting out the hills. The Blue Mountain was but discernible, nothing more. The valley fog was rising from all the streams, although the country was very dry, suffering indeed from a great drought. High Knob in Pike County was fading away toward the northeast. Not a bird called until, just after I had taken in these details of the landscape all around, a distant tinkle of thrush music rang far off across the scrub. The singer came nearer and nearer, until I could see him as he sang from the dead top of a chestnut close by. Others joined in the song to the departing day, one by one, until three more were in hearing, but none of them was as this bird, full-voiced,—less metallic than is wont to be the Hermit's song, with his notes as fresh as if he had just come home. During his singing a Flicker rattled out his spring song and a Chewink called good-night, but the Thrush had the last word, silver-voiced and lonely.

Bird Notes

RECORDS OF UNUSUAL OCCURRENCES FOR 1914. ¹

- Wilson's Petrel. Maurice Riv. Cove, N. J. (*Prince*) June 11.
Hooded Merganser. Marple, Pa. (*Culver*) Jan. 1.
Canvas-back. Cooper's Creek, N. J. (*Potter*) Feb. 27.
King Rail. Bridesburg, Pa. (*Miller*) Dec. 1913.
Piping Plover. Cape May, N. J. (*Culver*) Sept. 7 and 13,
1913.
Goshawk. Wayne, Pa. (*Pearson*) March 29.
Frankford, Pa. (*Miller*) Feb. 28.
Saw-whet Owl. Gloucester, N. J. (*Potter*) Feb. 4-21.
Kennett Square, Pa. (*C. A. Thomas*) Dec.
11, 1913.
Snowy Owl. Bridesburg, Pa. (*Miller*) Dec. 1913.
Sandiford, Pa. (*Miller*) Nov. 1913.
Red-headed Woodpecker. Haddonfield, N. J. (*Moore*) July
13.
Crossbill. Swarthmore, Pa. (*Palmer*) Mar. 22.
Redpoll. Observed by Culver, Pearson, Potter, Roberts and
Thomas. See Migration Report.
Snow Bunting. West Chester, Pa. (*Ehinger*) Mar. 2.
Camden, N. J. (*Potter*) Feb. 25-27.
Delair, N. J. (*Miller*) Feb.
White-crowned Sparrow. Moorestown, N. J. (*Mickle*) May
13 and 17.
Lincoln's Sparrow. West Philadelphia. (*Stone*) May 2.
Chewink. Camden, N. J. (*Potter and Culver*) Dec. 25, 1913.
Frankford, Pa. (*Miller*) Dec. 3, 1913.

¹These records are unusual, either on account of locality or date. For details see Migration Report.

Prothonotary Warbler. Maurice R. Swamp, N. J. (*Potter*)
June 16.

Tennessee Warbler. West Philadelphia. (*Stone*) Oct. 1, 1913.

Cape May Warbler. Noted by many observers both spring
and fall.

Cerulean Warbler. West Chester, Pa. (*Ehinger*) May 9.

Mockingbird. Frankford, Pa. (*R. F. Miller*) Oct. 3, 1913.

Moorestown, N. J. (*Wiermann*) Mar. 22.

Blue-gray Gnatcatcher. Cape May, N. J. (*Hand*) May 17.

Kennett Square, Pa. (*C. A. Thomas*)

Apr. 19.

Report on the Spring Migration of 1914

COMPILED BY WITMER STONE

The efforts of the committee to secure additional observers for the season of 1914 met with gratifying success and reports were returned by 80 persons. It is to be hoped that both old and new members of the migration corps will be stimulated to continue with the work. Information and blank schedules may be obtained at any time from Dr. Witmer Stone, Academy of Natural Sciences, Logan Square.

SUGGESTIONS FOR OBSERVERS

The following suggestions are made for the guidance of observers. The value of all records depends upon their accuracy, and any recommendations that make for increased accuracy, are of the utmost importance both to the observers and to the users of the report.

1. Every observer should familiarize himself with the *usual time* of arrival of each species in his neighborhood (see appended list). With the exception of the February and March migrants, the time of arrival of most species varies only a few days, so that a remarkably early occurrence demands very careful and positive identification as it is always suggestive of an error on the part of the observer.

2. The record of a very rare or unusual species should be accompanied by some statement of: (1) how the identification was made; *i. e.* distinctive markings noted, or peculiarities of song or action; (2) the length and character of the observation; (3) whether the observer was previously acquainted with the species. The committee always reserves the privilege of publishing only such records as it feels absolutely sure of, since the real benefit or detriment to science lies in the act of publication. We do not wish to advocate the killing of every rare bird in order to make identification sure, and must therefore take the greatest care to publish only such sight records as will occasion no question of accuracy.

3. Observers should take care to familiarize themselves with the differences between closely related species which are often confused, i. e., White-crowned and adult White-throated Sparrows (which have white crowns); Least and Acadian Flycatchers; the two Water-Thrushes; Olive-backed and Gray-cheeked Thrushes which are equally abundant here; Rusty Blackbirds and female Purple Grackles, etc. Specimens of all these may be seen in Dr. Stone's room at the Academy.

4. Please follow exactly the instructions on the schedule and *do not* write in additional species between the lines, as this causes great annoyance to the compiler and is likely to result in the omission of such records altogether.

5. Following are the average dates of first arrival and "bulk arrival" for the species on the schedule, arranged in order of "bulk arrival." In all cases "bulk arrival" is intended to denote the date upon which the species reached half of the stations within the Philadelphia ten-mile radius, the *last* quarter of the arrival records for each species being rejected in the computation as being probably not the real dates of first arrival at those localities.

NAME.	Average Date of First Arrival.	Average Date of Bulk Arrival.
Purple Grackle	Feb. 22	Feb. 28
Bluebird	Feb. 17	Mar. 2
Robin	Feb. 14	Mar. 2
Fox Sparrow	Mar. 1	Mar. 7
Meadowlark	Feb. 6	Mar. 8
Red-winged Blackbird	Mar. 3	Mar. 10
Killdeer.	Mar. 2	Mar. 11
Flicker	Feb. 17	Mar. 15
Rusty Blackbird	Mar. 15	Mar. 20
Phoebe	Mar. 13	Mar. 21
Field Sparrow	Mar. 4	Mar. 22
Dove	Mar. 7	Mar. 22
Cowbird	Mar. 15	Mar. 25

NAME.	Average Date of First Ar- rival.	Average Date of Bulk Ar- rival.
Kingfisher	Mar. 14	Mar. 29
Vesper Sparrow	Mar. 16	Mar. 30
Canada Goose.	Mar. 4	
Cedarbird	Mar. 7	
Turkey Vulture	Mar. 9	
Savannah Sparrow	Mar. 16	
Night Heron	Mar. 29	
Swamp Sparrow	Mar. 29	
Osprey	Mar. 30	
Chipping Sparrow	Mar. 22	April 1
Purple Martin	Mar. 29	April 5
Yellow-bellied Sapsucker	Mar. 29	April 7
Hermit Thrush	April 1	April 11
Ruby-crowned Kinglet	April 2	April 14
Yellow Palm Warbler	April 10	April 16
Chewink	Mar. 21	April 19
Brown Thrasher	April 1	April 22
Tree Swallow	April 8	April 22
Barn Swallow.	April 10	April 22
Bank Swallow	April 14	April 22
Cliff Swallow	April 29	
Rough-winged Swallow	April 13	April 23
Chimney Swift	April 17	April 23
Pine Warbler	April 20	
Myrtle Warbler	Mar. 29	April 24
Solitary Vireo.	April 24	April 26
House Wren	April 21	April 26
Black and White Warbler	April 18	April 26
Spotted Sandpiper	April 12	April 27
Maryland Yellow-throat.	April 21	April 28
Green Heron	April 21	April 29
Wood Thrush.	April 24	April 30
Catbird	April 21	April 30
Oven-bird	April 26	April 30
Yellow Warbler	April 24	April 30
Grasshopper Sparrow	April 21	April 30
Prairie Warbler	May 1	
Wilson's Thrush (Veery)	April 26	May 2

NAME.	Average Date of First Ar- rival.	Average Date of Bulk Ar- rival.	
Whip-poor-will.	April 27	May	3
White-eyed Vireo	April 27	May	4
Least Flycatcher	April 28	May	4
Black-throated Green Warbler.	April 28	May	4
Parula Warbler	April 28	May	4
Redstart.	April 25	May	4
Water-Thrush	April 25	May	4
Crested Flycatcher	April 29	May	4
Kingbird	April 29	May	5
Red-headed Woodpecker.	April 16	May	5
Black-throated Blue Warbler	April 27	May	5
Yellow-throated Vireo	April 29	May	5
Baltimore Oriole	May 1	May	5
Solitary Sandpiper	April 22	May	5
Orchard Oriole	May 1	May	6
Chestnut-sided Warbler	May 1	May	6
Blue-winged Warbler	May 1	May	6
Kentucky Warbler	April 30	May	6
Scarlet Tanager	April 28	May	6
Acadian Flycatcher	May 5	May	6
Red-eyed Vireo	April 30	May	7
Indigobird	May 1	May	8
Worm-eating Warbler	April 29	May	8
Rose-breasted Grosbeak	April 30	May	8
Chat	April 29	May	8
Warbling Vireo	May 2	May	8
Magnolia Warbler	May 1	May	9
Bobolink	May 2	May	9
Olive-backed Thrush	April 30	May	10
Blackburnian Warbler	May 4	May	10
Black-poll Warbler.	May 6	May	11
Hummingbird	May 3	May	11
Wood Pewee	May 3	May	11
Gray-cheeked Thrush	May 3	May	12
Yellow-billed Cuckoo	May 3	May	12
Black-billed Cuckoo	May 6		
Long-billed Marsh Wren	May 10		
Canada Warbler	May 5	May	12
Nighthawk	May 4	May	13

Observers for the Spring of 1914 were as follows :

New Jersey

Cape May, H. Walker Hand.
 Atlantic City, Mrs. Norma S. Cromie.
 Salem, Benjamin A. Carpenter.
 Salem, Mrs. Horace S. Foster.
 Salem, Mrs. William Johnson.
 Pennsgrove, Garnett Summerill.
 Woodstown, Helen C. Woodruff.
 Vineland, Mrs. Alice K. Prince.
 Donnstown, William W. Fair.
 Atco, Harry L. Pyle.
 Laurel Springs, Miss Cora E. Tomlinson.
 Camden, Julian K. Potter.
 Audubon, Joseph W. Tatum.
 Haddonfield, Samuel N. Rhoads.
 Haddonfield, Robert T. Moore.
 Moorestown, Anna A. Mickle.
 Moorestown, Dr. S. S. Haines.
 Moorestown, Margaret S. Roberts.
 Moorestown, M. Albert Linton.
 Moorestown, Mrs. Victor Wierman.
 Rancocas, Emily Haines.
 Beverley, David G. Baird.
 Bordentown, Minnie V. Flynn.
 Yardville, Rachel E. Allinson.
 Allentown, Miss Mary Emma Gordon.
 Trenton (3 miles s.), Richard M. Abbott.
 Bernardsville, John Dryden Kuser.

Pennsylvania

Kennett Square, C. Aubrey Thomas.
 Concordville, Mrs. K. R. and Miss E. P. Styer.
 Media, Sanford Omensetter.
 Media, J. Percy Moore.
 Media, S. Earl Riddle.
 Media, Lydia G. Allen.

Media, Francis C. Beekley.
Moylan, Benjamin F. Whitson.
Swarthmore, Dr. Samuel C. Palmer.
Swarthmore, Frances B. Stokes.
Swarthmore, H. M. Harrower.
Swarthmore, Philip E. Howard, Jr.
Addingham, Delos E. Culver.
Lansdowne, Louisa M. Jacob.
Lansdowne, John D. Carter.
Aldan, Christine C. Morley.
West Philadelphia, Thos. R. Hill.
Germantown, Arthur C. Emlen.
Chestnut Hill, Wm. H. Trotter.
Chestnut Hill, Chas. Platt, 3rd.
Olney, Joseph C. Sudders.
Melrose, Samuel H. Barber.
Frankford, Richard T. Miller.
Holmesburg, Henry W. Fowler.
Ardmore, William L. Baily.
Haverford, William J. Serrill.
Haverford, George H. Hallett, Jr.
Bryn Mawr, Miss Emily H. Thomas.
Rosemont, Samuel Scoville Jr.
Wayne, Leonard S. Pearson.
Wayne, Miss Edith B. Emerson.
Wayne, Mrs. M. V. Alexander.
Wayne, Miss Mary K. Baker.
Wayne, Miss Helen Morris.
Wayne, Miss Mary B. Morrison.
Wayne, Mrs. J. Dutton Steele.
Newtown Square, Miss Josephine A. Morris.
Westtown, Wm. B. Evans, Clifford Jones and Turner Moon.
West Chester, Robert P. Sharples.
West Chester, Isaac G. Roberts.
West Chester, Miss S. C. De Haven.
West Chester, Dr. C. E. Ehinger.
West Chester, Mrs. Hugh P. Brinton.
Newtown, Alexander Patman.

Newtown, Nancy Emhardt.
 Doylestown, Mrs. Irvin M. James.
 Doylestown, George MacReynolds.
 Forest Grove, Miss Anna K. Bewley.
 Buckingham, Miss Elizabeth C. Cox.
 Mechanicsville, William E. Wilson.
 Easton, Edward J. F. Marx.
 State College, C. Russell Mason.
 Lopez, Otto Behr.

The spring of 1914 was distinctly a late one: both February and March were cold, and there was more or less snow on the ground from February 11 to March 13, although the early winter had been open.

A sudden rise in temperature on March 15 with clear weather brought the advance of the migrants—Grackles, Robins, Fox Sparrows, Redwings and Killdeers.

Another marked rise on the 26th and 27th brought Phoebes, Cowbirds and Kingfishers. Later the coincidence between temperature changes and migratory movements is less marked, and the dates of bulk arrival of species arriving at the same time does not show as uniform a departure from the normal as has been the case in some years, viz. (—, late; +, early):

Purple Grackle	— 12 days.
Robin	— 13 “
Fox Sparrow	— 9 “
Red-winged Blackbird	— 7 “
Kildeer	— 4 “
Flicker	— 12 “
Phoebe	— 7 “
Field Sparrow	— 7 “
Cowbird	— 2 “
Kingfisher.	+ 1 “
Vesper Sparrow.	— 6 “
Chipping Sparrow	— 8 “
Yellow-bellied Sapsucker	+ 12 “
Hermit Thrush	— 3 “
Ruby-crowned Kinglet	— 4 “

Yellow Palm Warbler	—	2 days.
Chewink	0	
Barn Swallow	+	3 "
Brown Thrasher.	+	1 "
Chimney Swift	+	1 "
House Wren	—	1 "
Black and White Warbler	—	3 "
Spotted Sandpiper	—	2 "
Maryland Yellow-throat	—	4 "
Grasshopper Sparrow.	—	6 "
Yellow Warbler.	+	1 "
Catbird	—	2 "
Oven-bird	—	2 "
Wood Thrush	+	1 "
Redstart	0	
Parula Warbler.	—	2 "
Crested Flycatcher	0	
Kingbird	+	1 "
Baltimore Oriole	+	1 "
Black-throated Blue Warbler	—	2 "
Scarlet Tanager	0	
Blue-winged Warbler.	0	
Chestnut-sided Warbler	—	1 "
Red-eyed Vireo	+	1 "
Rose-breasted Grosbeak	—	2 "
Yellow-breasted Chat.	—	3 "
Indigobird	—	1 "
Magnolia Warbler	—	1 "
Bobolink	+	2 "
Olive-backed Thrush.	—	3 "
Hummingbird	—	2 "
Wood Pewee	—	1 "
Black-poll Warbler	—	1 "
Yellow-billed Cuckoo.	—	5 "
Gray-cheeked Thrush.	—	5 "
Canada Warbler.	—	2 "
Night Hawk	+	3 "

NAME.	Ranccas, N. J. N. 4; E. 16.	Moorestown, N. J. N. 1; E. 12.	Camden, N. J. N. 0; E. 2.	Audubon, N. J. S. 4; E. 5.	Haddonfield, N. J. S. 4; E. 7.	Laurel Spr., N. J. S. 10; E. 8.	Media and Moylan, Pa. S. 2; W. 12.	Swarthmore, Pa. S. 3; W. 10.	Lansdowne and Aldan, Pa. S. 1; W. 6.	Addingham, Pa. S. 1; W. 8.	Haverford and Ardmore, Pa. N. 4; W. 8.	Bryn Mawr and Rosemont, Pa. N. 4; W. 9.	Wayne, Pa. N. 6; W. 11.	Frankford, Phila. N. 5; E. 5.	Gerantown, Phila. N. 6; W. 1.	Chestnut Hill, Phila. N. 8; W. 1.	Oak Lane, Phila. N. 7; E. 2.
Canada Goose	Apr. 26	May 3	Apr. 19	Apr. 19	May 4	Mar. 17	Mar. 17	Mar. 17	Mar. 26	Mar. 31	May 10	May 10	Apr. 5	Mar. 30	Mar. 24	Mar. 29	Apr. 4
Green Heron	May 3	May 8	Mar. 21	Apr. 26	May 4	May 11	May 11	Apr. 10	Apr. 19	Mar. 28	May 10	May 10	Apr. 5	Apr. 13	Mar. 21	Mar. 21	Apr. 26
Night Heron	May 3	May 8	Apr. 29	May 20	May 10	Apr. 17	Apr. 17	Apr. 10	Apr. 19	Feb. 22	May 10	May 10	May 24	Apr. 26	Mar. 21	Mar. 21	Apr. 26
Spotted Sandpiper	May 3	May 3	Apr. 28	May 10	May 10	May 3	May 3	May 9	Apr. 25	May 4	May 2	May 2	May 12	Apr. 27	Mar. 21	Mar. 21	Apr. 26
Solitary Sandpiper	Feb. 5	Mar. 29	Jan. 18	Mar. 8	Mar. 8	Mar. 9	Mar. 16	Mar. 16	Mar. 26	Mar. 15	Mar. 9	May 11	Mar. 20	Mar. 26	Mar. 24	Mar. 24	Apr. 26
Killdeer	May 26	Mar. 23	Feb. 15	Apr. 26	Apr. 3	Apr. 10	Mar. 19	Mar. 19	Apr. 6	Apr. 10	Mar. 29	Mar. 13	Apr. 10	Apr. 13	Mar. 24	Mar. 29	May 10
Dove	Mar. 4	Apr. 19	Apr. 12	Apr. 18	Apr. 29	Mar. 6	Apr. 10	Apr. 15	Apr. 22	Apr. 10	Apr. 4	Mar. 13	Mar. 24	Apr. 20	Mar. 21	Mar. 21	May 10
Osprey	May 26	Apr. 19	Apr. 12	Apr. 18	Apr. 29	Mar. 6	Apr. 10	Apr. 15	Apr. 22	Apr. 10	Apr. 4	Mar. 13	Mar. 24	Apr. 20	Mar. 21	Mar. 21	May 10
Turkey Vulture	Mar. 4	Apr. 19	Apr. 12	Apr. 18	Apr. 29	Mar. 6	Apr. 10	Apr. 15	Apr. 22	Apr. 10	Apr. 4	Mar. 13	Mar. 24	Apr. 20	Mar. 21	Mar. 21	May 10
Yellow-billed Cuckoo	May 26	Apr. 19	Apr. 12	Apr. 18	Apr. 29	Mar. 6	Apr. 10	Apr. 15	Apr. 22	Apr. 10	Apr. 4	Mar. 13	Mar. 24	Apr. 20	Mar. 21	Mar. 21	May 10
Black-billed Cuckoo	Apr. 19	Apr. 19	Feb. 28	May 20	Apr. 3	Apr. 1	Mar. 15	Mar. 28	Mar. 28	Mar. 31	Apr. 18	May 3	Apr. 5	Mar. 24	Mar. 21	Mar. 21	Apr. 26
Kingfisher	Apr. 19	Apr. 19	Feb. 28	May 20	Apr. 3	Apr. 1	Mar. 15	Mar. 28	Mar. 28	Mar. 31	Apr. 18	May 3	Apr. 5	Mar. 24	Mar. 21	Mar. 21	Apr. 26
Yellow-bellied Sapsucker	Apr. 19	Apr. 19	Apr. 12	Apr. 5	Apr. 5	Apr. 1	Jan. 28	Feb. 22	Feb. 22	Apr. 5	Apr. 5	Apr. 14	Apr. 14	Apr. 27	Mar. 21	Mar. 21	Apr. 26
Red-headed Woodpecker	Apr. 19	Apr. 19	Apr. 12	Apr. 5	Apr. 5	Apr. 1	Jan. 28	Feb. 22	Feb. 22	Apr. 5	Apr. 5	Apr. 14	Apr. 14	Apr. 27	Mar. 21	Mar. 21	Apr. 26
Flicker	Mar. 27	Mar. 25	Mar. 29	Apr. 6	Mar. 29	Res.	Mar. 5	Apr. 4	Mar. 27	Res.	Mar. 16	Mar. 13	Mar. 1	Mar. 23	Apr. 5	Apr. 5	Res.
Whip-poor-will	Apr. 18	May 6	Apr. 18	Apr. 6	Mar. 29	Res.	Apr. 27	Apr. 4	Apr. 30	Res.	May 4	May 4	May 3	Mar. 23	Apr. 5	Apr. 5	Res.
Nighthawk	Apr. 19	Apr. 20	May 28	May 22	Apr. 26	Apr. 19	Apr. 27	May 23	Apr. 30	May 20	May 20	May 8	May 3	Apr. 21	Apr. 21	Apr. 18	Apr. 26
Chimney Swift	Apr. 19	Apr. 20	Apr. 22	Apr. 26	Apr. 26	Apr. 19	Apr. 19	Apr. 20	Apr. 24	Apr. 18	Apr. 18	Apr. 29	Apr. 22	Apr. 21	Apr. 27	Apr. 18	Apr. 26
Hummingbird	May 15	May 12	May 31	Apr. 29	Apr. 29	May 3	May 8	May 14	May 13	May 13	May 4	May 10	May 16	Apr. 21	Apr. 27	Apr. 18	Apr. 26
Kingbird	May 6	Apr. 29	May 2	Apr. 29	Apr. 29	May 3	May 3	May 2	May 6	May 4	May 6	May 10	May 16	Apr. 21	Apr. 27	Apr. 18	Apr. 26
Crested Flycatcher	May 6	Apr. 27	May 5	Apr. 29	May 2	May 5	May 6	May 6	Apr. 29	May 4	May 2	May 3	May 3	May 7	May 6	May 4	May 10
Phoebe	Apr. 20	Apr. 20	Apr. 5	Apr. 19	Apr. 12	Mar. 27	Mar. 24	Mar. 25	Mar. 25	Mar. 31	Apr. 5	Mar. 26	Mar. 31	Mar. 27	Apr. 19	Mar. 28	Apr. 5

NAME.	N. J.												Pa.		Frankford, Phila.		German town, Phila.		Chestnut Hill, Phila.		Oak Lane, Phila.	
	Rancocas, N. J.	Moores town, N. J.	Camden, N. J.	Andubon, N. J.	Haddonfield, N. J.	Laurel Springs, N. J.	Media and Moylan, Pa.	Swarthmore, Pa.	Lansdowne and Aldan, Pa.	Addingham, Pa.	Haverford and Ardmore, Pa.	Bryn Mawr and Rosemont, Pa.	Wayne, Pa.	Frankford, Phila.	German town, Phila.	Chestnut Hill, Phila.	Oak Lane, Phila.					
Wood Pewee	May 15	May 10	May 15	. . . . .	May 3	May 14	May 4	May 12	May 15	May 12	May 11	May 11	May 12	May 20	. . . . .	May 17	. . . . .	May 17	
Acadian Flycatcher . . . . .	. . . . .	May 9	May 12	May 10	. . . . .	. . . . .	May 17	May 17	May 12	. . . . .	May 10	May 10	May 16	May 20	. . . . .	May 17	. . . . .	May 17	
Least Flycatcher . . . . .	. . . . .	May 7	May 12	May 10	May 6	. . . . .	May 3	May 3	May 3	. . . . .	May 6	May 16	May 3	May 19	. . . . .	May 6			
Bobolink	May 12	May 7	May 14	May 10	May 24	. . . . .	Mar. 25	Mar. 27	Mar. 27	Mar. 27	Mar. 16	May 3	May 17	May 19	. . . . .	. . . . .	. . . . .	. . . . .
Cowbird	May 16	Mar. 17	Mar. 22	Mar. 15	Mar. 17	Mar. 27	Apr. 29	Mar. 16	Mar. 27	Mar. 31	Mar. 27	Mar. 27	Apr. 14	Apr. 27	. . . . .	. . . . .	. . . . .	. . . . .
Red-winged Blackbird	Res.	Res.	Feb. 15	Mar. 8	Res.	Res.	Mar. 9	Res.	Mar. 28	Res.	Feb. 22	Mar. 13	Mar. 19	Mar. 16	. . . . .	. . . . .	. . . . .	. . . . .	Mar. 27
Meadowlark	May 2	May 3	May 7	May 4	May 4	May 2	May 10	Apr. 29	Apr. 29	May 3	May 10	May 4	May 10	May 9	. . . . .	. . . . .	. . . . .	. . . . .	Res.
Orchard Oriole	May 5	May 3	May 6	May 20	May 6	May 6	Apr. 29	May 2	May 2	May 3	May 4	May 10	May 2	May 7	. . . . .	. . . . .	. . . . .	. . . . .	Mar. 27
Baltimore Oriole	May 5	May 3	May 6	May 20	May 6	May 6	Apr. 29	May 2	May 2	May 3	May 4	May 10	May 2	May 7	. . . . .	. . . . .	. . . . .	. . . . .	Res.
Rusty Blackbird	Feb. 27	Feb. 3	Mar. 15	Mar. 16	Mar. 17	Mar. 14	Mar. 15	Mar. 15	Mar. 12	Mar. 15	Mar. 15	Mar. 1	Feb. 21	Mar. 15	. . . . .	. . . . .	. . . . .	. . . . .	Mar. 27
Purple Grackle	Mar. 28	Apr. 20	Apr. 4	Apr. 26	Apr. 5	Mar. 15	Apr. 10	Apr. 4	Apr. 10	Apr. 4	Apr. 10	Apr. 2	Apr. 11	Apr. 7	. . . . .	. . . . .	. . . . .	. . . . .	Apr. 10
Vesper Sparrow . . . . .	. . . . .	Feb. 15	Apr. 26	Apr. 5	Apr. 5	Apr. 15	Apr. 19	Apr. 19	Apr. 19	Apr. 11	Apr. 4	Apr. 4	Apr. 11	Apr. 4	. . . . .	. . . . .	. . . . .	. . . . .	Apr. 10
Savannah Sparrow	May 12	May 10	May 10	May 10	May 10	Apr. 15	Apr. 28	May 9	May 10	May 6	May 10	May 6	Apr. 11	Apr. 6	. . . . .	. . . . .	. . . . .	. . . . .	May 9
Grasshopper Sparrow	Mar. 28	Apr. 8	Apr. 3	Apr. 25	Apr. 5	Apr. 11	Apr. 10	Apr. 7	Apr. 8	Apr. 13	Apr. 14	Mar. 27	Apr. 6	Mar. 31	. . . . .	. . . . .	. . . . .	. . . . .	Apr. 12
Chipping Sparrow	Mar. 25	Mar. 29	Mar. 22	Jan. 17	Mar. 13	Apr. 25	Mar. 28	Apr. 12	Mar. 27	Mar. 29	Mar. 27	Apr. 11	Apr. 12	Mar. 23	. . . . .	. . . . .	. . . . .	. . . . .	Apr. 19
Field Sparrow	May 2	Apr. 19	Feb. 12	May 20	Mar. 18	May 15	Mar. 15	Mar. 15	Mar. 9	Mar. 15	Mar. 15	Mar. 14	Mar. 15	Mar. 16	. . . . .	. . . . .	. . . . .	. . . . .	Apr. 19
Swamp Sparrow	Feb. 24	Mar. 23	Mar. 18	Mar. 18	Mar. 18	Mar. 15	Mar. 15	Mar. 15	Mar. 9	Mar. 15	Mar. 14	Mar. 15	Mar. 15	Mar. 16	. . . . .	. . . . .	. . . . .	. . . . .	Apr. 26
Fox Sparrow	Apr. 27	Apr. 26	Apr. 19	May 3	Apr. 26	May 1	Apr. 17	Apr. 20	Apr. 11	Apr. 8	Apr. 26	Apr. 14	Apr. 21	Apr. 20	. . . . .	. . . . .	. . . . .	. . . . .	Apr. 26
Chewink . . . . .	. . . . .	May 7	May 12	May 7	May 7	May 11	May 5	May 13	May 5	May 13	May 10	May 12	May 15	May 15	. . . . .	. . . . .	. . . . .	. . . . .	May 6
Rose-breasted Grosbeak	May 12	May 9	May 7	May 20	May 7	May 15	May 7	May 7	May 7	May 7	May 10	May 14	May 12	May 15	. . . . .	. . . . .	. . . . .	. . . . .	May 14
Indigobird	May 5	May 10	May 6	May 10	May 10	May 15	May 2	May 4	Apr. 30	May 3	May 2	May 5	May 1	May 9	. . . . .	. . . . .	. . . . .	. . . . .	May 9
Scarlet Tanager . . . . .	. . . . .	Apr. 6	. . . . .	May 3	Apr. 3	May 15	Mar. 31	. . . . .	. . . . .	. . . . .	May 10	. . . . .	. . . . .	Apr. 18	. . . . .	. . . . .	. . . . .	. . . . .	May 14
Purple Martin . . . . .	. . . . .	Apr. 6	. . . . .	May 3	Apr. 3	May 15	Mar. 31	. . . . .	. . . . .	. . . . .	May 10	. . . . .	. . . . .	Apr. 18	. . . . .	. . . . .	. . . . .	. . . . .	May 14

NAME.	Ranococas, N. J.	Moorestown, N. J.	Camden, N. J.	Audubon, N. J.	Haddonfield, N. J.	Laurel Springs, N. J.	Media and Moylan, Pa.	Swarthmore, Pa.	Lansdowne and Aldan, Pa.	Addingham, Pa.	Havertord and Ardmore, Pa.	Bryn Mawr and Rosemont, Pa.	Wayne, Pa.	Frankford, Phila.	Germanstown, Phila.	Chestnut Hill, Phila.	Oak Lane, Phila.
Cliff Swallow	Apr. 18	Apr. 19	Apr. 26	Apr. 26	Apr. 12	May 15	Apr. 27	Apr. 17	Apr. 19	Apr. 19	Apr. 23	May 3	Apr. 15	Apr. 17	Apr. 17	Apr. 17	Apr. 19
Barn Swallow	May 15	Apr. 10	Apr. 12	Apr. 26	Apr. 12	May 15	Apr. 17	Apr. 21	Apr. 19	May 20	May 3	May 3	Apr. 19	May 6	Apr. 19	Apr. 19	Apr. 19
Tree Swallow	May 15	Apr. 10	Apr. 12	Apr. 26	Apr. 12	May 15	Apr. 17	Apr. 21	Apr. 19	May 20	May 3	May 3	Apr. 19	May 6	Apr. 19	Apr. 19	Apr. 19
Bank Swallow	May 15	Apr. 10	Apr. 12	Apr. 26	Apr. 12	May 15	Apr. 17	Apr. 21	Apr. 19	May 20	May 3	May 3	Apr. 19	May 6	Apr. 19	Apr. 19	Apr. 19
Rough-winged Swallow	May 15	Apr. 10	Apr. 12	Apr. 26	Apr. 12	May 15	Apr. 17	Apr. 21	Apr. 19	May 20	May 3	May 3	Apr. 19	May 6	Apr. 19	Apr. 19	Apr. 19
Cedarbird	May 8	May 5	May 10	May 10	May 6	May 4	May 1	May 1	May 4	May 4	May 4	Apr. 29	Apr. 25	May 7	May 7	May 7	May 9
Red-eyed Vireo	May 18	May 5	May 15	May 15	May 3	May 3	May 3	May 3	May 4	May 4	May 4	May 17	May 3	May 3	May 3	May 3	May 4
Warbling Vireo	May 4	May 4	May 4	May 3	Apr. 29	May 15	May 3	May 10	May 4	May 2	May 2	May 2	May 2	May 9	May 9	May 9	May 9
Yellow-throated Vireo	May 3	May 3	May 5	May 5	May 3	May 3	Apr. 19	May 3	May 2	May 2	May 3	May 7	May 2	May 9	May 9	May 9	May 9
White-eyed Vireo	May 3	May 3	May 5	May 5	May 3	May 3	Apr. 19	May 3	May 2	May 2	May 3	May 7	May 2	May 9	May 9	May 9	May 9
Black and White Warbler	Apr. 27	Apr. 19	Apr. 19	Apr. 26	Apr. 19	May 15	Apr. 19	Apr. 30	May 4	Apr. 26	Apr. 30	Apr. 14	Apr. 30	May 1	Apr. 30	Apr. 30	Apr. 26
Worm-eating Warbler	May 6	May 9	May 5	May 5	May 4	May 4	May 6	May 6	May 6	May 6	May 10	May 10	May 10	May 9	May 7	May 7	May 8
Blue-winged Warbler	May 6	May 9	May 5	May 5	May 4	May 4	May 6	May 6	May 6	May 6	May 10	May 10	May 10	May 9	May 7	May 7	May 8
Parula Warbler	Apr. 27	Apr. 27	Apr. 28	Apr. 29	May 3	Apr. 27	Apr. 30	May 1	May 6	May 13	May 6	May 3	May 12	May 6	May 7	May 7	May 8
Black-throated Blue Warbler	May 7	May 10	May 12	May 10	May 12	May 6	May 6	May 8	May 6	May 13	May 6	May 3	May 12	May 6	May 7	May 7	May 8
Yellow Warbler	May 10	Apr. 19	Apr. 16	Apr. 26	Apr. 5	May 15	Apr. 13	Apr. 19	Apr. 29	Apr. 20	Mar. 8	Apr. 29	Apr. 26	Apr. 29	Apr. 19	May 3	May 10
Myrtle Warbler	May 11	May 12	May 11	May 10	May 11	May 15	May 10	Apr. 30	May 4	May 5	Apr. 30	Apr. 29	Apr. 26	Apr. 29	Apr. 19	May 3	May 10
Magnolia Warbler	May 6	May 9	May 5	May 5	May 10	May 15	May 12	May 9	May 9	May 2	May 6	May 11	May 12	May 9	May 18	May 18	May 4
Chestnut-sided Warbler	May 7	May 9	May 13	May 20	May 11	May 15	May 12	May 11	May 12	May 13	May 6	May 11	May 12	May 9	May 7	May 4	May 4
Black-poll Warbler	May 6	May 9	May 13	May 20	May 11	May 15	May 12	May 11	May 12	May 13	May 6	May 11	May 12	May 9	May 7	May 4	May 4
Blackburnian Warbler	May 6	May 9	May 13	May 20	May 11	May 15	May 12	May 11	May 12	May 13	May 6	May 11	May 12	May 9	May 7	May 4	May 4
Black-throated Green Warbler	May 7	May 1	May 5	May 20	May 11	May 15	May 12	May 11	May 12	May 13	May 6	May 11	May 12	May 9	May 7	May 4	May 4

*List of Other Species Reported by Observers during 1914, and
Additional Notes on Species Contained in the Schedule.*

Autumn Dates Refer to Autumn of 1913.

*Unless Otherwise Stated**

Horned Grebe, *Colymbus auritus*, Kennett Square, female Apr. 16 (*Thomas*) ; State College, May 12 (*Mason*) ; Doylestown, Apr. 21 (*MacReynolds*) ; Fish House, N. J. Apr. 19-28 (*Potter*) ; Addingham (probably this species) Apr. 18 (*Culver*).

Pied-billed Grebe, *Podilymbus podiceps*, Fish House, N. J., Apr. 25 (*Potter*) ; Audubon, N. J. two Apr. 6 (*Tatum*).

Loon, *Gavia immer*, Bridesburg, Oct 9, 1913 (*Miller*) ; Maurice River, N. J. Nov. 11, 1913 (*Prince*) ; Fish House, N. J. Apr. 19—May 24 (*Potter*) ; Cape May, N. J. Apr. 4 and flock on Apr. 24 (*Hand*) ; Atlantic City, N. J. Apr. 18 (*Cromie*) ; Haverford, May 3, flying north (*Serrill*).

Black-backed Gull, *Larus marinus*, Avalon, N. J. Sept. 12-17 (*Prince*).

Herring Gull, *Larus argentatus*, arrived Atlantic City, N. J. Aug. 27, 1913 (*Cromie*) mouth of Maurice River, N. J., Aug. 28 (*Prince*) ; Corson's Inlet, N. J., Aug. 30 (*Culver*) ; last seen, Atlantic City, N. J. May 16 (*Cromie*) ; Camden, N. J. May 5 (*Potter*). Observed inland Mar. 12 flying N. E. at Lansdowne (1), Darby (3), Sharon Hill (14), Glenolden (6), Norwood (15) and on Mar. 17 Lansdowne (9) flying N. (*Carter*).

Laughing Gull, *Larus atricilla*, Cape May, N. J. arrived April 26 (*Hand*).

Bonaparte's Gull, *Larus philadelphia*, Fish House, N. J. April 11 (1), April 22 (15) (*Potter*) ; Oct. 21, 1913 (7) (*Miller*) ; Chester, several April 13 (*Carter*).

Black Tern, *Hydrochelidon nigra surinamensis*, Fish House, N. J. May 14 one watched for half an hour at distance of 20 yds. (*Potter*).

Wilson's Petrel, *Oceanites oceanicus*, Maurice River Cove, N. J., June 11 (*Prince*).

Gannet, *Sula bassana*, Cape May, N. J., April 13 (*Hand*).

*Localities are in Pennsylvania unless otherwise marked.

THE HISTORY OF THE
CITY OF BOSTON
FROM THE FIRST SETTLEMENT
TO THE PRESENT TIME
BY
NATHANIEL PHIPPS
OF BOSTON
IN TWO VOLUMES
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BOSTON: PUBLISHED BY
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CHAPTER I.
THE CITY OF BOSTON
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NAMES.	Cape May, N. J. E. 13; S. 72.	Atlantic City, N. J. E. 42; S. 42.	Salem, N. J. W. 16; S. 26.	Woodstown, N. J. W. 9; S. 21.	Vineland, N. J. E. 7; S. 32.	Downstown, N. J. E. 11; S. 28.	Atco, N. J. E. 14; S. 13.	Kennett Square, Pa. W. 30; S. 6.	Concordville, Pa. W. 20; S. 5.	West Chester, Pa. W. 24; N. 6.	Westtown, Pa. W. 21; S. 2.	Newtown, Pa. N. 19; E. 10.	Bordentown, N. J. E. 23; N. 13.	Yardville, N. J. E. 25; N. 15.	Allentown, N. J. E. 31; N. 16.	Trenton, N. J. E. 23; N. 16.	Doylesstown, Pa. E. 1; N. 28.	Buckingham, Pa. E. 4; N. 26.	Forest Grove, Pa. E. 2; N. 82.	Easton, Pa. W. 2; N. 50.	Bernardsville, N. J. E. 30; N. 54.	State College, Pa. N. 27; W. 150.	Lopez, Pa. W. 60; N. 102.	
Flicker.....	Mar. 16	Apr. 4	Feb. 23	Apr. 10	Res.	Apr. 7	Apr. 20	May 15	Apr. 4	Mar. 24	Mar. 15	Apr. 5	Apr. 17	Feb. 18	Mar. 25	Apr. 4	Mar. 26	Mar. 27	Mar. 18	Apr. 17	.....	Apr. 18	Apr. 13	
Whip-poor-will.....	Apr. 29	.....	.....	.....	.....	Apr. 28	May 1	May 7	.....	May 12	May 24	.....	.....	May 7	.....	May 12	.....	May 18	May 3	.....	May 9	May 6	May 1	
Nighthawk.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chimney Swift.....	Apr. 23	Apr. 19	Apr. 26	Apr. 21	Apr. 26	Apr. 25	Apr. 18	Apr. 17	Apr. 18	Apr. 22	Apr. 19	Apr. 18	Apr. 18	Apr. 26	.....	Apr. 18	Apr. 21	Apr. 24	Apr. 24	Apr. 24	Apr. 19	May 3	Apr. 22	May 12
Hummingbird.....	May 1	Apr. 29	May 7	May 12	May 17	May 7	Apr. 30	May 10	May 18	May 8	.....	.....	.....	May 1	May 22	May 3	May 12	May 12	May 11	May 11	May 9	May 12	May 18	
Kingbird.....	Apr. 27	May 23	Apr. 24	May 1	May 6	Apr. 25	May 8	Apr. 29	Apr. 30	Apr. 28	Apr. 28	.....	.....	May 7	May 12	May 8	May 3	May 1	May 2	May 17	May 7	May 12	May 18	
Crested Flycatcher.....	May 5	.....	.....	.....	.....	May 3	May 4	Apr. 28	May 4	Apr. 29	Apr. 28	Apr. 29	.....	.....	.....	Apr. 29	May 10	May 4	May 4	May 11	May 7	May 7	May 5	
Phoebe.....	.....	Apr. 4	Apr. 12	May 1	Apr. 12	Mar. 30	Apr. 15	Mar. 16	Mar. 25	Mar. 16	Mar. 19	.....	Apr. 20	Apr. 5	Mar. 29	Mar. 28	Mar. 27	Mar. 26	Mar. 25	May 11	May 7	May 7	May 5	
Bobolink.....	May 6	.....	Apr. 29	.....	.....	.....	.....	.....	May 18	May 15	May 3	May 8	.....	.....	.....	.....	May 17	May 8	.....	.....	.....	.....	Apr. 7	
Cowbird.....	Res.	Mar. 2	Mar. 11	Mar. 31	.....	.....	.....	Apr. 22	Apr. 4	Apr. 4	Apr. 25	May 1	Feb. 18	.....	.....	.....	Apr. 5	Apr. 27	.....	.....	.....	.....	.....
Red-winged Blackbird.....	Res.	Apr. 4	Feb. 5	Mar. 13	Res.	Mar. 6	Apr. 10	Mar. 15	Mar. 16	Mar. 16	Mar. 27	Mar. 17	Feb. 20	Mar. 28	Mar. 28	Mar. 22	Mar. 26	Apr. 9	Mar. 20	Apr. 4	May 4	May 4	Apr. 29	May 12
Baltimore Oriole.....	May 6	May 10	.....	May 16	May 4	May 4	May 12	Apr. 28	Apr. 28	Apr. 30	May 5	May 10	.....	.....	.....	May 5	May 3	May 7	May 4	May 4	May 4	May 4	Apr. 29	Apr. 7
Purple Grackle.....	Res.	Mar. 2	Feb. 28	Jan. 9	Feb. 11	Mar. 21	Mar. 15	Res.	Jan 30	Mar. 8	Mar. 15	Mar. 17	Feb. 19	Feb. 2	.....	Mar. 20	Mar. 14	Mar. 19	Mar. 17	Mar. 16	.....	.....	Apr. 28	May 12
Chipping Sparrow.....	Apr. 10	May 3	Mar. 15	Apr. 10	Apr. 12	Apr. 6	Apr. 1	Mar. 24	Apr. 9	Mar. 24	Apr. 1	.....	Apr. 21	Mar. 27	Apr. 10	Apr. 17	Apr. 12	Apr. 7	Apr. 4	Apr. 9	Apr. 18	Apr. 18	Apr. 17	May 5
Chewink.....	.....	Apr. 18	.....	Apr. 18	Apr. 21	Apr. 23	Apr. 16	Apr. 18	May 1	Apr. 26	May 3	Apr. 6	Apr. 6	Apr. 8	May 4	Apr. 11	May 4	Apr. 21	Apr. 27	Apr. 22	Apr. 15	.....	.....	May 4
Indigobird.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scarlet Tanager.....	May 13	May 16	May 18	May 7	May 10	May 10	May 11	Apr. 29	.....	Apr. 30	Apr. 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Purple Martin.....	Apr. 17	.....	Apr. 12	Apr. 10	Apr. 1	Apr. 20	May 12	Apr. 27	.....	Mar. 31	Apr. 12	.....	Apr. 14	.....	.....	Apr. 21	Mar. 30	Apr. 2	Apr. 17	Apr. 23	Apr. 15	.....	.....	May 12
Barn Swallow.....	Apr. 10	May 2	Apr. 18	May 1	Apr. 9	.....	.....	Apr. 18	Apr. 19	Apr. 10	Apr. 14	.....	.....	.....	Apr. 28	Apr. 21	Apr. 19	Apr. 23	Apr. 23	Apr. 17	Apr. 19	Apr. 17	Apr. 17	Apr. 17
Red-eyed Vireo.....	.....	May 13	.....	May 12	May 10	May 10	May 6	May 1	.....	May 4	May 7	May 1	May 1	May 5	.....	May 7	May 10	May 18	May 5	May 11	May 13	.....	.....	Apr. 17
Black and White Warbler.....	Apr. 24	May 2	.....	May 1	.....	May 3	Apr. 20	Apr. 27	May 5	Apr. 29	May 3	Apr. 29	Apr. 30	Apr. 19	.....	Apr. 22	Apr. 19	Apr. 28	Apr. 30	May 3	Apr. 28	Apr. 28	Apr. 28	May 1
Chestnut-sided Warbler.....	.....	May 23	.....	Apr. 30	.....	.....	.....	May 13	May 12	May 6	May 7	.....	.....	.....	.....	.....	May 14	May 10	May 5	Apr. 30	May 8	May 4	May 8	May 5
Ovenbird.....	.....	May 9	.....	May 1	.....	Apr. 29	May 5	Apr. 28	Apr. 29	Apr. 28	Apr. 26	May 6	Apr. 30	May 1	.....	.....	Apr. 30	Apr. 30	Apr. 27	May 1	May 7	May 3	May 6	.....
Maryland Yellow-throat.....	Apr. 18	.....	May 1	May 10	.....	Apr. 26	May 1	Apr. 21	Apr. 29	Apr. 29	May 3	Apr. 30	May 5	May 4	.....	Apr. 21	May 4	May 4	May 4	May 3	May 4	May 3	May 5	.....
Chat.....	May 17	.....	May 17	May 21	.....	May 31	May 10	.....	.....	May 9	May 16	.....	May 16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catbird.....	Apr. 23	Apr. 18	Apr. 27	May 1	May 3	May 10	May 10	Apr. 30	Apr. 30	Apr. 29	May 2	May 1	Apr. 28	May 5	May 2	May 3	May 4	Apr. 30	May 4	Apr. 29	May 3	May 1	May 11	.....
Brown Thrasher.....	Apr. 13	Apr. 18	Apr. 27	Apr. 22	.....	Apr. 20	Apr. 20	Apr. 19	Apr. 30	Apr. 19	Apr. 26	Apr. 25	Apr. 20	Apr. 20	.....	Apr. 19	Apr. 19	Apr. 19	Apr. 23	Apr. 19	Apr. 29	Apr. 28	May 3	.....
House Wren.....	Apr. 26	.....	Apr. 23	May 1	May 4	Apr. 20	May 1	Apr. 19	Apr. 21	Apr. 20	Apr. 28	May 1	Apr. 15	May 1	.....	Apr. 28	May 1	Apr. 29	Apr. 22	Apr. 22	May 7	Apr. 29	May 3	.....
Wood Thrush.....	May 17	.....	May 8	.....	May 12	May 10	May 5	Apr. 28	May 7	Apr. 28	Apr. 29	.....	.....	May 1	May 4	May 9	May 3	Apr. 28	May 4	Apr. 20	May 1	May 3	.....	.....
Hermit Thrush.....	.....	Jan. 19	.....	Apr. 12	.....	.....	.....	Apr. 18	.....	Apr. 1	.....	.....	Apr. 18	.....	.....	.....	.....	Apr. 7	Apr. 20	May 5	Apr. 19	.....	.....	Apr. 10
Robin.....	Res.	Apr. 8	Mar. 15	Jan. 23	Mar. 12	Mar. 7	Mar. 15	Mar. 12	Mar. 8	Mar. 15	Mar. 15	Mar. 15	Res.	Mar. 20	Feb. 17	Mar. 14	Mar. 13	Mar. 15	Mar. 18	Mar. 15	.....	Mar. 15	Mar. 19	.....
Bluebird.....	Res.	Mar. 2	Feb. 20	Jan. 5	Res.	Mar. 13	Res.	Mar. 7	.....	.....	.....	.....	Res.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

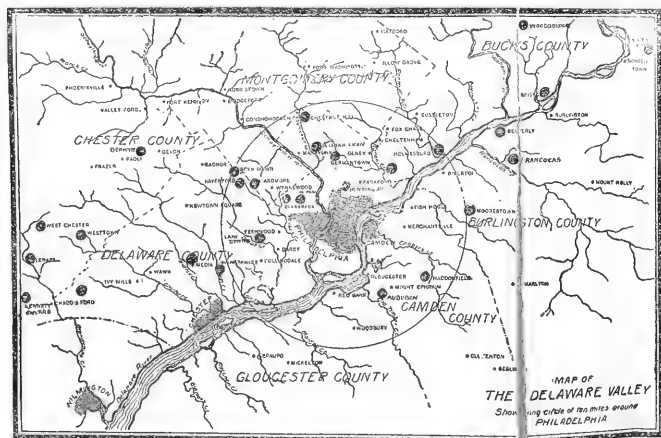


TABLE II.
SPRING MIGRATION, 1914.
EARLIEST DATES OF ARRIVAL OF
THIRTY-TWO SPECIES AT TWENTY-
THREE STATIONS OUTSIDE THE
PHILADELPHIA CIRCLE.



Double-crested Cormorant, *Phalacrocorax dilophus dilophus*. Cape May, N. J., April 4 and 18 (*Hand*).

Merganser, *Mergus americanus*, Wayne, May 5 (*Pearson*); near West Chester on the Brandywine, March 18 (*Brinton*); Fish House N. J., February 15—May 5 (*Potter*).

Hooded Merganser, *Lophodytes cucullatus*, Darby Creek near Marple ad. female, January 1 (*Culver*).

Mallard, *Anas platyrhynchos*, Haverford May 2, 4 flying over (*Hallett*); Buckshutem, N. J., Nov. 12 (*Prince*).

Black Duck, *Anas rubripes*, Frankford February 3, also Pensauken Creek, N. J., large numbers March 29 and one July 4 (*Miller*); Ocean City, N. J., May 30 (*Pearson*); Avalon, N. J. September 18 and Maurice River, N. J., November 8, 1913 (*Prince*); Doylestown, April 12 (*MacReynolds*).

Green-winged Teal, *Nettion carolinense*, Fish House, N. J., Mar. 25 (*Potter*).

Pintail, *Dafila acuta*, many on Delaware at Pensauken Creek, N. J., Mar. 29 (*Miller*); Fish House, N. J., May 4-15, and numerous at the mouth of Woodbury Creek, N. J., Apr. 4 (*Potter*).

Wood Duck, *Aix sponsa*, Cape May, N. J., a pair Apr. 10 (*Hand*); Woodstown, N. J., May 1 (*Woodruff*); Kennett Square, a female killed by striking wire, Nov. 14, 1913 (*Thomas*).

Redhead, *Marila americana*, Bridesburg, Oct. 17 (*Miller*); Mouth of Cooper's Creek, N. J., Feb. 27 (*Potter*).

Canvas-back, *Marila valisineria*, Mouth of Cooper's Creek, N. J., Feb. 27 (*Potter*).

Lesser Scaup, *Marila affinis*, Maurice River N. J., Oct. 29-31, 1913 (*Potter*); Fish House, N. J., Mar. 25—May 24 (*Potter*); West Chester, Apr. 5-6 (*Roberts*).

Canada Goose, *Branta canadensis canadensis*, wintered at Cape May, N. J., increasing Mar. 16; big flight Mar. 21 (*Hand*); Maurice River, N. J., flock of 150, Apr. 6 (*Prince*); Avalon, N. J., Sept. 17, 1913 (*Prince*); Concordville, 30 bewildered in heavy fog, Oct. 28, 1913, flew around barn (*Styer*); 9 came down Delaware River at Chester, May 14, alighting on the water, where they were seen the next day also (*Carter*).

Bittern, *Botaurus lentiginosus*, Salem, N. J., April 10 (*Car-*

pentner); Buckshutem, N. J., July 16 and Aug. 28 (*Prince*); Ocean City, N. J., May 30 (*Pearson*); Fish House, N. J., April 19–May 2 (*Potter*); Paoli, April 25 (*Pearson*).

Least Bittern, *Ardetta exilis*, Woodstown, N. J., May (*Woodruff*); Paoli, May 11 (*Baily*).

Great Blue Heron, *Ardea herodias herodias*, Camden, N. J., Jan. 14 (*Potter*); Addingham, Mar. 29 (*Culver*); Swarthmore, Mar. 30 (*Harrower*); Maurice River, N. J., May 22–Nov. 12 (*Prince*).

Little Blue Heron, *Florida caerulea*, Stone Harbor, N. J., flock of 12, Sept. 15 (*Prince*).

Egret, *Herodias egretta*, mouth of Pensauken Creek, N. J., Aug. 11 (*Miller*).

King Rail, *Rallus elegans*, Bridesburg, one killed Christmas week, 1913; nest and 7 eggs, June 10 (*Miller*); Salem, N. J., first seen April 26 (*Carpenter*).

Clapper Rail, *Rallus crepitans*, Cape May, N. J., Mar. 27 (*Hand*); mouth of Maurice River, N. J., Sept. 25 and June 11 (*Prince*).

Sora, *Porzana carolina*, Salem, N. J., April 29 (*Carpenter*); Crum Creek near Swarthmore, Mar. 30 (*Harrower*).

Florida Gallinule, *Gallinula galeata*, Richmond, one pair, Bridesburg, two pairs, April 24 (*Miller*); Fish House, N. J., April 25–May 1 (*Potter*).

Coot, *Fulica americana*, Bridesburg, 40 on the Delaware, Oct. 17 (*Miller*); Audubon, N. J.; April 12 (*Tatum*).

Woodcock, *Philohela minor*, Frankford, Nov. 6 and 16, 1913 (*Miller*); Cape May, N. J., Mar. 21 (*Hand*); Buckshutem, N. J., Nov. 11, 1913 (*Prince*); Kennett Square, Mar. 16 (*Thomas*); Doylestown, Mar. 22 (*MacReynolds*); Easton, April 7 (*Marx*); Haverford, May 6 (*Serrill*).

Wilson's Snipe, *Gallinago delicata*, Cape May, N. J., Mar. 18 (*Hand*); Buckshutem, N. J., April 30 (*Prince*); Camden, N. J., April 4–16 (*Potter*); Audubon, N. J., April 12 (*Tatum*); Kennett Square, April 10 (*Thomas*); State College, April 5 (*Mason*); Addingham, April 8 (*Culver*).

Pectoral Sandpiper, *Pisobia maculata*, Aramingo, Phila., one dead, Sept. 14, 1913 (*Miller*).

Least Sandpiper, *Pisobia minutilla*, Cape May, N. J., April 4 (*Hand*); Camden, N. J., May 4–24 (*Potter*).

Semipalmated Sandpiper, *Ereunetes pusillus*, Atlantic City, N. J., May 23 (*Cromie*); Bridesburg, May 12 (*Miller*).

Sanderling, *Calidris alba*, Cape May, N. J., Mar. 30 (*Hand*).

Greater Yellow-legs, *Totanus melanoleucus*, Cape May, N. J., Mar. 18 (*Hand*); Atlantic City, N. J., May 9 (*Cromie*); Avalon, N. J., six, Sept. 15, 1913 (*Prince*); West Chester, one, May 17 (*Roberts*); Camden, N. J., three, May 6 (*Potter*); Audubon, N. J., May 3 (*Tatum*); Bridesburg, May 6 (*Miller*).

Lesser Yellowlegs, *Totanus flavipes*, Tinicum, one shot, Sept. 1, 1913 (*Culver*); Cape May, N. J., April 29 (*Hand*); Salem, N. J., April 29 (*Carpenter*).

Solitary Sandpiper, *Helodromas solitarius*, arrived Addingham, Aug. 6, 1913 (*Culver*).

Upland Plover, *Bartramia longicauda*, Bridesburg, Oct. 18, 1913 (*Miller*); Doylestown, Apr. 19 (*MacReynolds*).

Hudsonian Curlew, *Numenius hudsonicus*, Cape May, N. J., flock of 300, Apr. 23 (*Hand*).

Black-bellied Plover, *Squatarola squatarola*, Cape May, N. J., May 6 (*Hand*); White's Island in the upper Delaware, one on Aug. 10, 1913 (*Culver*).

Killdeer, *Oxyechus vociferus*, Buckshutem, N. J., young out of nest May 11 (*Prince*); Downstown, N. J., nest robbed by Crows, second set laid by May 31 (*Fair*); wintered at Vineland, N. J., Newtown and West Chester.

Semipalmated Plover, *Aegialitis semipalmata*, Cape May, N. J., Apr. 24 (*Hand*); Camden, N. J., May 5 (2), May 6 (3) (*Potter*); Avalon, N. J., Sept. 15, 1913 (*Prince*).

Piping Plover, *Aegialitis meloda*, Cape May, N. J., Sept. 7, 1913 (5), Sept. 13, 1913 (1) (*Culver*).

Turnstone, *Arenaria interpres*, Cape May, N. J., May 6 (*Hand*).

Bob-white, *Colinus v. virginianus*, Addingham, May 22 (*Culver*).

Ruffed Grouse, *Bonasa u. umbellus*, Lopez, nest with 13 eggs, May 17, bird incubating (*Behr*).

Ring-necked Pheasant, *Phasianus colchicus*, Buckshutem, N. J., 3 shot Nov. 10, 1913 (*Prince*).

Mourning Dove, *Zenaidura macroura carolinensis*, flock of 6

wintered at Cape May, N. J. (*Hand*); wintered also at Vine-land, N. J. (*Prince*), and one was seen at Concordville, Jan. 30 (*Styer*).

Turkey Vulture, *Cathartes aura septentrionalis*, flock of 14 observed along the upper Delaware between Manunka Chunk and Martin's Creek, July 11, 1913 (*Marx*); seen through the winter at West Chester and Media and throughout southern N. J.

Goshawk, *Astur atricapillus*, Frankford, Feb. 28 (*Miller*); Wayne, March 29 (*Pearson*).

Red-tailed Hawk, *Buteo borealis borealis*, last seen at Camden, N. J., March 29 (*Potter*).

Red-shouldered Hawk, *Buteo lineatus lineatus*, last seen at Camden, N. J., March 18 (*Potter*); Frankford, Apr. 17 (*Miller*).

Broad-winged Hawk, *Buteo platypterus*, Frankford, arrived March 23, also nest on Wissahickon Creek, June 9 (*Miller*); Addingham, Apr. 13 (*Culver*); Wayne, Apr. 22 (*Pearson*).

Bald Eagle, *Haliaeetus leucocephalus leucocephalus*, Pensauken Creek, N. J., July 8-9 (*Miller*); Easton, Apr. 18 (*Marx*); Buckshutem, N. J., Oct. 10 (*Prince*); Cape May, N. J., Mar. 18 (*Hand*).

Sparrow Hawk, *Falco sparverius sparverius*, Lopez, arrived Apr. 10 (*Behr*).

Osprey, *Pandion haliaëtus carolinensis*, four nests at Buckshutem, N. J., birds incubating, Apr. 30 (*Prince*).

Barn Owl, *Aluco pratincola*, Bridesburg, Jan. 2 and Mar. 4 (*Miller*); Audubon, N. J. one killed Apr. 5 (*Tatum*); Paoli, Apr. 25 (*Pearson*).

Long-eared Owl, *Asio wilsonianus*, Frankford, one found dead Mar. 19 (*Miller*); Swarthmore, 3, Apr. 10-15 (*Palmer*); Haverford, 4 wintered (*Hallett*); Gloucester, N. J. 3 wintered (*Potter*).

Short-eared Owl, *Asio flammeus*, Bridesburg, Nov. 18-Mar. (*Miller*).

Saw-whet Owl, *Cryptoglaux acadica*, Gloucester, N. J. one wintered in a clump of pines in company with 4 Barn and 3 Long-eared Owls; was last seen Feb. 21 (*Potter*); Kennet Square, one found dead Dec. 11, 1913 (*Thomas*).

Screech Owl, *Otus asio asio*, Camden N. J. young out of nest June 9 (*Potter*); Swarthmore, young out June 6 (*Palmer*).

Snowy Owl, *Nyctea nyctea*, shot near Bridesburg, Dec. 1913 and another taken alive at Sandiford, Nov. 1913. Both were mounted (*Miller*).

Yellow-billed Cookoo, *Coccyzus americanus americanus*, last seen Vineland, N. J., Oct. 11, 1913 (*Prince*).

Belted Kingfisher, *Ceryle alcyon alcyon*, wintered at Bordentown, (Flynn); also observed Frankford, Feb. 4 (*Miller*); Swarthmore, last of Feb. (*Palmer*); Camden, N. J., Feb. 28 (*Potter*); Holmesburg, Feb. 4 (*Miller*).

Hairy Woodpecker, *Dryobates villosus villosus*, Camden, N. J., nest with young, May 24 (*Potter*).

Yellow-bellied Sapsucker, *Sphyrapicus varius varius*, observed in winter at Swarthmore, Jan. 28 (*Howard*); Moorestown, N. J., to Jan. 20 (*Mickle*); Salem, N. J., in Feb. (*Carpenter*).

Red-headed Woodpecker, *Melanerpes erythrocephalus*, wintered at State College (*Mason*); feeding young in nest Addingham, Aug. 19 (*Culver*); one at Haddonfield, N. J., July 13 (*Moore*).

Flicker, *Colaptes auratus luteus*, some wintered at Addingham, and Vineland N. J., also seen in winter at Frankford, Jan. 30; Holmesburg, Feb. 4; Yardville, N. J., Feb. 18; Salem, N. J., Feb. 23; West Chester, Jan. 18.

Yellow-bellied Flycatcher, *Empidonax flaviventris*, Doylestown, May 17 (*MacReynolds*).

Horned Lark, *Otocoris alpestris alpestris*, Kennett Square, 10 on Feb. 16, last seen Mar. 11 (*Thomas*); Aramingo, Phila., 10 on Feb. 22 (*Miller*); Concordville, Mar. 8 (*Styer*); Easton, Mar. 7, also during Feb. (*Marx*); Darby, 12 on Mar. 7 and 2 at Lansdowne same day (*Carter*); Ardmore, 100 on Mar. 7 (*Baily*).

Prairie Horned Lark, *Otocoris alpestris praticola*, Addingham, 8 on Mar. 8, specimens secured (*Culver*).

Crow, *Corvus brachyrhynchos brachyrhynchos*, 2000 roosted in Busby's thicket, Frankford (*Miller*).

Blue Jay, *Cyanocitta cristata cristata*, several at Wayne all winter (*Alexander*), and one pair at Addingham (*Culver*). At the following stations none were seen until date given: Kennett Square, May 1; West Chester, May 2; Easton, May 3; Media, Apr. 25 (plentiful May 2); Frankford, May 15.

Starling, *Sturnus vulgaris vulgaris*, reported from the follow-

ing stations: Vineland, Salem, Atco, Downstown and Yardville in N. J., and from Penna. at Newtown Square., Frankford, Kennett Square (first record Mar. 8, 1913), Concordville, West Chester, Newtown, Easton (first record Jan. 17, 1912, next Feb. 19, 1914), Media, Swarthmore, Ardmore, Haverford and Wayne.

Cowbird, *Molothrus ater ater*, Bordentown, Feb. 18 (*Flynn*).

Red-winged Blackbird, *Agelaius phoeniceus phoeniceus*, wintered at Vineland and Cape May, N. J., also observed in winter at Salem N. J., Feb. 5, and Bordentown, N. J., Feb. 20.

Meadowlark, *Sturnella magna magna*, wintered at Melrose, Media, Wayne, Addingham, Swarthmore, Forestgrove, Doylestown, West Chester, Concordville, Trenton, N. J., and all over southern New Jersey. Seen in winter at Easton, Jan. 1; Yardville, N. J., Feb. 22; Newtown, Jan. 25.

Purple Grackle, *Quiscalus quiscula quiscula*, wintered at Cape May, N. J., and West Chester; reported in winter from Wayne, Feb. 20; Haverford, Jan. 27; Swarthmore, Jan. 29; Yardville, N. J., Feb. 2; Bordentown, N. J., Feb. 19; Newtown, Jan. 24; Woodstown, N. J., Jan. 9; Salem, N. J., Feb. 28. At Chester six were seen flying north against a driving snowstorm following a week of intensely cold weather (*Carter*).

Purple Finch, *Corpodacus purpureus purpureus*, Holmesburg, Dec. 31 (5) (*Miller*); Laurel Springs, N. J., Mar. 2 (*Tomlinson*); Haverford, none in winter, frequent in spring (*Hallett*); Easton, none in winter after Oct. 12, 1913; occurred in spring, April 17–May 11 (*Marx*); none at Addingham until May 3 (*Culver*); Wayne, Mar. 7–May 2 (*Steele*); Kennett Square, first seen April 30 (*Thomas*).

Red Crossbill, *Loxia curvirostra minor*, Swarthmore, pair on Mar. 22 (*Palmer*).

Redpoll, *Acanthis linaria linaria*, Camden, N. J., Feb. 25 (8), 27 (5), 28 (20), Mar. 24 (2) (*Potter*); Kennett Square, Mar. 3 (1) (*Thomas*); West Chester, Mar. 5 (*Roberts*); Fairmount Park, Mar. 7 (*Culver* and *Pearson*); Addingham, Mar. 8 (2) (*Culver*).

Goldfinch, *Astragalinus tristis*, ten to twelve wintered at Addingham (*Culver*); Easton, one, Feb. 24, then none until Mar. 24 (*Marx*); Aldan, not seen until April 29 (*Morley*).

Pine Siskin, *Spinus pinus*, Marple, Nov. 2, 1913 (*Culver*); Vineland, N. J., Oct. 30 (2), Nov. 10, 1913, many with Goldfinches (*Prince*); Yardville, N. J., Nov. 11, 1913 (*Allinson*); Atco, N. J., Jan. 20, large flock (*Pyle*); Woodstown, N. J., Jan. 23 (*Woodruff*); Easton, Oct. 29, 1913 (1), May 8-18, pairs and small flocks (*Marx*); Camden, N. J., last seen Feb. 27 (*Potter*); Atlantic City, N. J., Apr. 30 (*Cromie*); Concordville, Feb. 26 (*Styer*); West Chester, Apr. 22 (*Ehinger*), Apr. 8, May 17 and 19 (*Roberts*).

Snow Bunting, *Plectrophenax nivalis nivalis*, West Chester, Mar. 2 (13) (*Ehinger*); Camden, N. J., Feb. 25-27 (1) (*Potter*); Delair, N. J., 2 late in February, one was shot and mounted. Ambler, Pa., one shot by Jas. R. Gillen Mar. 18 (*Miller*).

Grasshopper Sparrow, *Ammodramus savanarrum australis*, Addingham, Nov. 4, 1913 two—one shot (*Culver*).

Sharp-tailed Sparrow, *Passerherbulus caudacutus* Atlantic City, N. J., May 16 (*Cromie*); Avalon, N. J., Sept. 14 (*Prince*).

Henslow's Sparrow, *Passerherbulus henslowi henslowi*, summer resident as usual along Maurice River, N. J. (*Prince*); Ocean City, N. J., May 30 (*Prince*).

White-crowned Sparrow, *Zonotrichia leucophrys leucophrys*, Moorestown, N. J., May 13 and 17 (*Mickle*).

White-throated Sparrow, *Zonotrichia albicollis*, Atlantic City, N. J., Sept. 24-May 17 (*Cromie*); Vineland, N. J., Oct. 5-May 1 (*Prince*); Downstown, N. J., Sept. 28-May 3 (*Fair*); Rancocas, N. J., Sept. 29-May 10 (*Haines*); Kennett Square, Mar. 23-May (*Thomas*); Concordville, Sept. 28-May 19 (*Styer*); West Chester, Oct. 6-May 6 (*De Haven*); Easton, Apr. 19-May 29 (*Marx*); Wayne, Sept. 28-May 17 (*Baker*). Last seen: Woodstown, N. J., Apr. 26 (*Woodruff*); Buckshutem, N. J., Apr. 12 (*Prince*); West Chester, May 19 (*Roberts*); Camden, N. J., May 17 (*Potter*); Media, May 11 (*Allen*); Swarthmore, May 10 (*Harrower*); Haverford, May 22 (*Hallett*); Addingham, May 15 (*Culver*); Rosemont, May 17 (*Scoville*).

Tree Sparrow, *Spizella monticola monticola*, last seen: Doylestown, N. J., Apr. 19 (*Fair*); Concordville, Mar. 26 (*Styer*); West Chester, Apr. 5 (*Roberts*); Camden, N. J., Apr. 5 (*Potter*).

Field Sparrow, *Spizella pusilla pusilla*, wintered at Haddonfield, N. J. (*Rhoads*); Frankford, Jan. 30 (*Miller*); Audubon, N. J., Jan. 17 (*Tatum*).

Junco, *Junco hyemalis hyemalis*, Atlantic City, N. J., Sept. 24–April 4 (*Cromie*); Downstown, N. J., Oct. 12–April 22 (*Fair*); Kennett Square, Oct. 4–May 2 (*Thomas*); West Chester, Oct. 4–May 2 (*DeHaven* and *Roberts*); Wayne, Sept. 28–April 30 (*Baker*); Easton, Sept. 15–May 3 (*Marx*); Moorestown, N. J., Oct. 4–April 12 (*Mickle*); State College, Oct. 8–April 28 (*Mason*). Last seen: Woodstown, N. J., May 1 (*Woodruff*); Trenton, N. J., April 30 (*Abbott*); Camden, N. J., April 22 (*Potter*); Swarthmore, May 10 (*Harrower*); Addingham, April 27 (*Culver*); Haverford, May 2 (*Hallett*). Arrived: Rancocas, N. J., Sept. 29, 1913 (*Haines*).

Lincoln's Sparrow, *Melospiza lincolni lincolni*. One seen in yard in West Philadelphia, May 2, studied for an hour at a distance of six feet (*Stone*).

Fox Sparrow, *Passerella iliaca iliaca*, Swarthmore, Jan. 1 (1) (*Palmer*); Oak Lane, wintered (*Barker*).

Chewink, *Pipilo erythrophthalmus erythrophthalmus*, Camden, N. J., Dec. 25, 1913 (1) (*Potter* and *Culver*); Yardville, N. J., Feb. 19–Mar. 1 (1), probably perished in blizzard of early March (*Allinson*); Juniata Park, Frankford, one female, Dec. 3 (*Miller*).

Cardinal, *Cardinalis cardinalis cardinalis*, Easton, one on March 24 (*Marx*).

Indigobird, *Passerina cyanea*, Vineland, N. J., still singing, Sept. 28, 1913 (*Prince*).

Purple Martin, *Progne subis subis*, Maurice River, N. J., full grown young July 16 (*Prince*).

Tree Swallow, *Iridopronce bicolor*, Avalon, N. J., thousands Sept. 18, (*Prince*).

Northern Shrike, *Lanius borealis*, Cape May, N. J., Jan. 10 (*Hand*); Gloucester, N. J., Feb. 21 (*Potter*); Wayne, Mar. 9 (*Steele*); Mar. 23–27 (*Thomas*); Moorestown, N. J., Apr. 5 (*Mickle*).

Prothonotary Warbler, *Protonotaria citrea*, one seen in river swamp two miles west of South Vineland, N. J., June 19, 1914.

“ Heard note resembling that of the Water-Thrush and finally the bird came to within 15 feet of me and was easily identified ” (Potter). [A very important record which certainly indicates the probable breeding of this species in New Jersey—W. S].

Golden-winged Warbler, *Vermivora chrysoptera*, Germantown Apr. 28 (Emlen); Easton, May 4 (Marx); Trenton, N. J., May 5 (Abbott); Camden, N. J., May 6-7 (Potter); Haddonfield, N. J., May 7 (Rhoads); Haverford, May 7 (Hallett); Moorestown, N. J., May 8 and 10 (Linton); Addingham Sept. 14, 1913 (Culver).

Nashville Warbler. *Vermivora rubricapilla rubricapilla*, Easton, Apr. 29 (Marx); Haverford, May 2 (Hallett); Camden, N. J., May 7 (2) (Potter).

Tennessee Warbler, *Vermivora peregrina*, West Philadelphia, Oct. 1, 1913 (Stone).

Cape May Warbler, *Dendroica tigrina*, Avalon, N. J., Sept. 15, 1913 (Prince); Kennett Square, Oct. 2, 1913 (Thomas); Addingham, Sept. 13, 1913 (Culver); West Chester, May 7 (Ehinger) and May 11 (Sharple); State College, May 7-12 (Mason); Haverford, May 11-16 (Serrill and Hallett); Swarthmore, May 11 (2), May 16, 17 (Palmer and Harrower); Moorestown, N. J., May 13, 16, 17 (Mickle); Chestnut Hill, May 14 (Platt); Concordville, May 18 (Styer); Kennett Square, May 15 common (Thomas).

Myrtle Warbler, *Dendroica coronata*, Vineland, N. J., Nov. 13, 1913 (Prince); Atlantic City, N. J., Jan. 7 (Cromie); a few wintered at Oak Lane (Barker) and at Haddonfield, N. J., (Rhoads).

Cerulean Warbler, *Dendroica caerulea*, West Chester, May 9 one carefully identified (Ehinger).

Bay-breasted Warbler, *Dendroica castanea*, Camden, N. J., May 6 (Potter); Kennett Square, May 3 (Thomas); Doylestown, May 10 (MacReynolds); Aldan, May 11 and Addingham, May 15 (Culver); Wayne, May 12 (Baker); Swarthmore, May 13 and 23 (Harrower); 22 (3) (Palmer); Woodstown, N. J., May 14 (Woodruff); Crum Creek, May 17 (Serrill); Haverford, May 19 (Serrill) and May 21 (Hallett); West Chester, May 18 (Ehinger); Atlantic City, N. J., May 23 (Cromie); Audubon, N. J., May 20 (Tatum).

Water-Thrush, *Seiurus noveboracensis noveboracensis*, Vineland, N. J., Aug. 12-30 and Oct. 3 (*Prince*).

Louisiana Water-Thrush; *Seiurus motacilla*, Addingham, Aug. 6, 2, one shot (*Culver*).

Hooded Warbler, *Wilsonia citrina*, Kennett Square, May 12 (*Thomas*); West Chester, May 14 (*Ehinger*); State College, May 17 (*Mason*); Cape May, N. J., April 27 (*Hand*).

Wilson's Warbler, *Wilsonia pusilla*, Vineland, N. J., Sept. 23 and 28 (*Prince*); Kennett Square, May 14-15 (*Thomas*); West Chester, May 14 (*Ehinger*); Laurel Springs, N. J., May 15 (*Haine*); Camden, N. J., May 15 and 17 (2) (*Potter*); Swarthmore, May 20 (*Palmer*); Addingham, May 18 (*Culver*); Haverford, May 17 and 21 (*Serrill*).

Titlark, *Anthus rubescens*, Concordville, Mar. 8 (*Styer*); Kennett Square, Apr. 2, flock of 20 (*Thomas*); West Chester, Apr. 25 (*Roberts*); Downstown, N. J., May 4 (*Fair*).

Mockingbird, *Mimus polyglottos polyglottos*, Frankford, Oct. 3, one eating pokeberries (*Miller*); Moorestown, N. J., Mar. 22 one watched for an hour (*Wierman*).

Winter Wren, *Nannus hiemalis hiemalis*, Easton, Sept. 15-Apr. 26 (*Marx*); Moorestown, N. J., Nov. 4, 1913 (*Mickle*); Addingham, last seen April 22 (*Culver*); Ardmore, May 3 (*Baily*).

Brown Creeper, *Certhia familiaris americana*, Atlantic City, N. J., Sept. 24-May 16 (*Cromie*); West Chester, Oct. 6-May 1 (*DeHaven*); Easton, Sept. 15-May 1 (*Marx*); State College, Oct. 16-April 28 (*Mason*); Rancocas, N. J., Sept. 15-May 3 (*Haines*). Last seen: Atco, N. J., April 25 (*Pyle*); Camden, N. J., May 4 (*Potter*); Swarthmore, April 25 (*Howard*); Addingham, April 27 (*Culver*). Arrived Moorestown, N. J., Sept. 29, 1913 (*Mickle*).

White-breasted Nuthatch, *Sitta carolinensis carolinensis*, Atlantic City, N. J., Sept. 24-May 2 (*Cromie*); Moorestown, N. J., Oct. 5-April 12 (*Mickle*).

Red-breasted Nuthatch, *Sitta canadensis*, arrived: Vineland, N. J., Oct. 30 (*Prince*); Easton, Sept. 15 (1) (*Marx*); Wayne, Oct. 1, 13, 26 and Nov. 2 (*Baker*). Last seen: Swarthmore, May 13 (1) (*Palmer*); Haverford, May 11 (*Serrill* and *Hallett*); Wayne, April 30 (*Baker*); Moorestown, Jan. 12 (*Wierman*); Atlantic City, April 18 (*Cromie*).

Black-capped Chickadee, *Penthestes atricapillus atricapillus*, unusually abundant, Swarthmore, until Apr. 25 (*Howard*); West Chester, Oct. 7—Apr. 22 (*DeHaven*); Easton, Oct. 4—May 15 (*Marx*); State College, Oct. 16—May 10 (*Mason*); Wayne, until Apr. 25 (*Pearson*); abundance "unprecedented" at West Chester, Camden, N. J., Media, Lansdowne, Wayne and Addingham.

Golden-crowned, Kinglet, *Regulus satrapa satrapa*, West Chester, Oct. 7—Apr. 22, (*DeHaven*); Easton, Oct. 4—May 3 (*Marx*); arrived; Vineland, N. J., Oct. 30 (*Prince*); Rancocas, N. J., Sept. 29 (*Haines*); Moorestown, N. J., Sept. 29 (*Mickle*); last seen: Atlantic City, N. J., Apr. 18 (*Cromie*); Kennett Square, Apr. 19—25 (*Thomas*); Wayne, Apr. 25 (*Pearson*); Swarthmore, Apr. 23 (*Harrower*); Addingham, Apr. 26 (*Culver*); Haverford, Apr. 7 (*Hallett*).

Ruby-crowned Kinglet, *Regulus calendula calendula*, Vineland, N. J., Nov. 4. (*Prince*).

Blue-gray Gnatcatcher, *Poliophtila caerulea caerulea*, Cape May, N. J., May 17 (*Hand*); Kennett Square, saw and studied one closely Apr. 19 (*Thomas*).

Hermit Thrush, *Hylocichla guttata pallasi*, Vineland, N. J., Nov. 4 (*Prince*); Atlantic City, N. J., Jan. 19 (*Cromie*).

Robin, *Planesticus migratorius migratorius*, winter records, Media, Feb. 20; Allentown, N. J., Feb. 17; Moorestown, N. J., Jan. 15; Newtown, Jan. 22; Woodstown, N. J., Jan. 23; reported resident at Vineland and Cape May.

Bluebird, *Sialia sialis sialis*, resident in N. J. at Atco, and at Addingham and Moylan, Pa. West Chester, Jan. 4; Woodstown, N. J., Jan. 5; Moorestown, N. J., Jan. 16; Laurel Springs, N. J., Jan. 27; Moylan, Jan. 28; Ardmore, Jan. 28; Rosemont, Jan. 30; Salem, N. J., Feb. 20; Swarthmore, Feb. 23; Haverford, Feb. 27; Frankford, Feb. 28.

Abstract of the Proceedings of the Delaware Valley Ornithological Club, 1914

January 1, 1914. New Year's Day. Meeting omitted.

January 15, 1914. Twenty-fourth annual meeting. Thirty-seven members and one visitor present. The following officers were elected for the ensuing year: President, Stewardson Brown; Vice-President, Henry W. Fowler; Secretary, J. Fletcher Street; Treasurer, Samuel C. Palmer.

The following standing committees were appointed: On Publication, Cope, Moore and Morris; on Field Trips, Street, Rhoads and Stuart; on Migration, Potter, Carter and Stone.

Dr. Stone addressed the Club upon "Present Day Aspects of Ornithology". The speaker reviewed the work of the ornithologists of the past generations and outlined the branches of the subject yet to be mastered.

February 5, 1914. Twenty-one members and one visitor present. Mr. George Harding, upon invitation of Mr. Morris, spoke upon the subject "Birds of the Eastern Archipelago". The fauna of the islands comprising the lower part of the Eastern Archipelago, including Australia, Tasmania, New Guinea and Java, was described.

February 19, 1914. One visitor and sixteen members present. Mr. Samuel N. Rhoads made a communication entitled "Then and Now; or Forty Years of Bird Life in our Village". The speaker's remarks pertained to the relation of the birds of Haddonfield N. J. to former and present-day environments.

As a new feature of the Club's activity Dr. Spencer Trotter gave a general review of the articles contained in the January *Auk*.

March 5, 1914. One visitor and twenty-two members present. Mr. Edward L. Caum, Swarthmore, Pa., was elected to associate membership. Dr. Max M. Peet addressed the meeting upon "Some Recent Theories of Bird Migration". An outline of all the important theories upon the subject was given.

March 19, 1914. One visitor and twenty-one members present. Mr. Arthur C. Emlen spoke upon the subject "Among the Birds of Manatee County, Florida". A detailed list of the birds common to the locality was given.

April 2, 1914. One visitor and eighteen members present. Dr. Samuel C. Palmer gave an interesting talk upon "The Relation of Color to Bird Plumage". The speaker described the localization of color as due to several causes, such as the presence of pigment in the feather, mechanical refraction and prismatic forms.

April 16, 1914. One visitor and twenty-nine members present. Mr. Samuel Mason, Jr., read a paper entitled "Notes on the Nesting of the Vesper Sparrow", giving a detailed account of the incubation and feeding of the young. Dr. Stone, gave a review of the proceedings of the meeting of the American Ornithologists' Union held at Washington.

May 7, 1914. Two visitors and twenty-three members present. Mr. Robert T. Moore addressed the Club upon the subject, "Notes on the Songs of the Hermit Thrush". Individuals of this species were said to possess as many as nine distinct song-phrases. The sequence of these various forms was explained.

May 21, 1914. Seventeen members present. Mr. Philip E. Howard, Swarthmore Pa. was nominated for associate membership. Mr. Samuel N. Rhoads spoke upon the subject "My Clarina". His remarks were descriptive of a captive specimen of the Spanish-American Thrush commonly known as "Clarina". The speaker expressed his belief that the song of this

species surpasses that of any other bird in the world. The quarterly review of the Auk was made by Mr. Morris.

October 1, 1914. Three visitors and twenty-one members present. The names of J. W. Mercur, Jr., Wallingford, Pa., Henry F. Fry, 224 W. Manheim St., Germantown and Edward L. Wildman, 4431 Osage Ave., Philadelphia, were proposed for associate membership.

Mr. Samuel Scoville, Jr., spoke upon the topic, "Bird Notes of a Novice". The general advantages to be derived through bird study were dwelt upon. Under general discussion Cheney, Marple, Rushland and Doylestown were cited as nesting stations of the Bobolink.

October 15, 1914. One visitor and twenty-one members present. The names of Dr. B. W. Mitchell, 4326 Pine St., and Edward Norris, St. Martins, Chestnut Hill, were proposed for associate membership.

Mr. Samuel N. Rhoads spoke upon the subject, "A Sunday at Homewood". Homewood, as explained, is the name of Mr. Rhoads's estate at Haddonfield, N. J. The speaker's remarks related to the flora and fauna of the place and its natural attractions, productive of a generous bird-life.

November 5, 1914. One visitor and twenty-four members present. The following were elected to associate membership: J. W. Mercur, Wallingford, Pa.; Edward L. Wildman, 4431 Osage Ave., Phila.; Dr. B. W. Mitchell, 4326 Pine St., Phila.; Philip E. Howard, Swarthmore, Pa.; Edward Norris, St. Martin's, Chestnut Hill, Pa.

Dr. Stone gave an interesting communication entitled, "Some Impressions of South Carolina and its Birds". A detailed list of the birds to be found in the vicinity of Manning, Clarendon Co., was given. A set of two eggs of the Chuck-will's-widow was found.

Dr. Stone announced the presentation to the Academy of Natural Sciences of a collection of mounted birds by Mr. George B. Benners.

November 19, 1914. Twenty members present Mr. John D. Carter presented a communication entitled "Syracuse and Return". The speaker described a list of thirty-two species observed from the train on a trip from Philadelphia to Syracuse during the latter part of May. Mr. Carter's remarks evidenced the tendency of certain species to concentrate in particular environments.

December 3, 1914. One visitor and twenty-six members present. Upon the subject, "Concerning Certain Autumnal Warblers", Dr. Spencer Trotter expounded several theories upon the relationship of warblers, as evidenced by the plumage of nuptial males.

December 17, 1914. One visitor and twenty-three members present. Mr. William L. Baily addressed the Club upon the subject, "November: or Good-bye to the Robins and Blue-birds". A detailed list of the last appearances of migrating birds up to and during November was given. The lack of food and proper shelter was given as the prime cause for local changes.

Club Notes

THE TWENTY-FIFTH ANNIVERSARY BANQUET

Although not strictly within the activities of the year 1914 it seems desirable to describe at this time the proceedings at the banquet held at the Roosevelt, on January 7, 1915, in commemoration of the twenty-fifth anniversary of the founding of the Delaware Valley Ornithological Club. Sixty-six members were present and seven guests represented the notable organizations of the East. Avian decorations were conspicuous in all parts of the dining hall and in addition the Entertainment Committee secured a number of "hitherto undescribed birds," which were mounted on stands for the delectation of students of specciation. Mr. Stewardson Brown, President of the D. V. O. C., presided with genial dignity and Dr. Spencer Trotter acted as toastmaster in his usual inimitable style, introducing the speakers with happy allusion or appropriate story.

Responding to the toast, "When I was in Sing Sing," Dr. A. K. Fisher, President of the American Ornithologists' Union, defended his choice of habitat and referred to his abiding affection for the D. V. O. C. The Secretary of the A. O. U. was also with us, Mr. John H. Sage, who described the activities of his local Connecticut society. Mr. Chas. F. Batchelder presented a written testimonial of congratulation from the Nuttall Ornithological Club and greetings were brought by Dr. T. S. Palmer from the Biological Survey, and by Mr. John T. Nichols from the Linnæan Society of New York. Messrs. William Palmer and Alexander Wetmore, of Washington, D. C., were also honored guests.

A former member of the Club, Dr. Robert T. Young, of the University of North Dakota, related incidents in his career when he was associated with Dr. Wm. E. Hughes on several questionable escapades. Dr. Hughes was given an opportunity to defend himself, responding to the toast, "*The Oölogist*," and

announced his complete conversion to the spirit of the Audubon Society. Mr. Wm. L. Baily was then heartily acclaimed the "Mamma and Papa Bird" of the Club and related how *it* happened. Responding to the toast, "Cassinia," Mr. Robert Thomas Moore read extracts from an ancient manuscript, recently discovered and entitled "The D. V. O. C., or How a Great Egg was Hatched," and Dr. Witmer Stone, prime instigator of all Club activities, closed the evening with congratulatory remarks and telling verses.

The splendid attendance as well as the spirit of good-fellowship, which was a conspicuous feature of the banquet, drew from Dr. Fisher a memorable tribute. He said: "I believe that such another gathering of bird students could not be assembled to a local ornithological banquet in any other city of America or possibly on either side of the Atlantic."

We gather every fortnight from afar,
To smoke and talk and keep our friendship green;
And we join in Trotter's laughter,
Both before we meet and after,
For our appetite for humor still is keen.

When Brown calls us to order from the chair,
And Fletcher Street has read the minutes through,
We are all anticipation
For Sam Rhoads' communication,
For we never know just what he means to do!

But we know that at a meeting
No matter who is speaking,
'Tis well worth while for each one to be there.

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* *

Sometimes Will Baily brings some lantern slides
Or Billy Hughes a clutch or two of eggs;
Or Morris has a paper
On some canoeing caper,
Or Shryock talks of bones in wings or legs.

Perhaps Bob Moore will bring his tuning-fork
And tell us how the Chippy ought to sing;
Or Stuart urge perfection
In laws for bird protection,
While De Haven tells what game is on the wing.

And we know that at a meeting
 No matter who is speaking,
 'Tis well worth while for each one to be there.

*

* *

When Weygandt reads a bird biography,
 Each chair is filled and every man intent;
 When Carter is the speaker,
 Every member there is eager
 For the novel observations he'll present.

Sometimes we have a general debate
 On the origin of migratory flight,
 On protective coloration,
 Or the length of incubation—
 And the argument continues half the night.

But we know that at a meeting,
 No matter who is speaking,
 'Tis well worth while for each one to be there.

*

* *

Once a year we have a little spread,
 Some cheese and crackers, oysters and the like,
 And no matter what the weather,
 We gather there together
 To plan for meeting, camping-trip or hike.

For five and twenty years our Club has thrived,
 And still we see no sign of its decay;
 And may its ties grow stronger,
 Its list of members longer,
 And may it live for many another day.

And at every future meeting
 No matter who is speaking,
 'Twill be well worth while for each one to be there !

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* *

Fifteen meetings were held during the year, the average attendance being 23.67. This is so close to our high-water mark of 24 that it should be an incentive to make the average attendance for 1915 the highest in our history.

The first Club outing of the year was held at New Lisbon, N. J. February 23, 1915. Only ten members were in attendance, there being a heavy fall of snow during the entire day. The storm and cold was so intense as to render extended walking prohibitive. A tramp of four miles brought to light but six species of birds and ended with the accidental drenching of Dr. Peet. The walkers then repaired to a bungalow belonging to one of the members and passed the remainder of the day relating previous ornithological experiences.

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The Decoration Day outing of the Club was held at Rushland, Pa., May 30, 1915. Fifteen members attended. Fifty-two species were noted. The following were found to be nesting in the vicinity: Worm-eating Warbler, Bobolink, Grasshopper Sparrow, Red-eyed Vireo (singing upon nest).

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Two additions have been made to the Club collection of nests and eggs of Pennsylvania and New Jersey birds during the year. The nest and eggs of the Broad-winged Hawk were contributed by Robert P. Sharples, and those of the Warbling Vireo by George H. Stuart. Dr. E. Culver presented tree sections, one containing a nest of the Bluebird and the other a nest of the Tufted Tit. Many individual birds were also supplied from the Benner collection. The following species whose nests are still unrepresented should be kept in mind by our members on their outings this spring.

Pied-billed Grebe.	Black-billed Cuckoo.
Loon.	Yellow-bellied Sapsucker.
American Bittern.	Pileated Woodpecker. ¹
Sora Rail.	Red-bellied Woodpecker.
Little Black Rail.	Traill's Flycatcher.
Coot.	Prairie Horned Lark.
Solitary Sandpiper.	Bobolink.
Bartramian Sandpiper (Field Plover).	Bronzed Grackle.
	Pine Finch.

¹ Only eggs desired.

Ruffed Grouse.	Cliff Swallow. ¹
Wild Turkey.	Black and White Warbler. ¹
Red-tailed Hawk.	Golden-winged Warbler.
Bald Eagle.	Nashville Warbler.
Duck Hawk.	Mourning Warbler.
Long-eared Owl. ¹	Mockingbird.
Short-eared Owl.	Bewick's Wren.
Great Horned Owl. ¹	Red-bellied Nuthatch. ¹
Barred Owl.	Golden-crowned Kinglet.
Saw-whet Owl.	Gnatcatcher. ¹

¹ Only eggs desired.

Bibliography, 1914

Papers relating to the birds of Pennsylvania, New Jersey and Delaware:

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CARTER, JAMES B. Just Notes [Southwest Pennsylvania]. *Oölogist*, 1914, p. 231.

DIPLOCK, CECIL. Starlings and Cows. *Bird-Lore*, 1914, p. 187.

DICKEY, S. S. Bachman's Sparrow a Summer Resident in Southern Pennsylvania. *Oölogist*, 1914, p. 8.

Not positively identified. See also p. 42.

Nesting of the Northern Raven in Pennsylvania. *Oölogist*, 1914, p. 23. In Clinton County.

Some Experiences with the Red-tailed Hawk. *Oölogist*, 1914, pp. 28-29.

The Pileated Woodpecker in Southwestern Pennsylvania. *Oölogist*, 1914, p. 105.

Nesting of the White-breasted Nuthatch in Central Pennsylvania. *Oölogist*, 1914, p. 66.

Worm-eating Warbler. *Oölogist*, 1914, p. 98.

The Golden-winged Warbler. *Oölogist*, 1914, p. 99.

Rough-winged and Bank Swallows. *Oölogist*, 1914, p. 154.

The Carolina Wren. *Oölogist*, 1914, pp. 158-160.

Some Central Pennsylvania Birds. *Oölogist*, 1914, pp. 168-171.

The Killdeer. *Oölogist*, 1914, pp. 184-186.

Early June Birds of Cambria County, Pa. *Oölogist*, 1914, pp. 206-207.

HARLOW, R. C. Nesting Dates for Pennsylvania and New Jersey. *Oölogist*, 1914, p. 71.

Dates for one set each of 99 species collected during 1913. As neither localities nor condition of eggs are given, the scientific value of the list is much impaired.

- Nesting of the Pileated Woodpecker. *Oölogist*, 1914, pp. 83-84.
- Peculiar Nesting of the Scarlet Tanager. *Oölogist*, 1914, p. 89.
Cf. also Darlington, E. J., same page.
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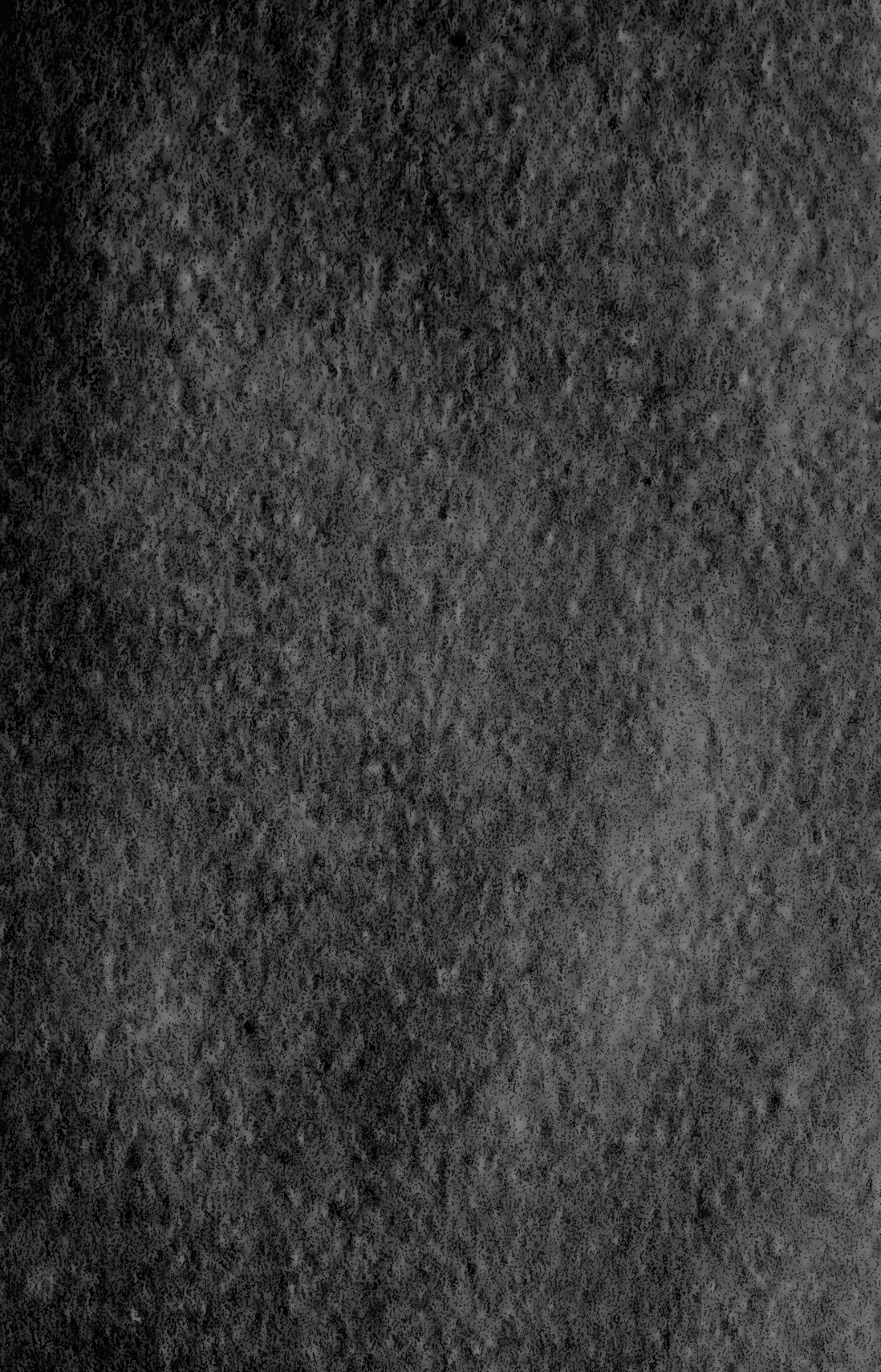
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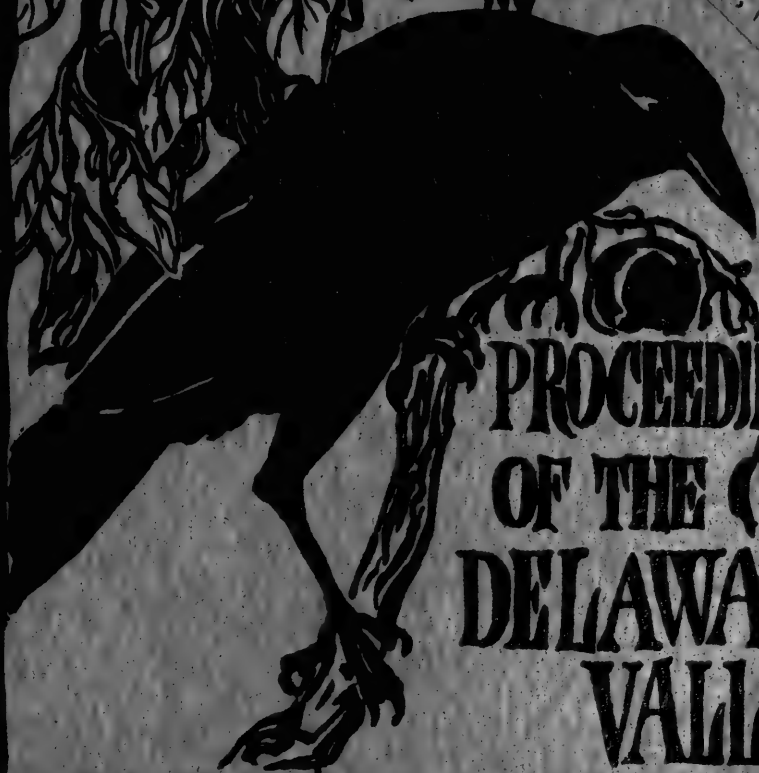


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Issued March, 1916

1915

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Pennsylvania, New Jersey, and Delaware

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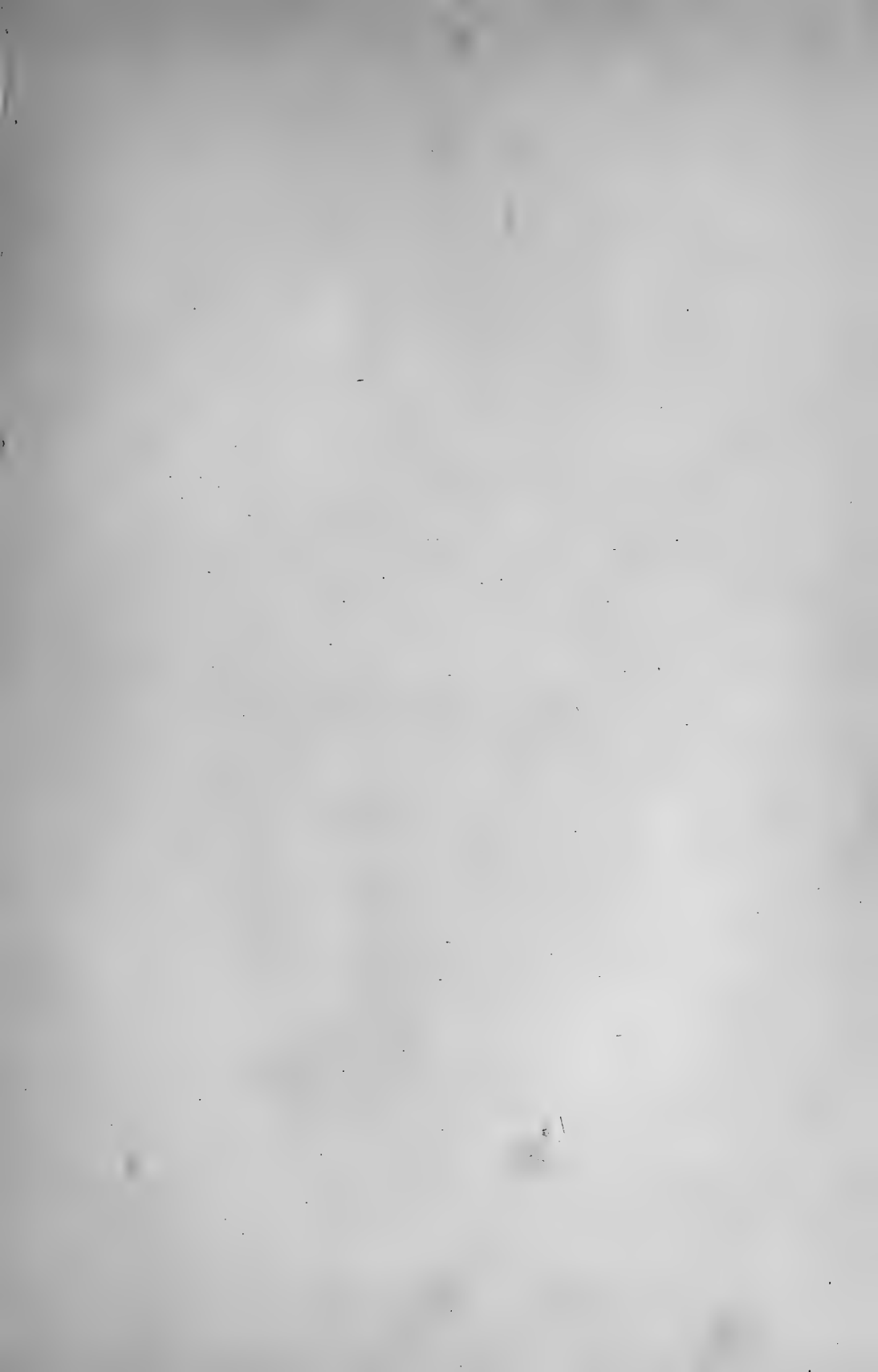
- The Birds of Eastern Pennsylvania and New Jersey**, by Witmer Stone, pp. 176 with two maps and portrait of Alex. Wilson. One Dollar and a half. (Post paid \$1.62)
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CASSINIA

PROCEEDINGS OF THE DELAWARE VALLEY ORNITHOLOGICAL CLUB

No. XIX.

PHILADELPHIA, PA.

1915.

Titian Ramsey Peale

BY WITMER STONE

To the naturalist the name of Peale is probably more closely associated with the museum, conducted by members of the family in Philadelphia during the early part of the last century, than it is with the personality of the individuals to whom the museum owed its existence.

To the artist and historian on the other hand the name at once recalls the portraits of Washington and other revolutionary heroes which were painted by Charles Willson Peale, the founder of the museum. The artistic associations of the name are further emphasized in the surnames of some of the sons of Charles Willson Peale, who were christened: Raphael, Rembrandt, Rubens and Titian. The second of these was probably a better artist than his father, while all seem to have shared the gift in greater or less degree.

Titian, the youngest son, was the naturalist of the family, his father's interests in this line being always those of the preparateur rather than of the scientific investigator. The life of the son was however so obviously influenced by the environment of the museum, and the history of the museum so closely

interwoven with the life of the father, that any biography of Titian Peale must of necessity be prefaced by a brief sketch of Charles Willson and the famous institution which he established.¹

Charles Willson Peale was born at Chestertown, Queen Anne County, Maryland, April 15, 1741. His father Charles Peale had emigrated from England about 1726 and taught school in Maryland until his death in 1750. Charles Willson and his mother then removed to Annapolis and we find him at the age of thirteen apprenticed to a saddler, while at twenty-one he is married and engaged in the saddlery business on his own account.

At the age of twenty-four he discovered his talent for portrait painting and after studying under several masters, including Benjamin West of London, he established himself in Philadelphia in 1774 and began his professional career as an artist. Service in the Pennsylvania militia during the Revolution interrupted his work, but at the close of the war he reestablished himself at Third and Lombard streets, adding to his house a large room to serve as a studio and art gallery. Here were placed as ornaments various natural curiosities presented to him by friends; and as this display increased, he conceived the idea of converting his gallery into a museum of natural history. Peale worked diligently to carry out his idea and for a time, owing to neglect of his portrait painting, he was in sore straits financially. He accumulated many specimens mainly "large and striking to the sight", as he tells us in his unpublished autobiography,² while he devoted much time in devising methods of preserving them from decay and the ravages of insect pests. His museum was opened in 1784, and at once attracted much attention. It soon outgrew its quarters and was transferred to the hall of the American Philosophical Society of which Peale

¹ For the data upon which this sketch is based the writer would make especial acknowledgment to a biographical sketch of Titian R. Peale by Dr. A. C. Peale (Bull. Philos. Soc. Washington, xiv, pp. 317-326), and to an account of Peale's Museum by Dr. Howard Sellers Colton (Pop. Sci. Monthly lxxv, pp. 221-238). Cf. also an article by Witmer Stone (Auk., 1899, pp. 166-177).

² Cf. Colton.

had been chosen curator and librarian. He rented the part of the building required for his museum and apparently made his residence there also. The transfer of the collection was effected in a spectacular manner. He says: "To take advantage of public curiosity, I contrived to make a very considerable parade of the articles, especially those which were large. As boys are generally very fond of parade, I collected all the boys of the neighborhood. At the head of the parade was carried on men's shoulders the American buffalo, the panthers, tiger cats, and a long string of animals carried by the boys. The parade from Lombard Street to the Hall brought all the inhabitants to their doors and windows to see the cavalcade. It was fine fun for the boys. They were willing to work in such a novel removal and saved me some expense in moving the delicate articles."¹

Later on a board of twenty-five directors was formed with Thomas Jefferson as president in an effort to make the museum a great national institution and to obtain legislative aid for its improvement. In 1802 it was moved to Independence Hall which had been vacated by Congress. The whole second floor and tower were devoted to housing the collections, while Rembrandt Peale had his studio on the first floor. By 1805 and probably earlier the name, "Philadelphia Museum", had been adopted and in subsequent years there has often arisen a confusion between this museum and that of the Academy of Natural Sciences. Many types and historic specimens, recorded as being in the the "Philadelphia Museum," have been erroneously credited to the Academy.

The extent of Peale's collection, especially for that early period, was really astonishing. Not only were the series of birds, mammals and reptiles reasonably complete in the then known species—even to the "Platipus" and "Orang Outang" but there were specimens which would attract attention anywhere today, notably two mounted skeletons of the Mastodon. Many museum methods which we associate with comparatively recent years were practiced in Peale's exhibits. Groups of birds and mammals with painted backgrounds illustrating their habits

¹ Colton.

or habitats were installed, while framed copies of published matter descriptive of certain exhibits were mounted near them. Other frames contained, what we should now call, synoptical collections of certain groups with full descriptive labels; while microscopes with insects etc. arranged under them were available to the visitor. Special exhibits included a wolf tearing a lamb to pieces and we are told that the papier-mache entrails of the latter from the skilled and realistic hands of Rubens Peale bulged out so naturally that they appeared living and in motion. There was also a "South American Mermaid"—half fish and half hairless, dried monkey.¹

This was about 1820, but a catalogue of the museum published in 1805 gives us an idea of its extent at a much earlier date. "There are now in the collection", it states, "perhaps all the birds belonging to the middle, many of which likewise belong to the Northern and Southern States and a considerable number from South America, Europe, Africa, Asia, and New Holland and the recently discovered islands in the South Seas. The number exceeds 760 without the admission of any duplicates, contained in 140 cases." The mammals included "the Orang Outang or wild man of the woods. The Crested Porcupine, some of whose quills measure 18 in., the American and New Holland ditto, Madagascar Bats (measuring 4 ft. from tip to tip). The Lama or Camel of South America, the untameable Hyaena and fierce Jackall, American Elks, the Picary, remarkable for a secretary organ on its back. The slow-moving Bradypus or Sloth, Antelopes from Africa, the Indian Musk of astonishing agility and the Kangaroo or Opossum from Botany Bay etc."

The ornithological specimens of most importance in Peale's museum were Wilson's types of North American birds, the originals of the descriptions in his "American Ornithology." Some of these were apparently collected and presented by him and under each species in his work is given the catalogue number of a specimen exhibited in the museum. There were also some types of George Ord, Bonaparte and Say. Fortunately

¹Colton.

many of these have been preserved and are now in the Museum of Comparative Zoology at Cambridge, while two others, the types of the Broad-winged Hawk and Mississippi Kite, are in the Philadelphia Academy and one, the Cape May Warbler, is in Vassar College.¹

Charles Willson Peale withdrew from the active management of the museum in 1808 and retired to his home "Belfield" in Germantown, leaving his sons in control. He died February 22, 1827.

In 1821 he had had the museum company incorporated, the five trustees being with one exception members of his family. Following his death the museum moved in 1828 to the Arcade building on Chestnut Street above Sixth, and in 1838 to a fine building at Ninth and Chestnut, where the Continental Hotel now stands. Here in 1846 financial depression resulted in the failure of the concern which in strenuous efforts to maintain an existence had added vaudeville and other attractions. The collections were sold at auction, the natural history material being largely kept together and exhibited until 1850, when P. T. Barnum and Moses Kimball secured it at sheriff's sale and it went to museums which they maintained in New York and Boston. Most of the specimens were later destroyed by fires which consumed several of Barnum's establishments.

Thus ended an enterprise which during the days of its prosperity exerted a wonderful influence on the development of science in America and to which Charles Lucien Bonaparte refers as "an enterprise, accomplished alone and unaided, that could hardly have been exceeded under the fostering hand of the most powerful government."² The details of the museum's history are fascinating reading and are well worthy of detailed study, but this brief outline will suffice to show us the nature of the environment which surrounded young Titian Ramsay Peale, the subject of the present sketch, and the influence which it must have exerted in shaping his life.

He was born in 1800 in the Hall of the Philosophical Society.

¹ Cf. Faxon. Bull. Mus. Comp. Zool. LIX, No. 3, pp. 119-148.

² Amer. Ornith., vol. ii.

His mother was the second wife of Charles Willson Peale, Elizabeth de Peyster, a descendant of Johannes de Peyster, who came over to New Amsterdam about 1645. Titian was named after his half-brother who had died at the age of eighteen after giving great promise as a naturalist. He was educated at Germantown and Montgomery County schools, though it seems probable that he derived quite as much inspiration and knowledge from the great museum and its founder as from his school-teachers. At the age of seventeen he was elected a member of the Academy of Natural Sciences and in the autumn of the same year was one of a party to visit the Sea Islands and adjacent coast of Georgia and east Florida. His associates were William McClure, Thomas Say and George Ord.

Say, describing this trip in a letter to Rev. John F. Melsheimer¹ under date of June 10, 1818, says: "I accompanied the president of our Academy, Mr. Wm. McClure (a gentleman well known in Europe and America for science and beneficence) in his carriage by easy journies as far as Charleston; we then took the steamboat to Savannah and sent on the carriage by land. At Savannah we met our companions, Messrs. Ord and Peale, who had arrived a day or two before us from Philadelphia by sea. Here the carriage and horses were sold and we chartered a sloop of about thirty tons burden and after laying in our stores and necessaries we commenced our journey toward the promised land."

They stopped at each of the Sea Islands and ascended the "St. Juan" river as far as Picolata, crossing from there to St. Augustine on foot where they presented their passports to the Governor, for Florida was then a Spanish province. Finding it impossible on account of the hostility of the Indians to follow out their plans, the party was forced to return to Charleston, stopping again at the Sea Islands and embarking in the spring of 1818 on a packet ship for Philadelphia. Unfortunately Say's letter makes no mention of the vertebrate collections and the only ornithological results of the trip were two papers pub-

¹ In *Library Acad. Nat. Sci.* See also publication in *Entom. News*, 1901, pp. 234-236 *et seq.*, by W. J. Fox.

lished by Ord on the Florida Jay and Boat-tailed Grackle,¹ and a number of specimens secured by Peale and deposited for the most part in his father's museum.

The year after their return Say, then thirty-two years of age, was selected as zoologist on Major Long's expedition to the Rocky Mountains, and Peale, a youth of nineteen, was engaged as his assistant. Say writes to Melsheimer on March 13, 1819: "Mr. T. Peale will accompany me to prepare skins of such animals as may be discovered." Long's instructions to Peale show more explicitly what was expected of him. He says: "Mr. Peale will officiate as assistant naturalist. In the several departments above enumerated his services will be required in collecting specimens suitable to be preserved, in dating and delineating them, in preserving the skins etc., of animals, and in sketching the stratifications of rocks, earths, etc., as presented on the declivities of precipices." He received \$1.50 per day and Say \$2.00 each being allowed one ration per day until they left Council Bluffs.

Peale's half-brother Rembrandt, who was twenty-two years his senior, wrote him at this time: "I suspect that you will be the only draughtsman; I therefore recommend you to practice immediately sketching from nature. I know how well you draw when you have the object placed quietly before you; but if you practice sketching from human figures as well as animals and trees, hills, cataracts, etc., you will be able to present us with many curious and interesting representations. Get into the habit of making notes of everything as it occurs, no matter how short. Memoranda written at the moment have always an interest of accuracy that distant recollections never have." This last sentence is admirable advice and as true today as when it was written, even though the camera has in a great measure removed the necessity for sketching.

Long's expedition followed the regular highway to the frontier—the Ohio river; down which Lewis and Charles had gone in 1803 to join their men; down which in 1808 went Audubon and his bride to establish himself in business in Kentucky; and

¹Jour. Acad. Nat. Sci. Phila. Vol. I.

down which in 1810 Alexander Wilson had guided his little row-boat the "Ornithologist" on his trip to New Orleans. They left Pittsburgh on May 5, 1819, reaching St. Louis June 9 and Council Bluffs (near the present city of Omaha) in the early autumn, and here passed the winter. The summer of 1820 was spent in exploring the eastern base of the central Rocky Mountains, returning to the mouth of the Ohio by November. The Rocky Mountain party consisted of twenty persons with twenty riding animals and eight pack-horses, each man carrying his personal belongings. Peale was one of a side party under Dr. James which made the first ascent of Pike's Peak; Pike after whom it was named having merely viewed it from a distance. To Peale would seem to belong all the credit for the discovery of the many new birds, which date from this expedition, since we have Bonaparte's word that he procured them and drew them on the spot.¹

Say in a letter to Melsheimer under date of August 29, 1821 speaks of the task of describing the new birds and quadrupeds having been added to his duties in connection with the preparation of the report of the expedition. One would infer that he had expected Peale or some one else to attend to this work as his interests were mainly with the invertebrates. Possibly this fact may account for the meager treatment of the vertebrates in Long's report, or possibly Say was aware that Bonaparte in his forthcoming continuation of Wilson's Ornithology proposed to publish full accounts of all the birds, as well as colored plates of them, engraved from Peale's sketches. Bonaparte's work appeared in 1825 and he does full honor to Peale's labors on the Long expedition at the same time praising him as a "painter-naturalist."

The first ornithological novelty of the expedition was apparently the Lark Sparrow procured near the mouth of the Missouri while at the camp near Omaha were secured the first specimens of the Orange-crowned Warbler and Yellow-headed Blackbird. In Douglas County, Colorado, not far from the present site of Denver were discovered the Band-tailed Pigeon and Rock Wren

¹ Bonaparte's Amer. Ornith., preface to vol. i.

and at Colorado Springs as they turned southward they obtained the Dusky Grouse. The Lazuli Bunting and Cliff Swallow were secured near the present Canyon City and reaching Pueblo on the return march the House Finch and Arkansas Goldfinch were added to the collection of novelties. Near La Junta in southeastern Colorado they secured the type specimen of the Arkansas Flycatcher and not far away Say's Phoebe. Several other birds previously known only from Mexico were added to our fauna through Peale's energy on this expedition. The scientific collections, as reported, consisted of 60 skins of animals rare or new to science, several thousand insects, 500 species of plants, a large collection of shells, many minerals and 122 sketches by Peale, all of which were deposited in the "Philadelphia Museum."

In 1824 Peale was engaged by Bonaparte for a trip to Florida to secure additional novelties to be published in the later volumes of his "Ornithology." Interesting specimens were obtained and copious notes, which appear in Bonaparte's work, but the only novelty secured seems to have been the so-called "Peale's Egret", now regarded as a dichromatic phase of the Reddish Egret, *Dichromanassa rufescens*. It is unfortunate that the name given by Bonaparte in Peale's honor could not have been perpetuated. A manuscript diary kept by Peale on this trip was picked up by Mr. S. N. Rhoads some years ago in the shop of a dealer in old metals and miscellaneous curios in Philadelphia and is now in the possession of Col. John E. Thayer, of Lancaster, Mass.

In 1831, according to Dr. A. C. Peale, Titian accompanied an expedition to the Magdalena River in Columbia, which was financed through the liberality of Dr. Marmaduke Burrough, after whom the much-disputed Turkey Vulture, *Cathartes burrovianus* of Cassin, was named. The collections obtained were presented to the Philadelphia Museum, though later Dr. Burrough presented many specimens to the Philadelphia Academy.

On September 6, 1836 the Academy, apparently in conjunction with other similar societies, received a letter from the Secretary of the Navy requesting an outline of fields, which it would be desirable to cover in the scientific investigations of the

proposed United States Exploring Expedition, as well as suggestions as to the personnel of a scientific corps. The matter was referred to a committee, the results of whose deliberations are not clear, but, whether through their recommendation or not, Titian R. Peale was eventually selected as one of the naturalists of the expedition, his field covering ornithology and mammalogy.

He had, since his return from South America, become director of the Philadelphia Museum and had published the first part of a work on American butterflies which was never completed. He had also prepared a number of plates for various scientific works, and his reputation both as a naturalist and draughtsman had evidently increased.

The exploring expedition, under Captain Charles Wilkes was gone about four years. The vessels left Norfolk, Virginia, August 18, 1838 going in turn to Madeira, Brazil, Chili, the South Sea Islands, New Zealand, the Sandwich Islands, the west coast of North America, Japan, the Philippines, Singapore and Cape of Good Hope, and returning to New York in June 1842. A river in one of the Fiji Islands was named after Peale, who had been zealous in collecting material and making sketches. His vessel the *Peacock* was wrecked at the mouth of the Columbia River, May 18, 1840 and he with others of the crew traveled overland to San Francisco, through the then Mexican province of California, to join another of the fleet, the *Vincennes*. The collection of Hawaiian birds and much other invaluable material was lost in the wreck.

Peale wrote the report on the birds and mammals of the expedition which was issued in 1848, but without the atlas of plates which he had prepared. This was his only ornithological work, indeed almost his only scientific contribution, which seems remarkable, when we consider the opportunities that he had and the really great part that he played in advancing our knowledge of American ornithology.

This report of Peale's is one of the rarest of books and its history is involved in obscurity. It has been claimed that he was not afforded opportunities to properly study and compare his specimens; but it would seem that at that time neither

specimens nor books adequate for his work were to be found in this country. It was not until 1846 and 1847 that Dr. T. B. Wilson began to accumulate his great collection and library at the Philadelphia Academy and there was none elsewhere. At all events of 109 new birds that Peale described scarcely one third were really new. Only about 90 copies of his report were actually distributed by the government, the remainder having been destroyed by fire, while Peale seems not to have availed himself of the opportunity to have an edition struck off for himself as authors of the other volumes had done.¹ Whether Peale refused to have anything more to do with the report, owing to the failure to publish his illustrations, or whether those in charge realized the shortcomings of the work cannot be determined; but John Cassin after a long and stormy correspondence with Wilkes, as is shown in his letters to Baird, was finally engaged to publish a new report, which appeared in 1852 along with a folio volume of colored plates comprising most of the Peale drawings. Peale is said to have considered himself very badly treated in the matter.

On May 17, 1848 the Philadelphia museum, having passed out of existence, Peale was appointed assistant examiner in the United States Patent Office in Washington and was later promoted to principal examiner in the division of Fine Arts and Photography, an office which he held until June 30, 1873 when he resigned and returned to Philadelphia.

During his twenty-five years residence in Washington he was active in organizing the "Saturday Club", which later became the "Philosophical Society of Washington." He was also one of the first amateur photographers of this country and made many photographs of great historic value. His scientific interests seem to have been mainly centered in his collection of butterflies, which he had gathered together on the various expeditions in which he took part, and after his return to Philadelphia he spent the time in completing the manuscript and plates of a work on butterflies based upon his collection. While he had practically succeeded in this, the publication was never begun, as he died of pneumonia on March 13, 1885.

¹ Cf. Jardine's *Contr. to Ornith.*, 1852, p. 89.

When the Academy of Natural Sciences moved to its present location on Logan Square in 1876, Peale was given a room opening off of the library, where his collection of butterflies was housed and which in 1888 the writer occupied and began the care and development of the Academy's study collection of bird skins. Peale was also given a room on the entresol floor which he furnished, and here his wife used to come and sit with him during the day. This room he was forced to vacate when the Wm. S. Vaux collection of minerals was received and this and the adjoining rooms were required for its arrangement. Curiously enough, when the Vaux collection was removed to the new wing of the museum in 1896, the collection of bird-skins was placed in the old Peale room; and here for thirteen years the Delaware Valley Club held its meetings.

In 1889, after the death of Mrs. Peale, the collection of butterflies and quantities of books, letters, sketches and relics of the Exploring Expedition were removed from the cases where they had been stored. The collection was presented to the Academy and the other things distributed among relatives or destroyed. The writer regrets his failure to realize the fund of historical information which was no doubt available at this time and which is now lost forever. Many books etc. from Peale's library have turned up in second-hand stores and "junk shops" from time to time, showing that they had been disposed of by those who had inherited them. Peale's manuscript journals of the Exploring Expedition were picked up by Mr. Rhoads along with the Florida journal already referred to and have now been secured by the Library of Congress where their preservation is assured.

Dr. Edward J. Nolan and Dr. Spencer Trotter both remember Peale in his later days as a genial, entertaining old gentleman with interesting reminiscences of his long and varied career. He was twice married; first to Eliza Cecilia La Fogue in 1822 and in later life to Lucy McMullin. He had eight children by his first marriage, a daughter being named Florida in remembrance of his trip of 1824 and one of his sons, George Ord after the ornithologist. Only one son reached manhood and both he and his only son are now dead, leaving four great-

grandchildren as the only descendants of Titian R. Peale. There is something pathetic in the history of the natural history interests of the Peales. There was great ability in matters scientific and tremendous energy and zeal manifested in scientific exploration and exploitation; and yet there are today no adequate results to stand forth as a monument to the earnest efforts of this notable family.

The great museum which the founder felt that he had established on a permanent foundation, crumbled and was destroyed. And Titian Peale, the naturalist, whose travels and opportunities fitted him for a place in the first rank, has left us not one completed work; while his collections, with the exception of his butterflies and the Exploring Expedition material¹ are scattered and destroyed. Only a few of his manuscripts, snatched by chance from oblivion, have been saved—a single memorial to his worth.

¹ Cf. also Proc. Acad. Nat. Sci., Phila., 1915, p. 199, for notes on the ethnographic material.

Nesting Birds of Pocono Lake

BY J. FLETCHER STREET

WAYLAYING birds in their nesting haunts was the conspicuous feature marking the activities of members of the Delaware Valley Ornithological Club during the spring of 1915. Scientific data concerning the breeding haunts and habits of even some of our more common species was found to be incomplete and a strong determination to fill up these voids in the matter of club records seemed to possess each member individually. The results not only have been gratifying but have shown that there are many interesting facts yet to be learned of our common birds in the matter of behavior and distribution.

To extend this period of endeavor it was determined by a few of us to follow the gayly colored troop of warblers and their migrating associates to the Poconos, and there inquire more intimately into their habits. Dr. William E. Hughes, William L. Baily, George H. Stuart, 3rd, John D. Carter and the writer comprised the party.

To the writer as well as to the majority of the members of the D. V. O. C. the mention of the Poconos has always held a peculiar charm. The breeding there of several species of birds occurring about Philadelphia only as migrants is a sufficient reason for rendering a first trip to the Poconos a memorable one to the uninitiated.

When we arrived at Pocono Summit on the evening of June eleventh the country was shrouded in a heavy fall of rain, the end of a thunder shower which had swept up the valley of Broadhead's Creek in the late afternoon; but an automobile was there to meet us and our destination, the summer camp of Carter at Pocono Lake, was reached after an uneventful ride of nine miles.



NEST AND EGGS OF ALDER FLYCATCHER.

YELLOW-BELLIED FLYCATCHER AT ENTRANCE TO NEST IN BED OF SPHAGNUM MOSS.



The general aspect of the region about Pocono Lake is suggestive of a typical boreal country, yet there are certain conspicuous areas of second growth resulting through the reforestation of burnt areas, which possess an environment not unlike that of the typical Carolinian regions farther south and support an invasion of such characteristic Carolinian forms, as the Yellow-breasted Chat and Chewink. The forests adjacent to Pocono Lake are principally of second growth and are composed of deciduous trees. Farther back pine, spruce and balsam hold sway, and wherever little streams break through, tamarack and rhododendron swamps abound, with associated flora of such conspicuous forms as the Withe Rod, Labrador Tea, Rhodora and Azalea canescens, and a wealth of herbaceous plants including the Dwarf Cornel, Trientalis, Painted Trillium, Golden Thread, Clintonia and in the more remote bogs the Creeping Snowberry, Calla and Linnaea.

How circumspect and limited one's impressions may become was evidenced on the morrow at daybreak, or rather during the gray hours preceding dawn, when the bird chorus broke forth. The writer, who had been accustomed to awaken from day to day to a medley of Carolinian bird-songs, was utterly confounded by a chorus of entirely unfamiliar notes. For the Wood Thrush call had been substituted the high-pitched, deliberate phrases of the Hermit. The Solitary Vireo had pre-empted the rights of the Red-eye. The Magnolia Warbler, it seemed, was contributing fully one-half the volume of the entire bird chorus, and as incidents to the whole the merry twitter of Juncos and the soft plaint of the White-throats were difficult to disassociate from bleak and wintry aspects of our home meadows.

The writer does not wish to convey the impression that the finding of bird nests in this varied and wooded country is an easy matter. On the contrary it is not. Most of the nests were located only after persistent and diligent search. Excepting to Baily and Carter the place was an unfamiliar one, and many of the species had never been noted by the rest of us save as migrants.

Pocono Lake is bordered by a narrow strip of timber princi--

pally of deciduous second-growth, which is separated from the more heavily wooded section to the rear by a roadway which follows its outline. It was here directly opposite the bungalow, that we hunted and found our first nest, that of the Grouse. The hen had flushed only after we had advanced to within five feet of its position and the nest was found without difficulty. It was located under a shrub in a low depression lined with leaves and contained but six, partly-incubated eggs. While approaching this Carter flushed a Chestnut-sided Warbler from its nest and announced four eggs. It was placed in a low birch sapling amid characteristic scrub growth. While here the note of the Alder Flycatcher was heard constantly along the lake borders and was recognized by Baily and Carter, who had become familiar with it as a resident, but had never been successful in obtaining its nest or eggs. As we had planned to spend our day in the vicinity of Butz Run, a favorite locality at the southern end of the lake, we did not tarry here.

We had proceeded but a short distance along the road when an excited Junco flew up at our feet, chirping incessantly. Its actions bespoke the presence of a nest and the surrounding area was searched without results. Some one suggested our retreating a short distance, which we did and almost immediately the mother bird returned, going directly to the hidden nest at the base of a huckleberry bush among dried leaves and bracken. Constructed principally of grasses and rootlets, it contained four pale blue eggs, heavily spotted with rufous, principally at the larger end. This nest had been built not over ten feet from the roadway and within five feet of a trail leading up to a bungalow, which was then under construction, with workmen passing by several times a day.

The Solitary Vireos were calling from the deeper woods behind us and we all penetrated confident of finding a nest. Several birds were watched and noted for hours on this and succeeding days but without success. A nest of the previous year, which was readily identified, was found hanging from a spruce limb at a height of five feet. Yet we were all glad to have spent this time among them, for the Solitary Vireo is truly a wonderful songster. As we listened to it, it sang, generally

in notes suggestive of the Red-eye, but clearer and pitched higher in scale. In the early mornings particularly, it would indulge us with a sustained warble of purest quality, generally rendered from a higher elevation.

While looking for the Solitary's nest the only Robin's nest found during our stay was discovered well up upon an outlying branch of a spruce tree. It was not a common species with us along the southern margin of the lake.

At length we reached Veery Cove at the extreme southwestern corner of Pocono lake. Here the lake converges into a narrow pointed wedge, pushing up under the roadway and receiving the waters of Butz Run. At Veery Cove thickets of rhododendrons abound. Here are the chosen haunts of the Black-throated Blue Warblers. Many were singing when we arrived there, so we instigated a search among them, crawling at times upon hands and knees to obtain an underside view of the foliage, so completely do the whorls of broad leaves hide the nests from view. There were surely at least a dozen breeding pairs in the vicinity, but all our efforts resulted in securing but a single nest. It was placed in a crotch of Rhododendron growth, not over two feet from the ground and well concealed by overlapping leaves. The nest was a closely woven affair of plant bark in grays and browns. The inner body was composed of coarse grasses and pine needles interwoven with a great quantity of black, hair-like rootlets. It contained but one egg finely spotted with pale purplish brown.

Carter announced another find and led us to the nest of a Canadian Warbler. It was cushioned in a loose mass of leaves and twigs carried down by some spring freshet and caught upon a rhododendron snag. It possessed deep-cupped walls of skeleton leaves woven in with fine rootlets. The four eggs were white with chestnut spots. The sitting bird expressed little concern at our presence and at one time Stuart approached within four feet of the nest before the bird quietly flew off and lost itself in the underbrush without uttering a note.

From here we penetrated the deeper woods above the stream, pausing at times to listen to Kinglet notes coming down from the tops of the tall spruces. Surely they must have nested

hereabouts in the earlier year, but we could gather no evidence of recent progenies. Here the Black-throated Green Warblers were incessant with song but no nest of the year could be found. Baily remarked that we were approaching the area where he had encountered the Nashville Warbler in other springs. Shortly he detected a song in the distance which he identified as of this bird. Presently we reached a partial clearing. Tamarack, balsam and spruce formed the principle tree-growth of the area ; viburnum and low huckleberries the shrub material and rolling mounds of sphagnum the ground cover ; conditions relating to a typical Canadian swamp. This was the haunt of the Nashville Warbler as well as a similar area about one hundred yards distant. Only in these two places were the birds noted during the five days of our stay. Baily had told us how he had found it nesting here two years previously, and how he had photographed the bird upon its nest.

We heard probably four singing birds altogether in the two bogs. They were not birds to be confidential with. Only with the greatest care might they be approached. The very restlessness of their nature seemed to impel them to be always on the move and to indulge in incessant song. The song comprised two distinct phrases ; the first, a tsipá, tsipá, tsipá, tsipá repeated from four to six times and in character suggestive of the deliberate, introductory notes of a Blackpoll Warbler's song ; the second, a clear trill, similar to the notes of the Pine Warbler ; altogether a very easy song to become familiar with.

After a thorough search of the two districts, upon the authority of Baily, we were able to announce three nests. These were all placed in the sides of sphagnum mounds and were lined with pine needles and soft grasses. One had a hole through the bottom of it. None of these contained eggs and no birds had been flushed from them. We waited about for hours hoping to see a nest visited, but no bird would approach closer than a nearby tree where perchance it would perch and sing lustily.

Another bird of this area, which we were coming to be acquainted with, was the Yellow-bellied Flycatcher. It haunted the same open bogs as the Nashville and although its plain-

tive call-note was frequently heard, the bird itself was seldom observed.

To the east of those positions occur dense, low woods of spruce, so dense that little direct light penetrates them, so barren as to be utterly devoid of undergrowth, the ground beneath being covered deep with mats of brown needles. From the recesses of these frequently came the song of the Olive-backed Thrush. No nest was found.

Near the head of Butz Run the Parula Warbler was comparatively common. Beyond there is an absence of standing timber. Bleached boles clearly indicate the visitation of fire several years earlier. At a distance of probably one-half mile a solitary Olive-sided Flycatcher called from the top of a dead tree. "Quip-que-peu-áh" came his note from over the intervening spaces or "Three Cheers," as Stuart would have it. Into the late afternoon we hunted for its mossy nest among the isolated evergreens without success. Upon returning across these desolate sphagnum moors we were awarded with the sight of an eagle soaring high overhead.

When we returned that evening to the bungalow we again hunted in its immediate vicinity. On a spruce branch, six feet from the ground Carter discovered a Magnolia Warbler's nest. The nest was remarkable in its structure. Loosely woven grass-stems stretched out on all sides fully twelve inches from the bulk of the material. The nest itself was composed of grass and weed stems lined with vegetable fiber and black rootlets resembling horsehair. The four eggs possessed rufous-brown markings, principally at the larger end.

In a nearby thicket a Whitethroat's nest containing four eggs was found. Carter had again taken up the hunt for the nest of the Alder Flycatcher and carefully surveyed the swamp bordering the lake. At length he came across a small nest of bleached grasses, placed two feet from the ground in a viburnum bush. No bird had been noted in its vicinity. It remained to be absolutely identified upon another day.

At dusk Baily announced the finding of a Hermit Thrush's nest behind the bungalow in a raised hummock. It contained four eggs.

On the morrow we all went up the lake to a spot where Baily had encountered a number of Whip-poor-wills the night before. Here we found our second Oven-bird's nest which contained four eggs and Baily, at length, flushed a Whip-poor-will from its nesting site. Its two eggs had been laid directly upon the ground and when found, were separated by about three-quarters of an inch, indicating how the bird had sat between them with an egg concealed beneath each wing.

From here it was decided to cross the lake and work down the Tobyhanna Creek below the dam. After crossing we followed a pair of Blackburnian Warblers through the tree-tops with our glasses and thought that we detected them nest-building; at least, there was a dense bulk of material which they seemed to visit from time to time. Nothing definite could be determined, yet this was the nearest we came during our stay towards determining the nesting site of the species.

We soon came to an open area characterized by broad grass-fields and individual large spruces. Carter and Baily both had mentioned the trees as favored nesting-sites of the Purple Finch. We were not to be disappointed, for the song of the bird was everywhere and each tree-top seemed to possess at least one pair of birds. Several nests upon the outlying branches of spruces were examined but were found empty, indicating perhaps an earlier nesting season, but I remembered noticing a hen bird acting suspiciously and its later flight to the top of a small spruce not over ten feet in height. I lifted Stuart up and he startled the bird from its nest which contained two eggs. When the nest was again examined two days later it was found to have been destroyed. It is interesting to note that this grove appears to be the nesting site of most of the Purple Finches in the Pocono Lake region, only a few individual birds being heard outside of it during our entire stay.

From here, during the afternoon we worked down the valley of Tobyhanna Creek. A drizzling rain was falling and the character of the country did not offer an equal opportunity for nest-finding as that above the dam. Three Catbirds' nests and two of the Maryland Yellow-throat were all that this side excursion netted us. We made an early return to our bungalow.

During the evening it cleared and we all walked up the Lake road to the vicinity of Wolf's Spring Run, where we found Canadian Warblers in comparative abundance. The natural conditions here are similar to those of Butz Run and support similar bird-types. It was interesting to note the Chewink as a characteristic bird of the open shagnum bogland adjacent to this area, amid conditions so dissimilar to typical Carolinian country.

On the next day Carter slipped out in the early morning without arousing any of us as, if he had something important on his mind, only to return shortly and announce that there was an egg in the Alder Flycatcher's nest. This was a welcome declaration.

Upon leaving the bungalow after breakfast we split forces ; Baily and Hughes going up to Wolf's Spring Run and Carter, Stuart and myself holding Butz Run as our destination. Our purpose was to further examine the supposed nests of the Nashville Warbler, a day having intervened since our initial visit. We were disappointed not to find a single egg in any of the nests ; nor were we able to determine by the actions of the bird anything that would indicate ownership. Both the Nashville Warbler and the Yellow-bellied Flycatcher frequented the areas as before.

Out in the open barrens at the head of Butz Run could be heard the call of the Olive-sided Flycatcher and it was interesting to identify here as well the Alder Flycatcher, which we had associated heretofore only with the borders of the Lake.

Upon our return Carter flushed a Hermit Thrush from its nest, set even with the ground in a bed of Wintergreen.

Baily and Hughes had been more successful; Baily had found another Canadian Warbler's nest with two eggs at Wolf's Spring Run ; Hughes had located a White-throated Sparrow's nest with four eggs and among sphagnum moss a Chewink's nest with young.

In the early afternoon Bailey, Hughes and myself left for home. As we motored from the Camp to the railroad station we noted several old barns where Cliff Swallows had established nesting-sites along the eaves. Forty nests were counted along a single eave.

Carter and Stuart remained two days longer. On the sixteenth, near the head of the Lake, Yellow-bellied Sapsuckers were observed feeding young, which fact establishes the early breeding of this species in the region. Several Bronzed Grackles were seen and the first Veery's nest was found.

On the twenty-sixth of June Stuart and myself returned to the Poconos and spent the day there. Our mission was to collect the nest of the Alder Flycatcher which contained but one egg when Stuart and Carter left on the sixteenth and to inquire further into the nesting habits of the Nashville Warbler.

When we examined the Alder Flycatcher's nest in the early morning, we were dismayed to find that it had been destroyed. Evidently the bird had become aware of its discovery and had done away with it. We hunted the neighboring swamp for a new one, but without success. It was to be regretted that this first record of the nest from Pennsylvania was to be obliterated in this manner.

Yet we hoped for better fortune among our so-called Nashville Warblers' nests in the tamarack swamps of Butz Run. Here, too, disappointment awaited us, for not one of the three nests contained an egg. We were beginning to believe that our trip was to be a fruitless one when Stuart flushed a bird, which he recognized to be a Yellow-bellied Flycatcher, as it paused a moment upon a low shrub before him. At his feet in the side of a raised sphagnum mound reposed its nest. Formed of moss, soft grasses and pine needles, it was a nest well worth the trip to have obtained. It contained four eggs of creamy white with pale cinnamon-brown spots. What was the value of the find? It convinced us that the nests that we had been holding under observation were old or abandoned ones of this species and not of the Nashville Warbler. On this day no Nashville Warblers were heard in either of the two bogs where the nests occurred. The presence of the Yellow-bellied Flycatcher was still marked. Later in the morning we heard two Nashvilles in the open sphagnum moors above Butz Run, which seemed to establish them, as summer residents however, about Pocono Lake. Who will determine their nesting grounds?

The Olive-sided Flycatcher which had been so conspicuous a

bird of this district in the earlier month was no longer to be found. Nests of the Cedarbird and the Black-throated Green Warbler were new ones obtained this day; they had not been secured earlier in the month.

When we returned to Philadelphia, Baily was advised of our finding the nest of the Yellow-bellied Flycatcher. He at once looked up the photographs which he had taken two years before and was convinced that his nest also was that of the Flycatcher and not of the Nashville Warbler as he had assumed. His photographs of the bird upon the nest clearly indicate the pale eye-ring of the Flycatcher and the white upon the wing coverts. It is indeed interesting to note that these pictures had been shown before a convention of the American Ornithologists Union as being of the Nashville Warbler, without arousing any adverse comment. However, it remained for Baily to complete the work of this expedition. On July 17th he again visited the swamp border, where we found and lost the first nest of the Alder Flycatcher. "On July 17th," he writes, "I found a new nest containing three fresh eggs in almost the same spot or within six feet of the former nest; it was well hidden and it was by the luckiest chance that I happened to see it. The bird was not flushed, but was generally heard uttering its short, harsh note at a distance of one hundred to five hundred feet away, giving little clew to the general position of the nest. While I was photographing, the parent bird ventured within fifteen feet of me, yet all the time hidden in the thickets and occasionally uttering an unconcerned low single note. The nest was built of soft, bleached grass, lined with fine thin material. The eggs were rich cream color spotted almost exactly like the Wood Pewee's egg. I think this nest is the first recorded in the State."

On July 19th Baily again visited the tamarack swamps above Butz Run and found another nest of Yellow-bellied Flycatcher with young.

What were the net results of these days spent among Pocono birds? Sixty-eight species had been observed, twenty-seven of which were found nesting; of Canadian forms there were ten, of Transitional three, of forms extending from the Transitional into the Carolinian seven, of species widely spread eight.

Days with the Blue-gray Gnatcatcher and the Prothonotary Warbler

GEORGE H. STUART, 3RD

To ornithologists who have been frequently in the southern Atlantic states these two species—the one sprightly and the other so wonderfully gorgeous—are doubtless very familiar, but as our experience in those regions had been limited to the late autumn, it was with keen expectancy that we headed for one of their most northern habitats on the Atlantic seaboard.

Although in each case the breeding-ground of these birds extends up the Mississippi Valley almost to the river's source and into a portion of southern Ontario, the southern tip of New Jersey and Delaware mark their northern limit east of the Alleghanies.

In the Spring of 1915 Dr. Spencer Trotter and the writer determined, if possible, to locate not only the birds, but their nesting-sites as well. Accordingly in early May we entrained for one of the localities where both varieties had been reported. The country at our destination was flat farm-land for the most part, with scattered woods of pine on the dryer surfaces. The streams which drain this level country naturally broaden into wide swamp areas, which are covered with a heavy forest of deciduous trees and undergrowth—greenbriar, holly and poison-ivy—detering even the most enthusiastic from penetrating many parts of the tangled bogs. But it is here, and particularly about the edges of the small ponds, out of which the silvered skeletons of old trees protrude, and in the little vistas, that one must look for these species.

Taking advantage of the long twilight upon our arrival, we hurried into the nearest woods with the hope of having a glimpse of one of these birds. Entering a thick tangle of green-

briar and grape vines along the edge of a stream which meandered through the deep damp forest, almost tropical in its appearance, the notes of many familiar friends greeted us; White-eyed Vireos, Carolina Wrens, Cardinals, Titmice and Wood Thrushes, perhaps most prominent, in addition to the general list of warblers in the vanguard of migration. Soon there broke forth within a few feet of us the loud call which so much resembles that of the Spotted and Solitary Sandpipers. Thinking that it might be a Prothonotary, we crept carefully around a large gum tree and there on one of the lower branches, peering somewhat in the manner of a vireo, was our bird, the most striking of all the warbler family and of whose praises so much has been written. As the sunset glow through the trees struck his gorgeous yellow plumage, we felt repaid for any effort expended in the search. Mosquitoes soon reminded us that further investigation should be postponed till morning, so we contented ourselves with this glimpse, and dreamed of Gnatcatchers on the morrow.

No one should be indoors after four a. m. on a May morning, and the mosquitoes, in alliance with a nearby Barred Owl, proving effective prompters, all hands were up at the break of day. A magnificent concert was in full career; the cool air, ruffling the surface of a nearby pond, on the margin of which budding willows and willow-oaks gave a charming Corot effect, made one wonder why they should wait till sultry August for a holiday. We were remarkably fortunate on this fine day; for no sooner had we reached the edge of the woods across the stream, where grew tall ash, elm and gums fringing the meadow, than, at the report of a shot, fired at a Redstart high among the branches, we saw the unmistakable form of the little Blue-gray Gnatcatcher flit across an opening in the trees. It was incessantly active for a moment and, following it with glasses, we saw it alight on a small dead branch of an elm directly overhead and settle on its nest, carefully placed near the base of the branch protected from above by a main limb, some thirty-five feet from the ground. Its momentary fright at the shot, so near, had passed away and the bird sat close, showing only its long tail projecting over the deep-rimmed cup covered with lichens.

The appearance of the cock was soon announced by strange high-pitched wiry notes resembling much the cry of some young bird.

The nest, which contained five fresh-laid eggs, was shaped like a high cone, exceedingly deep for its width, the depth within being $1\frac{3}{4}$ inches by $1\frac{1}{2}$ inches, lined with small feathers from some good Plymouth Rock on the nearest farm. It was secured only after considerable maneuvering which required the cutting away and lowering down of a section of the main limb. The eggs, of the customary pale blue, varied considerably in size and shape from pointed to rounded oval, with profuse and lightly spotted specimens. To one interested in bird architecture this small member of the feathered tribe will attract the admirer's attention as can few others, for not even the Humming-bird can excel the ingenuity and beauty of its workmanship. Twice later in the day, although the wind had risen somewhat, we were attracted by the peculiar squeaks of the Gnatcatcher, and observed a male in the tree-tops and closer search would have doubtless revealed the nest.

On three other trips¹ during the season we discovered their homes through having our attention arrested by their feeble cries. All the others contained young—one built in a swamp maple in woods which had been partly cleared, far out on a horizontal branch some fifty or sixty feet up, and another in a yellow birch sapling growing out of the water, in a crotch on the main stem and almost at the top. The parents seemed excellent foragers, returning to their young with food alternately every three or four minutes.

In the same swampy country and always bordering on the water the Prothonotary makes its home. Bearing the distinction of being the only warbler to occupy the interior of an old branch or stub, the bird has many traits to fascinate the observer. The clear loud call, or the beautiful warbled song, resembling that of the Water-Thrush—which, however, we were only fortunate to hear uttered once during all our visits—the ball of gold, as

¹ Mr. Stewardson Brown accompanied the writer on the second expedition, and Mr. Samuel Scovill on the third.

he appears flying across the water from shore to shore just above the Spatter-docks (*Nuphar advena*) seeming as though one of their bright flowers had veritably taken wing, the apparent indifference, with which he regards your presence when you think you must surely be at his front door,—all combine to give a visit to his haunts unusual charm.

Many were the old woodpeckers' borings and rotted knot holes examined, but without result, until in our discouragement we began to realize that the Prothonotary enjoyed a considerable period of freedom before settling down to family cares. Although a second visit some two weeks later rewarded us with a view of mating birds, they would not reveal their nesting site, and it was not until the third trip in June, after a fruitless morning following apparently this will-o-the-wisp, that we finally succeeded in locating a nest. On this occasion another unsuspecting friend volunteered his companionship and was pressed into the service of galley slave in the leakiest home-made batteaux that ever floated, with inverted and very unstable horseshoes for oar-locks.

While drifting idly along, a Prothonotary, which we followed in its flight, went straight to a small hole in a live willow eight feet above the water and disappeared within; presently he reappeared, hesitating at the entrance for a moment, and then flew off again. In a state of ecstasy the faithful slave overcame all obstacles, the tree was reached, and climbing to the nest we found a brood of youngsters probably three days old. The nest, which was in the abandoned cavity of a Downy Woodpecker, placed about four inches below the entrance, was composed of bits of moss and fine strips of bark. The willow was not large and its rather sparse foliage afforded a very light screen, but taking up a comfortable position within four feet of the entrance we awaited developments. The cock soon returned with a small green worm and alighting near at hand, eyed us with interest, but apparently without any nervousness. After some shifting about, including several attempts to reach the hole, during which he could not quite decide to enter before an intruder at such close quarters, he finally braved it, slipped in, fed the youngsters, reappeared at the entrance, looked about him with

perfect composure and flew away for more supplies. Soon he returned with a May-fly, hesitated for a second, then went straight to work and never faltered thereafter during the forty minutes in which we remained glued to the spot, witnesses to the most intimate relations of this fascinating bird and hungry brood and in the closest proximity it has ever been my good fortune to be placed. In that space of time this devoted parent carried in some six or seven worms, two May-flies and a beetle, and twice removed cases of excrement as he came out. The hen at first did not appear, and when she did with a worm, exhibited much excitement, and although she made several advances toward the nest, her courage failed and she would shy off, uttering constant chipping notes of alarm. Her actions in no wise daunted the brave little cock, who continued about his duties unflinchingly. It seemed extraordinary that courage inspired by parental devotion should have been thus shown so much more strongly in the male than in the female, from whom it naturally would be expected.

Once while thus posted in the willows, a Yellow-throated Vireo lit almost on my shoulder, and his surprise at meeting us in such a sequestered spot and his subsequent panic were most amusing, for it was not long before he concluded that it was wiser to put more space between us.

Passing on in a further search amongst the willows, our attention was attracted to a movement in the crevice of a dead stub which projected from a live tree. Within the tiny hole fifteen inches above the water, something like a mouse seemed to be revolving. It proved to be the tail of a bird, and presently the head of the owner appeared and out popped a female Prothonotary to our profound astonishment. Within was a nest carefully built of moss, bark strippings and grasses about ready to receive the eggs. After a wait of two or three minutes, the bird returned with a small piece of grass, which she carried in, performing again the same revolving antics. Here at last was the prospective chance of finding a nest of eggs, but it involved another expedition, so we withdrew and reflected with satisfaction upon the experience of the day. It had indeed been one of ample reward and one not to be forgotten or soon repeated.

Notwithstanding that this last discovery provided a more definite attraction than at any time previously, no one could be found to reinlist, and when our host, a patient man, who had controlled his feelings during these several descents upon him, heard that another was proposed, his curiosity gained the upper hand and he modestly inquired if the purchase of his farm was contemplated.

Much as the writer shrank from the trip alone, the previous difficulties in finding the eggs emphasized the wisdom of following up this opportunity. Accordingly on June 19th, although the real-estate transaction was not concluded, he had the satisfaction of seeing four rather round glossy white eggs, heavily marked with lavender, in the crevice of the little stub.

Egg and Nestling Destruction

BY JULIAN K. POTTER

FOR several years past I have been interested in gathering data with the view of determining approximately the number of nests destroyed, before they ever fulfil their mission—that of keeping the young and eggs in safety until the young reach the fledgling stage of their existence. How often have we in visiting a nest found its contents missing or the nest destroyed! So often indeed that we are led to believe that the majority of nests never fulfil their mission.

The ground covered in this report lies almost entirely within one mile of the limits of Camden, New Jersey, a city of 100,000 inhabitants, and receives no protection whatever, not even a "No Trespass" sign being in evidence. Of course it was impossible to keep track of every nest found and those tabulated are by no means all that were discovered, but refer to those that were actually known to have fulfilled their office or to have failed. Any nest that there was any doubt about was cast off the list. For this reason, no doubt, the list of percentages is somewhat inaccurate and also because too few nests of some species were examined. Nevertheless some interesting facts were brought to light. Investigations were made during the years 1912-13-14-15.

From the table it may be seen, as one would naturally expect, the hollow-tree dwellers show the highest percentage of successes (82%). This is followed by the ground nesters, successes (51%), with the tree and bush dwellers coming last with the lowest percentage of successes (43%). The trees in which the woodpeckers and Starlings had their nests were almost without exception quite high and out of reach of human interference. This accounts to a great extent for the very high average of these birds.

	No. examined.	No. destroyed.	No. raised.	Cause of destruction.						% Successful.
				Man.	Cats.	Sparrows.	Starlings.	Storm.	Unknown.	
Spotted Sandpiper	19	8	11	6	..	..	..	2	..	57+
Killdeer	4	2	2	1	..	..	..	..	1	50
Hairy Woodpecker.	3	..	3	..	..	..	..	..	..	100
Downy Woodpecker	3	..	3	..	..	..	..	..	..	100
Red-headed Woodpecker.	3	..	3	..	..	..	..	..	..	100
Flicker.	9	3	6	1	..	..	2	..	..	66+
Crow.	4	1	3	1	..	..	..	..	..	75
Starling	15	1	14	..	..	..	..	1	..	93+
Chipping Sparrow	4	1	3	..	..	..	..	1	..	75
Song Sparrow ¹	4	3	1	..	..	..	..	2	2	25
Cardinal	8	5	3	2	1 ?	..	..	..	1	37+
Rough-winged Swallow.	2	2	..	2	..	..	..	..	..	..
Brown Thrasher	5	2	3	1	..	..	..	..	1	60
House Wren.	4	..	4	..	..	..	..	..	..	100
Tufted Titmouse.	3	2	1	..	2 ?	..	..	..	..	33+
Wood Thrush	3	2	1	..	..	..	..	..	2	33
Robin.	15	11	4	4	..	4	..	..	3	26+
Bluebird	5	2 ²	3	..	..	1	..	..	..	60
Totals	113	45	68	18	3 ?	5	2	6	10	60 ¹

The Spotted Sandpipers were very closely watched for three seasons, 1913-14-15. During 1913-14 only one failure was noted and this was due to the nest being flooded. During 1915 a professional egger discovered the whereabouts of the sandpipers, and six out of nine of the nests were robbed of their contents. Of the remaining three one was flooded. It will be of interest to note whether the birds will be as common next spring as usual in this particular locality or not.

While investigating the homes of the Flickers which came to my notice, I was rather surprised to discover that their large broods of five to seven usually dwindled to three or four by the time they are ready to leave the nest, two or three in each brood dying for some unexplainable reason.

¹ A similar record taken several years ago of a larger number of nests of this bird showed only 10% successful.

² Flickers destroyed one.

Five instances were noted in which not only the contents of the nest were destroyed, but also the brooding bird. A Cardinal's nest was discovered one morning with the tail and wing feathers of the female bird scattered over the top of the eggs. In like manner a brooding Song Sparrow suffered the same fate. An owl might have been responsible for these two tragedies. A Rough-winged Swallow built a nest in a pipe leading into a stone wall. A boy came along and, seeing the hole, threw a large-sized stone in the entrance preventing the escape of the bird. A few days later a very much bedraggled swallow was removed from the nest and soon died.

In 1913 two Crested Tits' nests were found, the only ones probably in the neighborhood canvassed. Both of these nests together with the mother birds were destroyed, I think by cats. The male birds promptly left the locality and not a Tufted Titmouse have I seen in that particular woods since, showing how easily a species may be exterminated over a certain area. Will this species ever work back? Probably not, for the tendency of nearly all forms of bird-life about a city, is to contract and decrease.

Attention is called to the large numbers of Robins' nests destroyed by sparrows. These nests were all built in tall trees in close proximity to the city, where sparrows are very abundant. The Robin's nest forms an excellent foundation for the bulky sparrow's nest and they seem to neglect no opportunity to take advantage of it. The Robin seems totally unable to cope with the situation. I knew of a pair of Robins that built three nests last spring among the trees in a little city park and as fast as they were built, they were ceded to the sparrows, the Robins not being allowed to raise a single young. I have no doubt that the Robin would inhabit all parts of the city where there are tall trees, if it were not for the sparrow pest.

The Robin and Song Sparrow with one exception, exhibit the smallest number of successes, yet these are the two most numerous native birds inhabiting the locality under observation. The remarkable fecundity of these two species is probably the factor which must be considered in searching for an explanation of this peculiar situation.

Mortality among Birds at Philadelphia, May 21-22, 1915

BY DELOS E. CULVER

ABOUT 10 a. m., May 22d, 1915, there was received, at the Academy of Natural Sciences, Philadelphia, a call from the "Evening Bulletin" of that city for aid in the identification of a small "yellow and green" bird which had been picked up in the court yard of the City Hall.

From this it was learned that hundreds of birds were lying about on the ledges surrounding the Public Buildings and City Hall Tower. Immediately upon receiving this information, I, accompanied by a "Bulletin" photographer, hurried to the scene, and the mortality, when ascertained, was really appalling.

Upon reaching the court-yard the areaways were first examined. Looking down into them, we found that although very few dead specimens were visible (most having been gathered by employees), there were many living birds continually flying up and down the full length of the areaways, apparently having lost all sense of direction. Maryland Yellow-throats were in evidence everywhere. Every areaway was full of fluttering birds of this species, and it was among them that the greatest mortality occurred.

Upon entering the areaways from below, the following species were identified: Maryland Yellow-throat, Parula Warbler, Redstart, Red-eyed Vireo, Chewink, Long-billed Marsh-Wren, Water-Thrush, Black-throated Blue, and Black-poll Warblers. Of the Vireo, Chewink and Wren but single specimens were observed. The former was caught alive and later liberated in the country, making little or no effort to escape when approached. The Wren was the most active of the three, while the Chewink, apparently hungry, was continually picking

at dirt particles and other minute objects in search of something to eat.

After making the above notes, we proceeded to the roofs for further examinations, and here the conditions proved even more pitiful than those below. Dead birds lay everywhere, while others, seemingly bewildered, flitted about on the ledges of the building, apparently too weak to resume their weary journey, or, as before stated, had lost all sense of direction. If such was not the case, the birds were certainly on the point of exhaustion, otherwise one cannot conceive anything to prevent them from resuming their northward journey from these upper ledges, high above the city, its noise and confusion.

The birds in the areaways acted in the same way. When we entered from below they immediately flew to the top and alighted on the surrounding railings; but when we withdrew, the birds, instead of flying up to the roof and continuing their journey, immediately flew back down into the pits, which were sooner or later to be their tombs, apparently frightened by the crowds and continuous bustle. Most of these birds seemed very much exhausted, but were quite able to fly continually back and forth the full length of the areaways.

After about an hour and a half, spent in gathering up specimens, and in identifying them, I was able to prepare the following list:—

- | | |
|---|--|
| 1. Chewink, 1 ♀. (Alive). | 11. Magnolia Warbler, 4. |
| 2. Indigo Bunting, 1 ♀. | 12. Black-poll Warbler, 28. |
| 3. Maryland Yellow-throat.
130, (three-fourths ♀'s). | 13. Black - and - white Warbler, 6. |
| 4. Parula Warbler, 60. | 14. Chestnut-sided Warbler, 2. |
| 5. Canada Warbler, 2. | 15. Oven-bird, 21. |
| 6. Water-Thrush, 7, | 16. Red-eyed Vireo, 2. |
| 7. Bay-breasted Warbler, 6. | 17. English Sparrow, 1. |
| 8. Black-throated Blue Warbler, 15. (13 ♀'s.) | Ad. ♂ |
| 9. Yellow Warbler, 1 ♀. | 18. Scarlet Tanager, 1. Ad. ♂ |
| 10. Redstart, 35 (32 ♀'s.) | 19. Long-billed Marsh Wren,
1. (Alive). |

And now let us consider some of the most interesting points in the case; i. e. the cause of such an appalling destruction. Following an unusual cool period of weather for the month of May, on the 21st considerable moderation took place, and about 10 p. m. rain began falling. Prior to the rain quite a heavy mist hung about the city, but was later cleared away by the falling rain. By midnight and in the early morning hours the rain had turned to a thunderstorm with a terrific downpour, which continued well into the morning. Various data were collected regarding weather conditions and the facts seem to indicate, that in the vicinity of Philadelphia prior to the storm quite a heavy mist or even fog prevailed; but as above stated, was later cleared away by the falling rain. Employees at the City Hall, between 11 p. m. and midnight, report having heard great quantities of birds passing over, continually chirping. "A heavy rain", they said, "was falling all the time, but neither wind nor fog was in evidence."

Although many of the birds became exhausted from continuous fluttering about the lights and later succumbed to exposure, the greater number of the hundreds of lives lost were caused by coming in contact with hard structures, as the fractured limbs, bruised bodies, indented and blood-clotted skulls proved, when examinations were made after skinning the specimens.

As shown by the above list, Maryland Yellow-throats suffered the greatest mortality. The one hundred and thirty specimens of this species gathered does not in the slightest represent the probable hundreds of individuals that lost their lives. Dead Yellow-throats lay on every roof and ledge visible, while this species occurred in the greatest numbers flying up and down the areaways. Some ten days later individuals (females) of this species were still seen flitting about the courtyard.

Next to the Yellow-throat the Parula Warbler was found in the greatest abundance, and this beautiful species doubtless also suffered appalling destruction. Of the Myrtle Warblers not a single specimen was found, although the species was at the time quite common throughout the country. This seems of rather special interest.

Turning now from the number of individuals and species to the sex, we find that practically three-fourths, if not more, of the birds found were females. Of the sixty Parula Warblers examined, I cannot recall a single adult male specimen. In explanation of the above facts we can only refer to the late date of the occurrence. As in practically all species the males arrive some time in advance of the females, and this, being in all probability one of the last migratory "waves" of the season, was composed almost entirely of the latter sex.

We must however bear in mind that this was but one immediate locality, and when we consider the number of towers, and equally as tall buildings through the city, we realize that the loss of life must have been tremendous, and can certainly not help but have a noticeable effect upon bird-life at one locality or another.

Although a few birds are picked up every year about the City Hall, from information gained from employees, August 28, 1905 marked the last slaughter in anyway comparable to the one cited above, and this like most others, occurred in the late summer or early autumn.

As before stated the greater number of birds were killed by striking hard structures, and it is the writer's opinion that the birds, being forced to migrate low on account of the storm, were attracted by the bright lights, and apparently misconceiving them to be suspended in midair, attempted to fly past just above or below the center of illumination, and therefore struck the darker portions of the tower, which were unilluminated.

Since the above occurrence many others birds have lost their lives by striking the City Hall Tower, and under conditions that appear puzzling, when we consider the theories that were formerly advanced. On the morning of September 28th, 1915 an adult Flicker was picked up in the courtyard after an absolutely clear night, during which a bright moon was shining. Although not indented, the skull showed heavy blood clots, indicating a severe blow against some hard structure.

Again on October 17th-18th 1915 another migratory "wave" passed over the city and many more birds struck the towers, as a result of apparently unknown reasons. The night was abso-

lutely clear, with a bright moon shining until daybreak. A very light fog became evident towards morning, but was hardly responsible for the loss of life that occurred. Personal examination of the roofs and ledges in this case was not made by the writer. Twenty-nine specimens however were kindly presented to him by an employee at the City Hall, and the data connected with them are as follows :-

Twenty-nine Specimens. Twelve Species ; arranged in the order of their greatest abundance.

Myrtle Warbler.	Black-throated Green Warbler, 1.
Maryland Yellow-throat.	Water-Thrush, 1.
Parula Warbler.	Chipping Sparrow, 1.
Yellow Palm Warbler, 2.	Solitary Vireo, 1.
Oven-bird, 2.	Ruby-crowned Kinglet, 1.
Palm Warbler, 1.	
Pine Warbler, 1.	

Bird Notes

RECORDS OF UNUSUAL OCCURRENCES FOR 1915¹

- American Scoter. Fish House, N. J. (Potter) Oct. 17.
King Rail (Nest). Cape May, N. J. (Hand) May 23.
Black Rail. Stone Harbor, N. J. (Miller) May 30.
Pectoral Sandpiper. Camden, N. J. (Potter) Nov. 8.
White-rumped Sandpiper. Camden, N. J. (Potter) May
19, 1913.
Willet. Seaside Park, N. J. (Potter) Aug. 23, 1914.
Piping Plover. Cape May, N. J. (Culver) Sept. 2.
Turkey Vulture (Nest). Buckingham Mt., Pa. (McReynolds).
Yellow-bellied Flycatcher :
 (Nest²) Pocono Lake, Pa. (Stuart) June 26.
 (Nest²) Pocono Lake, Pa. (Baily) July 19.
Alder Flycatcher :
 (Nest²) Pocono Lake, Pa. (Carter) June 12.
 (Nest²) Pocono Lake, Pa. (Baily) July 17.
Henslow's Sparrow. Sussex, N. J. (Rhoads and Moore)
July 9.
Henslow's Sparrow (Nest). New Lisbon, N. J. (Stuart)
May 30.
Hybrid Warbler.³ Sussex, N. J. (Moore) July 8.
Tennessee Warbler. Ardmore, Pa. (Baily) May 18.
Palm Warbler.⁴ Philadelphia. (Culver) Oct. 17.
Palm Warbler. Philadelphia. (Baily) Oct. 25.
Mourning Warbler. Swarthmore, Pa. (Palmer) June 4.
Mockingbird. Westtown, Pa. (Morris) Wintering.
Mockingbird (Nest). Westgrove, Pa. (Roberts) June 25.
Thrasher. Cape May, N. J. (Hand) 12/9/14 and 2/3/15.

¹These records are unusual either on account of locality or date. For details, unless noted below as recorded elsewhere, see Migration Report.

²See second article of this issue, entitled "Nesting Birds of Pocono Lake."

³See "Auk," April 1916.

⁴See page 37 of this issue.

Report on the Spring Migration of 1915

COMPILED BY WITMER STONE

REPORTS were returned this season by 53 observers and showed a higher average of excellence than for many years past. The D. V. O. C. Committee on Migration extends thanks to the corps of observers and encouragement to continue the valuable work in which many of them have been engaged now for ten years or more. Information and blank schedules may be obtained at any time from Dr. Witmer Stone, Academy of Natural Sciences of Philadelphia, Logan Square. Attention is particularly called to the "Suggestions for Observers" published in last year's report, which every observer should read carefully and follow.

Observers for the Spring of 1915 were as follows :

New Jersey

Cape May, H. W. Hand.	Moorestown, Mrs. V. Wier-
Atlantic City, Mrs. N. S. Cromie.	man.
Salem, Mrs. H. S. Foster.	Rancocas, Miss E. Haines.
Vineland, Mrs. A. K. Prince.	Mount Holly, N. D. W. Pumyea.
Downstown, W. W. Fair.	Beverley, D. G. Baird.
Laurel Springs, Miss C. E. Tomlinson.	Bordentown, Miss M. V. Flynn.
Camden, J. K. Potter.	Yardville, Miss R. E. Allinson.
Audubon, J. W. Tatum.	Allentown, Miss M. E. Gordon.
Haddonfield, R. T. Moore.	Bernardsville, J. D. Kuser.
Moorestown, A. A. Mickle.	

Pennsylvania

Concordville, Mrs. K. R. Bryn Mawr, Miss E. H. Styer, Miss E. P. Styer.	Thomas.
Media, L. Omensetter.	Rosemont, S. Scoville Jr.
Media, J. P. Moore.	Wayne, Mrs. M. V. Alexander.
Media, Miss L. G. Allen.	Wayne, Miss M. K. Baker.
Swarthmore, Dr. S. C. Palmer.	Westtown, W. B. Evans, C. Jones.
Swarthmore, H. M. Harrower.	West Chester, R. P. Sharples.
Swarthmore, P. E. Howard, Jr.	West Chester, I. G. Roberts.
Ridley Park, R. L. Lloyd.	West Chester, Miss S. C. De Haven.
Ridley Park, C. V. Gross.	Newtown, Rev. A. Patman.
Ridley Park, Wm. J. Myatt.	Newtown, Miss M. Packer.
Addingham, D. E. Culver.	Doylestown, G. MacReynolds.
Lansdowne, J. D. Carter.	Mozart, M. Slack and H. A. Rand.
Norwood, J. E. Packer.	Forest Grove, Miss A. K. Bewley.
Germantown, S. Mason, Jr.	Buckingham, Miss E. C. Cox.
Chestnut Hill, W. H. Trotter.	Lopez, O. Behr.
Frankford, R. F. Miller.	
Ardmore, W. L. Baily.	
Haverford, W. J. Serill.	
Haverford, G. H. Hallett, Jr.	

The open winter during January and February rendered an early movement of the first migrants possible, and Bluebirds and Purple Grackles were twelve days earlier than in 1914. High temperature April 19-20 and 24-27 was accompanied by a very heavy flight, and many species arriving about the end of April, were earlier than normal this year. Variable weather in May, with much rain, caused considerable irregularity among the late arrivals and concentrated movements on certain favorable days.

NAME.	Rancocas, N. J. N. 4; E. 16.	Moorestown, N. J. N. 1; E. 12.	Camden, N. J. N. 0; E. 2.	Audubon, N. J. S. 4; E. 5.	Haddonfield, N. J. S. 4; E. 7.	Media, Pa. S. 2; W. 12.	Swarthmore, Pa. S. 3; W. 10.	Norwood, Pa. S. 4; W. 7.	Ridley Park, Pa. S. 9; W. 5.	Lansdowne, Pa. S. 1; W. 6.	Addingham, Pa. S. 1; W. 8.	Ardmore and Haverford, Pa. N. 4; W. 8.	Bryn Mawr and Rosemont, Pa. N. 4; W. 9.	Wayne, Pa. N. 6; W. 11.	Frankford, Phila. N. 5; E. 5.	Germantown, Phila. N. 6; W. 1.	Chestnut Hill, Phila. N. 8; W. 1.
Canada Goose	May 7	May 7	May 7	Apr. 25	Apr. 25	Apr. 30	May 2	May 2	May 2	May 2	May 8	Apr. 10	May 9	May 17	Apr. 24	May 3	May 1
Green Heron	May 7	May 8	May 8	Apr. 25	Apr. 25	May 27	May 9	May 9	May 13	May 13	May 13	Apr. 24	May 16	May 12	May 10	May 10	May 10
Spotted Sandpiper	May 7	May 2	May 2	Apr. 25	Apr. 25	May 9	May 20	May 2	May 6	May 6	May 6	Apr. 24	May 2	May 12	May 10	May 3	May 1
Solitary Sandpiper	May 7	May 2	May 2	Apr. 25	Apr. 25	May 9	May 20	May 2	May 6	May 6	May 6	Apr. 24	May 2	May 12	May 10	May 3	May 1
Killdeer	Feb. 8	Mar. 14	Mar. 7	Mar. 14	Mar. 27	Mar. 17	Mar. 14	Mar. 14	May 2	May 2	May 2	Mar. 24	Apr. 11	Apr. 6	Apr. 6	Apr. 6	Apr. 6
Dove	Apr. 7	Apr. 8	Mar. 18	Apr. 10	Mar. 28	Mar. 20	Mar. 15	Mar. 21	Mar. 21	Apr. 9	Res.	Mar. 7	Mar. 12	May 31	Apr. 1	Apr. 1	Apr. 1
Osprey	Apr. 20	Apr. 20	May 9	Apr. 17	Apr. 6	Apr. 6	Apr. 6	Apr. 6	Apr. 17	Apr. 17	Apr. 18	Apr. 18	Apr. 18	Apr. 17	Apr. 20	Apr. 20	Apr. 20
Turkey Vulture	Mar. 3	May 8	May 8	Feb. 16	Feb. 16	Feb. 28	Feb. 22	Mar. 8	Apr. 17	May 9	May 9	Feb. 22	Feb. 14	Mar. 12	Apr. 17	Apr. 17	Mar. 21
Yellow-billed Cuckoo	May 12	May 8	May 8	May 13	May 13	May 22	May 9	May 9	May 9	May 29	May 29	May 23	May 16	May 13	May 11	May 11	Mar. 21
Black-billed Cuckoo	Apr. 7	Apr. 7	Apr. 7	Apr. 10	Apr. 10	Apr. 12	Apr. 18	Apr. 18	Mar. 17	Apr. 9	Apr. 9	Apr. 11	Apr. 11	Apr. 17	Apr. 17	Apr. 10	Apr. 10
Kingfisher	Apr. 7	Apr. 7	Apr. 7	Apr. 10	Apr. 10	Apr. 12	Apr. 18	Apr. 18	Mar. 17	Apr. 9	Apr. 9	Apr. 11	Apr. 11	Apr. 17	Apr. 17	Apr. 10	Apr. 10
Yellow-bellied Sapsucker	Apr. 7	Apr. 7	Apr. 7	Apr. 10	Apr. 10	Apr. 12	Apr. 18	Apr. 18	Mar. 17	Apr. 9	Apr. 9	Apr. 11	Apr. 11	Apr. 17	Apr. 17	Apr. 10	Apr. 10
Red-headed Woodpecker	Apr. 7	Apr. 7	Apr. 7	Apr. 10	Apr. 10	Apr. 12	Apr. 18	Apr. 18	Mar. 17	Apr. 9	Apr. 9	Apr. 11	Apr. 11	Apr. 17	Apr. 17	Apr. 10	Apr. 10
Flicker	Apr. 7	Apr. 1	Apr. 7	Apr. 10	Mar. 4	Mar. 1	Mar. 19	Mar. 19	Feb. 22	Mar. 14	Mar. 14	Mar. 19	Mar. 12	Apr. 8	Mar. 16	Apr. 7	Apr. 7
Whip-poor-will	Apr. 28	Apr. 28	Apr. 28	Apr. 10	Apr. 10	Apr. 28	May 8	May 8	Feb. 22	Mar. 14	Mar. 14	Mar. 19	Mar. 12	Apr. 8	Mar. 16	Apr. 7	Apr. 7
Nighthawk	Apr. 28	Apr. 28	Apr. 28	Apr. 10	Apr. 10	Apr. 28	May 8	May 8	Feb. 22	Mar. 14	Mar. 14	Mar. 19	Mar. 12	Apr. 8	Mar. 16	Apr. 7	Apr. 7
Chimney Swift	Apr. 23	Apr. 20	Apr. 22	Apr. 24	Apr. 24	Apr. 19	Apr. 15	Apr. 18	Apr. 20	Apr. 19	Apr. 19	Apr. 22	Apr. 23	May 23	Apr. 22	Apr. 24	Apr. 24
Hummingbird	May 11	May 9	May 23	May 23	May 23	May 17	May 5	May 5	May 30	Apr. 20	Apr. 20	Apr. 22	Apr. 23	May 15	Apr. 21	Apr. 30	Apr. 30
Kingbird	May 14	May 8	May 7	Apr. 25	Apr. 25	May 4	May 25	May 2	May 8	May 2	May 2	Apr. 27	Apr. 5	May 19	Apr. 30	May 9	May 9
Crested Flycatcher	Apr. 30	May 8	May 2	May 7	May 6	May 5	May 5	Apr. 28	May 8	May 2	May 2	Apr. 30	Apr. 30	May 11	May 10	May 1	May 7
Phoebe	Apr. 4	Apr. 4	Apr. 4	Apr. 10	Apr. 10	Mar. 12	Apr. 2	Mar. 21	Feb. 28	Mar. 20	Mar. 20	Mar. 28	Mar. 12	Apr. 17	Apr. 7	Apr. 10	Mar. 22

NAME.	Ranocosa, N. J.	Moorestown, N. J.	Camden, N. J.	Audubon, N. J.	Haddonfield, N. J.	Media, Pa.	Swarthmore, Pa.	Norwood, Pa.	Ridley Park, Pa.	Lansdowne, Pa.	Addingham, Pa.	Armore and Havertford, Pa.	Byn Mavr and Rosemont, Pa.	Wayne, Pa.	Frankford, Phila.	Germanstown, Phila.	Chestnut Hill, Phila.
Wood Pewee	May 20	May 14	May 15	May 18	May 11	May 6	May 10	May 9	May 2	May 15	Mar. 14	May 16	May 4	May 7	May 19	May 17	May 19
Acadian Flycatcher	May 20	May 8	May 25	May 18	May 11	May 3	May 3	May 3	May 3	May 8	May 20	May 12	May 23	May 3	May 18	May 17	May 19
Least Flycatcher	May 20	May 8	May 25	May 18	May 11	May 3	May 3	May 3	May 3	May 8	May 20	May 12	May 23	May 3	May 18	May 17	May 19
Bobolink	May 20	May 8	May 25	May 18	May 11	May 3	May 3	May 3	May 3	May 8	May 20	May 12	May 23	May 3	May 18	May 17	May 19
Cowbird	May 20	May 8	May 25	May 18	May 11	May 3	May 3	May 3	May 3	May 8	May 20	May 12	May 23	May 3	May 18	May 17	May 19
Red-winged Blackbird	Mar. 11	Mar. 14	May 20	Feb. 22	Mar. 4	Mar. 10	Feb. 22	Apr. 10	Apr. 11	Apr. 9	Mar. 14	Mar. 25	Mar. 20	May 1	Mar. 19	Apr. 20	Apr. 20
Meadowlark	Res.	Res.	Res.	Feb. 14	May 2	Mar. 10	Feb. 22	Apr. 10	Apr. 11	Apr. 9	Mar. 14	Mar. 25	Mar. 20	May 1	Mar. 19	Apr. 20	Apr. 20
Orchard Oriole	May 1	May 4	May 7	May 9	May 9	Apr. 29	May 8	Res.	Feb. 7	May 15	Res.	Jan. 8	Feb. 26	Res.	Mar. 16	Mar. 2	Mar. 2
Baltimore Oriole	May 7	May 1	May 4	May 7	May 7	May 2	May 2	Apr. 30	May 9	May 5	Mar. 2	May 7	May 4	May 3	May 11	May 5	May 5
Rusty Blackbird	May 8	May 8	Apr. 4	May 7	May 7	May 2	May 2	Apr. 30	May 9	May 5	Mar. 2	May 7	May 4	May 3	May 11	May 5	May 5
Purple Grackle	Feb. 16	Feb. 20	Mar. 10	Feb. 22	Feb. 16	Feb. 23	Feb. 13	Feb. 22	Feb. 20	Feb. 16	Feb. 22	Feb. 14	Feb. 14	Feb. 21	Feb. 22	Feb. 16	Feb. 22
Vesper Sparrow	Apr. 7	Apr. 10	Apr. 11	Apr. 10	Apr. 10	Apr. 19	Mar. 31	Apr. 10	Apr. 10	Apr. 10	Apr. 17	Mar. 21	Apr. 11	Apr. 11	Apr. 13	Apr. 18	Apr. 18
Savannah Sparrow	May 1	May 1	Apr. 11	Apr. 10	Apr. 10	Apr. 10	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 17	Mar. 21	Apr. 11	Apr. 11	Apr. 13	Apr. 18	Apr. 18
Grasshopper Sparrow	May 1	May 1	Apr. 11	Apr. 10	Apr. 10	Apr. 10	Apr. 18	Apr. 18	Apr. 18	Apr. 18	Apr. 17	Mar. 21	Apr. 11	Apr. 11	Apr. 13	Apr. 18	Apr. 18
Chipping Sparrow	Apr. 10	Apr. 9	Apr. 11	Apr. 10	Apr. 10	Apr. 12	Apr. 9	Apr. 10	Apr. 10	Apr. 10	Apr. 11	Apr. 9	Apr. 11	Apr. 14	Apr. 10	Apr. 17	Apr. 10
Field Sparrow	Apr. 7	Apr. 7	Mar. 14	Res.	Apr. 10	Apr. 12	Apr. 9	Apr. 10	Apr. 10	Apr. 10	Apr. 11	Apr. 9	Apr. 11	Apr. 14	Apr. 10	Apr. 17	Apr. 10
Swamp Sparrow	May 2	May 8	Apr. 4	Apr. 4	Apr. 4	Mar. 31	Mar. 20	Mar. 14	Mar. 14	Mar. 21	Res.	Mar. 21	Apr. 11	Apr. 15	Mar. 18	May 1	Mar. 14
Fox Sparrow	Apr. 24	Apr. 24	Feb. 28	Mar. 14	Apr. 4	Mar. 17	Feb. 23	Mar. 14	Apr. 5	Mar. 13	May 2	Apr. 28	Apr. 18	Apr. 15	Apr. 18	May 8	Mar. 14
Cheewink	Apr. 24	Apr. 24	Feb. 28	Mar. 14	Apr. 4	Mar. 17	Feb. 23	Mar. 14	Apr. 5	Mar. 13	May 2	Apr. 28	Apr. 18	Apr. 15	Apr. 18	May 8	Mar. 14
Rose-breasted Grosbeak	May 7	Apr. 30	May 4	Apr. 10	May 9	Apr. 10	Apr. 16	Apr. 2	Apr. 25	Apr. 26	Apr. 11	Apr. 14	Apr. 12	Apr. 24	Apr. 20	Apr. 28	Apr. 28
Indigobird	Apr. 28	May 8	May 4	May 9	May 9	May 4	May 4	May 7	May 9	May 11	May 16	May 2	May 9	May 2	Apr. 27	May 8	May 8
Scarlet Tanager	May 7	May 9	May 9	May 9	May 9	May 5	Apr. 30	May 8	May 9	May 11	May 16	May 2	May 9	May 14	May 6	May 6	May 11
Purple Martin	Apr. 9	Apr. 9	Apr. 24	Apr. 4	Apr. 4	Apr. 5	Apr. 29	May 2	May 9	May 6	May 1	Apr. 30	May 3	May 7	Apr. 30	May 1	May 7

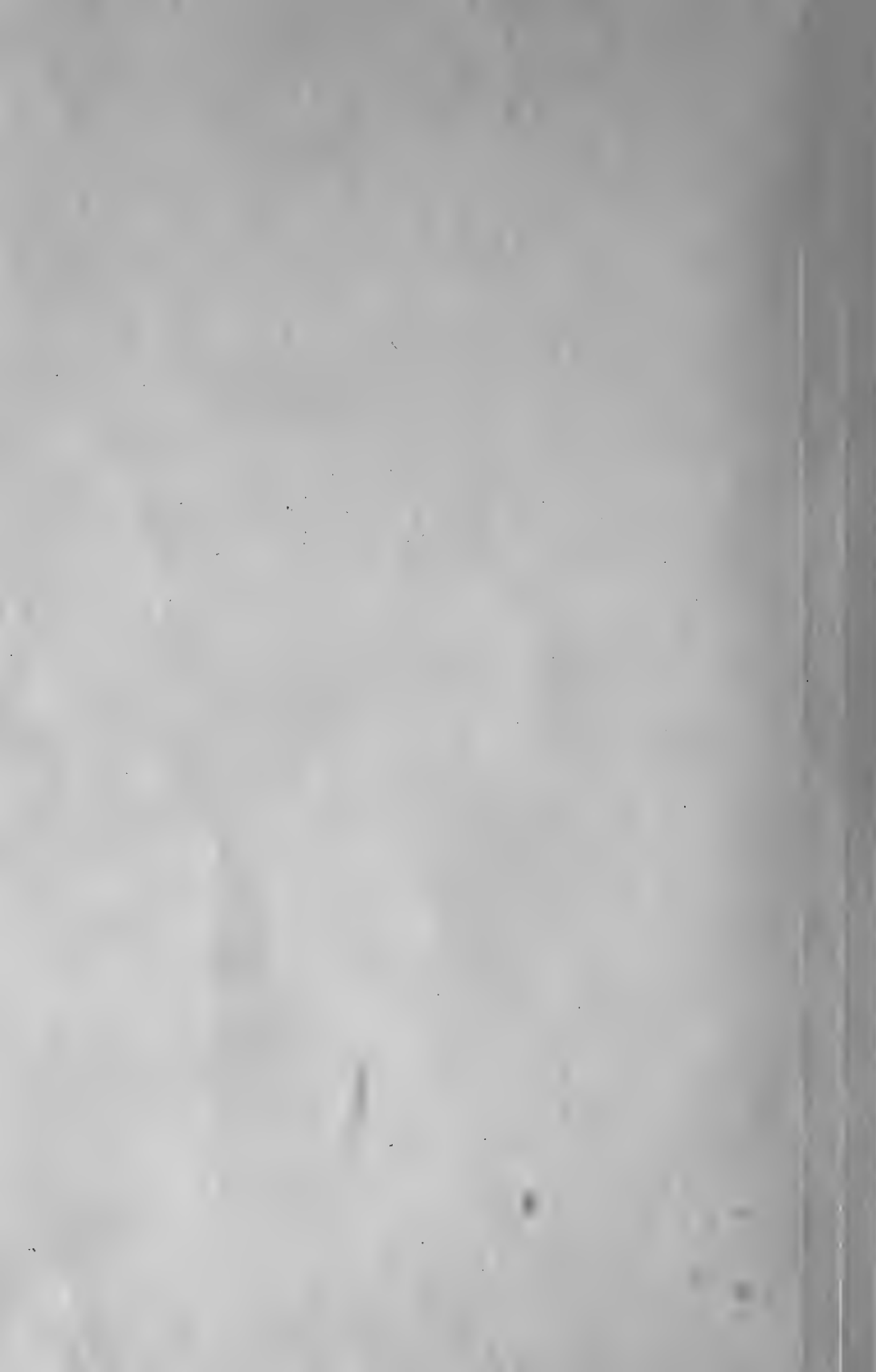
NAME.	Ranocas, N. J.	Moorestown, N. J.	Camden, N. J.	Audubon, N. J.	Haddonfield, N. J.	Media, Pa.	Swarthmore, Pa.	Norwood, Pa.	Ridley Park, Pa.	Lansdowne, Pa.	Addingham, Pa.	Ardmore and Havertford, Pa.	Bryn Mawr and Rosemont, Pa.	Wayne, Pa.	Frankford, Phila.	Germantown, Phila.	Chestnut Hill, Phila.
Chiff Swallow	Apr. 23	Apr. 27	May 2	Apr. 17	Apr. 17	Apr. 26	Apr. 16	Apr. 18	Apr. 20	Apr. 24	Apr. 29	Apr. 24	Apr. 17	May 1	Apr. 27	Apr. 30	Apr. 23
Barn Swallow	Apr. 29	Apr. 20	Apr. 25	Apr. 17	Apr. 17	May 9	Apr. 16	Apr. 18	Apr. 20	Apr. 24	Apr. 29	Apr. 20	Apr. 17	May 13	Apr. 27	Apr. 30	Apr. 23
Tree Swallow	Apr. 29	Apr. 20	Apr. 25	Apr. 17	Apr. 17	May 9	Apr. 16	Apr. 18	Apr. 20	Apr. 24	Apr. 29	Apr. 20	Apr. 17	May 13	Apr. 27	Apr. 30	Apr. 23
Bank Swallow			Apr. 30	Apr. 10			Apr. 25	Apr. 18	May 2	Apr. 24	May 2	May 2	May 2	May 2	May 3	May 3	
Rough-winged Swallow			May 8				Apr. 25	Apr. 18	May 2	Apr. 24	May 2	May 2	May 2	May 2	Apr. 27	Apr. 27	
Cedarbird			Apr. 12	Apr. 17			Apr. 25	Apr. 17	Mar. 23	Apr. 8	Apr. 8	Mar. 19	Mar. 18	May 2	Apr. 27	Apr. 27	
Red-eyed Vireo	May 7	May 8	May 7	May 7	May 11	May 7	May 6	May 2	May 23	Apr. 30	May 6	May 5	May 2	May 11	May 10	May 11	May 9
Warbling Vireo	May 2	May 2	May 2	May 9			May 25	May 2		Apr. 30	May 6	Apr. 30	May 9	May 9	May 9	May 9	May 9
Yellow-throated Vireo	May 8	May 8	May 28	May 9			May 8	May 2		Apr. 30	May 6	Apr. 30	May 9	May 14	May 14	May 14	May 11
Solitary Vireo	May 8	May 8	May 28	May 9			May 8	May 2		Apr. 30	May 6	Apr. 30	May 9	May 14	May 14	May 14	May 11
White-eyed Vireo	May 2	May 8	May 8	May 9			May 2	Apr. 26	Apr. 26	May 13	May 9	Apr. 27	Apr. 27	Apr. 27	Apr. 27	Apr. 27	May 8
Black and White Warbler	Apr. 27	Apr. 25	Apr. 25	Apr. 25			Apr. 26	Apr. 26	Apr. 17	Apr. 27	May 9	Apr. 27	Apr. 27	Apr. 27	Apr. 27	Apr. 29	May 8
Worm-eating Warbler	May 23	May 9	May 9				Apr. 30	Apr. 26	Apr. 17	Apr. 27	May 9	Apr. 27	Apr. 27	Apr. 27	Apr. 27	Apr. 29	May 8
Blue-winged Warbler	May 7	May 10	May 2	May 1			Apr. 27	May 2	May 2	May 13	May 2	May 2	May 9	May 12	May 11	May 11	May 8
Parula Warbler	Apr. 29	Apr. 27	Apr. 25	Apr. 24			Apr. 28	May 2	Apr. 17	May 3	May 13	Apr. 29	May 1	May 12	May 11	May 11	May 8
Yellow Warbler	May 1	May 10	May 4	May 9			May 3	May 2	Apr. 17	May 3	May 13	Apr. 29	May 1	May 12	May 11	May 11	May 8
Black-throated Blue Warbler	Apr. 27	Apr. 29	Apr. 16	Apr. 17			May 9	May 3	May 3	May 11	Apr. 27	May 9	May 9	May 12	May 11	May 11	May 8
Myrtle Warbler	May 11	May 23	May 9	May 16			Apr. 25	Apr. 25	Apr. 25	Apr. 26	Apr. 14	Apr. 13	Apr. 25	May 2	May 18	May 18	May 17
Magnolia Warbler	May 11	May 23	May 9	May 16			Apr. 25	Apr. 25	Apr. 25	Apr. 26	Apr. 14	Apr. 13	Apr. 25	May 2	May 18	May 18	May 17
Chestnut-sided Warbler	May 2	May 9	May 2	May 2			Apr. 26	May 23	May 15	May 11	May 15	May 9	May 9	Apr. 24	Apr. 20	May 1	May 17
Black-poll Warbler	May 8	May 11	May 14	May 9			May 3	May 2	May 11	May 11	May 15	May 9	May 9	Apr. 24	Apr. 20	May 1	May 17
Blackburnian Warbler	May 2	May 2	May 2	May 2			May 12	May 9	May 8	May 11	May 9	May 8	May 9	Apr. 27	Apr. 30	Apr. 30	May 19
Black-throated Green Warbler	Apr. 25	Apr. 29	Apr. 25	May 22			Apr. 25	Apr. 27	Apr. 27	May 22	Apr. 27	May 14	Apr. 28	May 2	May 23	May 1	May 1

NAME.	Ranococas, N. J.	Moorestown, N. J.	Camden, N. J.	Audubon, N. J.	Haddonfield, N. J.	Media, Pa.	Swarthmore, Pa.	Norwood, Pa.	Ridley Park, Pa.	Lansdowne, Pa.	Addingham, Pa.	Ardmore and Havertford, Pa.	Bryn Mawr and Rosemont, Pa.	Wayne, Pa.	Frankford, Phila.	Germanstown, Phila.	Chestnut Hill, Phila.
Pine Warbler	May 2							Apr. 18			Apr. 10	Apr. 20	Apr. 16	Apr. 17	Apr. 24	Apr. 18	
Yellow Palm Warbler	Apr. 29	May 4	Apr. 9	Apr. 17		Apr. 18	Apr. 11	Apr. 18	Apr. 18		Apr. 11	Apr. 20	Apr. 16	Apr. 17	Apr. 24	Apr. 18	
Prairie Warbler	May 2	May 8	May 4	May 9		Apr. 25	May 10	Apr. 28	May 9	Apr. 28	May 2	Apr. 28	Apr. 28	Apr. 27	Apr. 28	May 1	May 1
Ovenbird	May 2	May 8	May 7	May 1		May 9	Apr. 29	Apr. 16	May 12	May 18	May 2	Apr. 30	May 9	May 5	May 11	Apr. 20	
Water-Thrush			May 8	May 1		May 9	Apr. 26	May 23	May 23	May 7	May 9	May 2	May 9	May 7	May 11		
Kentucky Warbler	Apr. 29	Apr. 29	Apr. 30	Apr. 25		Apr. 24	Apr. 26	Apr. 25	May 2	Apr. 26	May 1	Apr. 27	Apr. 28	Apr. 27	Apr. 30	May 8	May 1
Maryland Yellow-throat	May 8			May 9		May 8	May 3	May 9	May 9	May 8	May 9	May 9	May 2	May 2	May 11	May 1	May 12
Chat				May 9		May 9	May 8	May 23	May 15	May 16	May 9	May 2	May 10	May 14	May 18	May 19	May 19
Canada Warbler	Apr. 26	May 8	May 9	May 9	May 9	May 9	Apr. 26	May 2	May 16	May 6	May 9	May 2	Apr. 28	May 2	Apr. 30	May 6	May 10
Redstart	May 1	Apr. 29	Apr. 25	May 1	May 9	Apr. 29	Apr. 27	May 2	Apr. 23	Apr. 27	May 2	Apr. 20	Apr. 20	May 1	May 2	May 11	May 8
Catbird	Apr. 24	Apr. 25	Apr. 25	Apr. 25	Apr. 25	Apr. 15	Apr. 23	Apr. 16	Apr. 20	Apr. 28	Apr. 25	Apr. 16	Apr. 25	Apr. 17	Apr. 30	Apr. 27	Apr. 30
Brown Thrasher	Apr. 25	Apr. 27	Apr. 25	Apr. 25	Apr. 27	Apr. 23	Apr. 26	Apr. 27	Apr. 25	Apr. 26	May 2	Apr. 26	Apr. 25	Apr. 27	Apr. 28	May 1	Apr. 28
House Wren			May 3	May 3				May 9	May 2						May 9		
Long-bill'd Marsh Wren	Apr. 19	Apr. 30	Apr. 16	Apr. 17	Apr. 24	Apr. 15	Apr. 11	Apr. 16	Apr. 11	Apr. 20	Apr. 14	Apr. 15	Apr. 15	Apr. 17	Apr. 16	Apr. 19	Apr. 12
Ruby-crowned Kinglet	Apr. 29	Apr. 29	Apr. 26	May 1	May 9	Apr. 27	Apr. 27	May 2	May 2	Apr. 27	Apr. 30	Apr. 26	Apr. 27	Apr. 27	Apr. 24	May 4	Apr. 27
Wood Thrush	May 8		May 7	May 2		May 9	May 9	Apr. 27	May 23	May 11		May 9	May 1	May 7	Apr. 30		May 17
Wilson's Thrush			May 9	May 9			May 9	May 9				May 9	May 16		May 18		
Gray-cheeked Thrush			May 9	May 9			May 7	May 3		May 4		May 9	May 9	May 10	May 11		
Olive-backed Thrush			May 9	May 9			May 7	May 3		May 4		May 9	May 9	May 10	May 11		
Hermit Thrush	Apr. 24	Apr. 9	Apr. 10	Apr. 10		Apr. 18	May 17	Mar. 14	Apr. 17	Apr. 7	Apr. 10	Mar. 6	Apr. 16	Apr. 17	Apr. 5	Apr. 19	
Robin	Mar. 13	Feb. 21	Mar. 21	Mar. 14	Feb. 16	Feb. 20	Feb. 16	Mar. 14	Mar. 13	Feb. 23	Mar. 14	Feb. 22	Feb. 12	Mar. 16	Feb. 25	Mar. 11	Mar. 14
Bluebird	Feb. 17	Mar. 21	Mar. 28	Feb. 28	Mar. 20	Feb. 22	Feb. 18	Feb. 22	Feb. 14	Feb. 27	Feb. 22	Feb. 14	Feb. 12	Mar. 12	Feb. 17	Feb. 20	Mar. 4

Year	Month	Day	Time	Location	Remarks
1951	Jan	1	10:00	...	...
1951	Jan	2	10:00	...	...
1951	Jan	3	10:00	...	...
1951	Jan	4	10:00	...	...
1951	Jan	5	10:00	...	...
1951	Jan	6	10:00	...	...
1951	Jan	7	10:00	...	...
1951	Jan	8	10:00	...	...
1951	Jan	9	10:00	...	...
1951	Jan	10	10:00	...	...
1951	Jan	11	10:00	...	...
1951	Jan	12	10:00	...	...
1951	Jan	13	10:00	...	...
1951	Jan	14	10:00	...	...
1951	Jan	15	10:00	...	...
1951	Jan	16	10:00	...	...
1951	Jan	17	10:00	...	...
1951	Jan	18	10:00	...	...
1951	Jan	19	10:00	...	...
1951	Jan	20	10:00	...	...
1951	Jan	21	10:00	...	...
1951	Jan	22	10:00	...	...
1951	Jan	23	10:00	...	...
1951	Jan	24	10:00	...	...
1951	Jan	25	10:00	...	...
1951	Jan	26	10:00	...	...
1951	Jan	27	10:00	...	...
1951	Jan	28	10:00	...	...
1951	Jan	29	10:00	...	...
1951	Jan	30	10:00	...	...
1951	Jan	31	10:00	...	...

TABLE II

Summary of data for Table II, showing various metrics and trends over time. The data is organized into columns representing different variables and rows representing individual observations or time periods.



NAMES.	Capec May, N. J. E. 13; S. 72.	Atlantic City, N. J. E. 42; S. 42.	Salem, N. J. W. 16; S. 26.	Vineland, N. J. E. 7; S. 32.	Downstown, N. J. E. 11; S. 28.	Laurel Springs, N. J. E. 8; S. 10.	Mt. Holly, N. J. E. 19; N. 3.	Concordville, Pa. W. 20; S. 5.	West Chester, Pa. W. 24; N. 0.	Westtown, Pa. W. 21; S. 2.	Newtown, Pa. N. 19; E. 10.	Beverly, N. J. E. 13; N. 8.	Bordentown, N. J. E. 25; N. 13.	Yardville, N. J. E. 25; N. 15.	Allentown, N. J. E. 31; N. 16.	Dopplestown, Pa. E. 1; N. 26.	Buckingham, Pa. E. 4; N. 26.	Mozart, Pa. E. 5; N. 24.	Forestgrove, Pa. E. 2; N. 28.	Bernardsville, N. J. E. 30; N. 54.	Lopez, Pa. W. 60; N. 103.	
Flicker.....	Mar. 7	Apr. 21	Apr. 12	Res.	Mar. 31	Res.	Mar. 14	.....	Mar. 31	Mar. 22	Apr. 9	Res.	Mar. 3	Apr. 11	Apr. 9	Apr. 8	Mar. 29	Res.	Feb. 16	.....	Mar. 25
Whip-poor-will.....	Apr. 17	.....	.....	Apr. 24	Apr. 26	May 20	May 19	May 8	.....	May 2	.....	.....	.....	.....	.....	.....	Apr. 30	May 24	.....	.....	Apr. 26
Nighthawk.....	May 10	May 11	May 19	May 19	May 15	May 18	May 22
Chimney Swift.....	Apr. 20	.....	Apr. 20	Apr. 29	.....	Apr. 25	Apr. 23	Apr. 19	Apr. 19	Apr. 14	Apr. 23	Apr. 20	Apr. 25	May 1	Apr. 23	Apr. 26	Apr. 28	Apr. 21	Apr. 29	.....	May 6
Hummingbird.....	May 8	May 31	May 8	May 9	May 5	May 10	May 10	May 7	May 19	May 15
Kingbird.....	Apr. 28	May 2	Apr. 26	May 3	Apr. 29	Apr. 27	May 8	May 5	Apr. 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crested Flycatcher.....	Apr. 29	May 18	May 23	May 7	May 8	May 8	May 5	May 6	May 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Phoebe.....	.....	Apr. 2	May 15	.....	Mar. 29	Mar. 14	Apr. 6	Mar. 20	Mar. 19	Mar. 16	Apr. 4	.....	Apr. 7	Apr. 16	Apr. 9	Mar. 29	Apr. 6	May 2	May 6	Apr. 29	.....
Bobolink.....	.....	May 12	.....	.....	May 10	.....	May 5	May 12	May 12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cowbird.....	Res.	Apr. 28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Red-winged Blackbird.....	Feb. 15	May 2	Mar. 4	Feb. 7	Mar. 8	Mar. 6	Mar. 14	Feb. 19	Mar. 10	Mar. 20	Feb. 24	Feb. 28	Mar. 20	Mar. 18	Mar. 25	Mar. 20	Feb. 23	Feb. 25	Feb. 22	.....	Apr. 1
Baltimore Oriole.....	May 13	May 6	Mar. 12	Apr. 29	May 17	May 14	May 16	.....	May 4	May 2	Apr. 29	May 6	Apr. 29	May 13	May 3	May 4	May 3	Apr. 29	May 1	May 6	May 13
Purple Grackle.....	Feb. 15	Mar. 19	Feb. 7	Feb. 23	Feb. 1	Mar. 11	Feb. 9	Feb. 17	Feb. 14	Feb. 24	Feb. 21	Feb. 17	Feb. 11	Feb. 16	Feb. 16	Feb. 16	Mar. 19	Feb. 19	.....	.....	.....
Chipping Sparrow.....	Apr. 12	Apr. 23	Apr. 28	Apr. 8	Apr. 9	Apr. 11	Apr. 10	Apr. 10	Apr. 9	Apr. 10	Apr. 12	Apr. 2	Apr. 11	Apr. 4	Mar. 27	Apr. 12	Apr. 13	Apr. 8	Apr. 12	.....	Apr. 24
Chewink.....	Res.	Apr. 25	Apr. 27	Apr. 12	Apr. 27	Apr. 25	Apr. 10	Apr. 10	Apr. 17	Apr. 18	Apr. 25	Apr. 13	Apr. 6	May 1	.....	Apr. 15	Apr. 11	May 14	Apr. 16	Apr. 29	Apr. 28
Indigobird.....	.....	.....	.....	May 8	.....	.....	May 16	May 10	May 10	May 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scarlet Tanager.....	.....	May 6	Apr. 27	May 19	May 12	.....	May 8	.....	May 1	Apr. 28	May 15	May 15	May 2	.....	.....	.....	.....	.....	.....	.....	.....
Purple Martin.....	Apr. 12	Apr. 20	Apr. 12	Apr. 9	May 2	Apr. 10	.....	Apr. 10	Apr. 10	Apr. 24	Apr. 27	Apr. 14	Apr. 16	May 13	May 2	Apr. 10	Apr. 21	Apr. 14	Apr. 18	.....	.....
Barn Swallow.....	Apr. 20	May 2	Apr. 26	Apr. 20	May 4	.....	Apr. 17	.....	Apr. 14	Apr. 17	Apr. 29	May 1	Apr. 19	Apr. 25	May 1	Apr. 14	Apr. 26	Apr. 28	Apr. 17	Apr. 29	Apr. 23
Red-eyed Vireo.....	.....	May 12	May 6	May 13	.....	May 6	.....	May 10	May 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Black and White Warbler.....	.....	Apr. 24	May 11	Apr. 21	May 2	.....	Apr. 25	Apr. 29	Apr. 24	Apr. 30	Apr. 21	Apr. 29	.....	May 1	May 1	Apr. 26	Apr. 27	May 12	Apr. 20	Apr. 26	Apr. 24
Chestnut-sided Warbler.....	.....	May 18	.....	May 13	.....	.....	.....	May 4	May 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ovenbird.....	.....	May 16	Apr. 22	May 9	Apr. 29	May 9	May 6	Apr. 29	Apr. 27	Apr. 27	Apr. 25	May 7	May 1	May 2	.....	Apr. 26	May 3	May 10	May 1	May 8	May 7
Maryland Yellow-throat.....	Apr. 20	Apr. 23	May 22	Apr. 21	Apr. 25	Apr. 24	Apr. 25	Apr. 30	Apr. 25	Apr. 25	Apr. 25	Apr. 25	May 1	Apr. 26	.....	Apr. 27	Apr. 30	May 10	Apr. 24	May 10	May 9
Chat.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Catbird.....	Res.	May 6	May 6	Apr. 28	May 10	Apr. 28	May 3	Apr. 26	Apr. 28	Apr. 28	Apr. 20	Apr. 25	Apr. 25	Apr. 20	Apr. 24	Apr. 20	Apr. 25	Apr. 25	Apr. 20	.....	.....
Brown Thrasher.....	Apr. 17	Apr. 26	Apr. 17	Apr. 25	Apr. 26	Apr. 25	Apr. 25	Apr. 25	Apr. 22	Apr. 24	Apr. 20	Apr. 25	Apr. 25	Apr. 20	Apr. 25	Apr. 20	.....	Apr. 30	Apr. 24	Apr. 28	May 2
House Wren.....	May 7	May 2	.....	Apr. 26	Apr. 26	Apr. 25	Apr. 25	Apr. 25	Apr. 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wood Thrush.....	May 8	.....	Apr. 22	May 3	May 9	May 5	May 2	.....	Apr. 27	Apr. 27	Apr. 25	Apr. 24	Apr. 25	May 3	May 6	May 3	May 4	May 9	Apr. 21	Apr. 30	.....
Hermit Thrush.....	.....	Apr. 24	.....	Apr. 12	.....	.....	.....	.....	Apr. 9	Apr. 16	Apr. 9	Apr. 17	Apr. 8	.....	.....	.....	.....	.....	.....	.....	.....
Robin.....	Res.	Feb. 10	Mar. 22	Res.	Mar. 13	Feb. 5	Mar. 11	.....	Mar. 7	Feb. 15	Feb. 20	Jan. 10	.....	Feb. 23	Feb. 8	Mar. 11	Feb. 20	Feb. 23	Feb. 18	.....	Mar. 18
Bluebird.....	Res.	.....	Mar. 30	Res.	Jan. 15	Feb. 25	Feb. 21	Feb. 20	Res.	Res.	Feb. 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

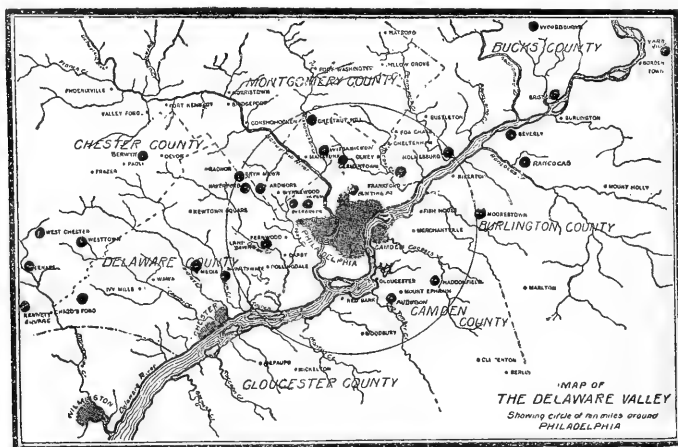


TABLE II.

SPRING MIGRATION, 1915.

EARLIEST DATES OF ARRIVAL OF THIRTY-TWO SPECIES AT TWENTY-ONE STATIONS OUTSIDE THE PHILADELPHIA CIRCLE.

NAME	RESIDENCE	OFFICE
ALBERT A. BROWN	110 N. 3rd St.	Mayor
W. H. BRIDGES	100 N. 3rd St.	City Clerk
...



*List of Other Species Reported by Observers during 1915,
and Additional Notes on Species Contained in the
Schedule. Autumn Dates Refer to Autumn
of 1914 Unless Otherwise Stated.**

Pied-billed Grebe, *Podilymbus podiceps*. Camden, N. J., Apr. 13 (*Potter*); Westtown, Apr. 8 occasionally to May 2 (*Jones and Evans*).

Loon, *Gavia immer*. Fish House, N. J., Apr. 25-30 (*Potter*); Lopez, two, Apr. 22 (*Behr*); Westtown, Apr. 26 and 27 (*Jones and Evans*).

Herring Gull, *Larus argentatus*. Mouth of Maurice River, N. J., Aug. 14, 1914 (*Prince*); arrived Frankford, Oct. 15 (*Miller*); Beverly, N. J., Sept. 14 to May 9 (*Baird*); Wayne, Feb. 17, three (*Alexander*).

Ring-billed Gull, *Larus delawarensis*. Essington, Mar. 19, several (*Miller*).

Laughing Gull, *Larus atricilla*. Cape May, N. J., May 1 (*Hand*); mouth of Maurice River, N. J., Sept. 12, 1914 (*Prince*).

Bonaparte's Gull, *Larus philadelphia*. Fish House, N. J., Apr. 25-26 (*Potter*).

Wilson's Petrel, *Oceanites oceanicus*. Below Egg Island Light, Delaware Bay, Aug. 14 and 27, 1914 (*Prince*).

Double-crested Cormorant, *Phalacrocorax auritus*. Cape May, N. J., Mar. 16 (*Hand*).

Merganser, *Mergus americanus*. Feb. 12 to Apr. 16 (*Potter*); Audubon, N. J., Apr. 8 (*Tatum*).

Mallard, *Anas platyrhynchos*. Audubon, N. J., May 23 (*Tatum*).

Black Duck, *Anas rubripes*. Cape May, N. J., fed largely on periwinkle; most of those taken were full of them (*Hand*); Avalon, N. J., Dec. 9, 1914 (*Prince*).

Pintail, *Dafila acuta*. Fish House, N. J., Feb. 19-21 (*Potter*).

Wood Duck, *Aix sponsa*. Millville, N. J., eight, Oct. 12 (*Potter*).

* Localities are in Pennsylvania unless otherwise marked.

Lesser Scaup Duck, *Marila affinis*. Buckshutem, N. J., Mar. 6 (*Prince*); Fish House, N. J., Mar. 28 to Apr. 23 (*Potter*).

Bufflehead Duck, *Charitonetta albeola*. A pair at Doylestown, Apr. 23 (*MacReynolds*).

Scoter, *Oidemia americana*. Fish House, N. J., Oct. 17 (*Potter*).

Canada Goose, *Branta c. canadensis*. Vineland, N. J., flock of 200, Oct. 26, 1914, and another Feb. 3 (*Prince*).

Bittern, *Botaurus lentiginosus*. Pt. Elizabeth, Maurice River, N. J., Aug. 26 (*Prince*); Bustleton, May 11; Thoroughfare, June 5 (*Miller*).

Least Bittern, *Ixobrychus exilis*. Fish House, N. J., May 23 (*Potter*); Bridesburg, nest with eggs, May 20 (*Miller*).

Great Blue Heron, *Ardea herodias herodias*. Wayne, Sept. 10, 1914 (*Baker*); Westtown, Apr. 13 (*Evans and Jones*); five on Neshaminy Creek, Forest Grove, Apr. 25 (*Bewley*).

White Egret, *Herodias egretta*. Maple Shade, N. J., Aug. 15 (*Miller*).

Black-crowned Night Heron, *Nycticorax n. naevius*. Ber-
nardsville, N. J., Apr. 21 (*Kuser*).

King Rail, *Rallus elegans*. Cape May, N. J., May 23, nest and 14 eggs (*Hand*); Fish House, N. J., Oct. 17 (*Potter*).

Sora, *Porzana carolina*. Bridesburg, four nests during June with 7, 9, 11 and 12 eggs (*Miller*).

Little Black Rail, *Creciscus jamaicensis*. Stone Harbor, N. J., May 30, flushed bird (*Miller*).

Florida Gallinule, *Gallinula galeata*. Bridesburg, three pairs nested, nest and 12 eggs, May 31; another with 11 eggs, June 12; June 25, seven young nearly half-grown (*Miller*).

Woodcock, *Philohela minor*. Buckshutem, N. J., Apr. 4 (*Prince*); Fish House, N. J., Apr. 4 (*Potter*); Media, Mar. 17 (*Moore*); Swarthmore, Mar. 14 and 17, Apr. 5 and 9, May 12 (*Harrower*); Jordantown, June 1, and Palmyra, N. J., June 20 (*Miller*); Haverford, Apr. 26 (*Dunn*); Forest Grove, Apr. 10 (*Bewley*); Lopez, Apr. 7 (*Behr*); Doylestown, Mar. 21 (*MacReynolds*).

Wilson's Snipe, *Gallinago delicata*. Cape May, N. J., Mar. 20 (*Hand*); Camden, N. J., Apr. 4-11 and May 17 (*Potter*);

Audubon, N. J., May 21 (*Tatum*); Addingham, Apr. 20 (*Culver*); Holmesburg, Apr. 30 (*Miller*); Haverford, Apr. 26 (*Dunn*); Forest Grove, Apr. 10 (*Bewley*); Doylestown, three on Apr. 14 (*MacReynolds*).

Pectoral Sandpiper, *Pisobia maculata*. Camden, N. J., Nov. 8, 1914 (*Potter*).

Least Sandpiper, *Pisobia minutilla*. Atlantic City, N. J., May 2 (*Cromie*); Camden, N. J., May 9-23, flocks of 3 to 30 (*Potter*).

Semipalmated Sandpiper, *Ereunetes pusillus*. Atlantic City, N. J., May 18 (*Cromie*).

Greater Yellowlegs, *Totanus melanoleucus*. Cape May, N. J., Apr. 12 (*Hand*); Atlantic City, N. J., May 2 (*Cromie*); Camden, N. J., May 1-23 (*Potter*); Bernardsville, N. J., May 3 (*Kuser*); Darby Creek marshes near Essington, May 9 (*Packer*); Ridley Park, May 7 (*Gross*).

Lesser Yellowlegs, *Totanus flavipes*. Cape May, N. J., May 3 (*Hand*).

Willet, *Catoptrophorus semipalmatus*. Seaside Park, N. J., four seen Aug. 23, 1914 (*Potter*).

Upland Plover, *Bartramia longicauda*. Cape May, N. J., Apr. 12 (*Hand*); Rushland, May 31 (*Potter*); Doylestown, May 6, several (*MacReynolds*).

Hudsonian Curlew, *Numenius hudsonicus*. Cape May, N. J., Apr. 19 (*Hand*).

Black-bellied Plover, *Squatarola squatarola*. Cape May, N. J., May 3 (*Hand*); Seaside Park, N. J., flock of 20, Aug. 23, 1914 (*Potter*).

Killdeer, *Oxyechus vociferus*. Buckshutem, N. J., nest and two eggs, Mar. 26; heavy snowstorm, Apr. 2, and nest deserted with three eggs; Apr. 20, nest and four eggs near same spot (*Prince*); Haddonfield, N. J., two nests with eggs on Country Club grounds a quarter of a mile apart, Apr. 30, one incubated about two weeks (*Moore*).

Semipalmated Plover, *Aegialitis semipalmata*. Cape May, N. J., May 9 (*Hand*); Atlantic City, N. J., May 18 (*Cromie*); Camden, N. J., May 22 (*Miller*).

Piping Plover, *Aegialitis meloda*. Cape May, N. J., Sept. 2, 1915 (*Culver*).

Dove, *Zenaidura macroura carolinensis*. Swarthmore, nest and eggs, Mar. 30 (*Harrower*); Addingham, six or eight wintered (*Culver*).

Turkey Vulture, *Cathartes aura septentrionalis*. Nest and two young in small rock cave near Bycot Station on Buckingham Mt., apparently the first breeding record for Bucks Co., where twenty years ago this bird was almost unknown (*MacReynolds*).

Broad-winged Hawk, *Buteo platypterus*. Audubon, N. J., May 7 (*Tatum*); Norwood, several Apr. 18, only one a week later (*Packer*); Westtown, a pair May 2 (*Evans and Jones*); Addingham, Apr. 17 (*Culver*).

Rough-legged Hawk, *Archibuteo lagopus sanctijohannis*. Tinicum, Mar. 19 (*Miller*).

Bald Eagle, *Haliaeetus leucocephalus*(?). Swarthmore, one seen flying before a storm, May 22, a dark bird showing no white (*Palmer*).

Pigeon Hawk, *Falco columbarius*. Audubon, N. J., May 9 (*Tatum*); Doylestown, Apr. 7 and 12 (*MacReynolds*); Wildwood, N. J., May 2 (*Rhoads*).

Wood Duck, *Aix sponsa*. Audubon, N. J., Apr. 10 (*Tatum*); Forest Grove, Bucks Ca., Apr. 7 (*Bewley*).

Duck Hawk, *Falco peregrinus anatum*. Chester, Mar. 2 (*Carter*).

Osprey, *Pandion haliaetus carolinensis*. Buckshutem, N. J., three occupied nests summer 1914, birds had left nests Sept. 12 (*Prince*); Pensauken Creek, N. J., July 9 (*Miller*).

Barn Owl, *Aluco pratincola*. Gloucester, N. J., Oct. 25 to Mar. 28 (*Potter*); Swarthmore, one shot Mar. 21 (*Palmer*).

Long-eared Owl, *Asio wilsonianus*. Gloucester, N. J., Dec. 25, 1914 to Feb. 13, 1915 (*Potter*).

Short-eared Owl, *Asio accipitrinus*. Camden, N. J., Oct. 7, 1914 (*Potter*); North Pensauken Creek, N. J., Aug. 22 (*Miller*).

Yellow-billed Cuckoo, *Coccyzus a. americanus*. Camden, N. J., nest with one fully-feathered young, Sept. 5, 1914 (*Potter*).

Kingfisher, *Ceryle alcyon alcyon*. One wintered at Swarth-

more (*Harrower*); Doylestown, a pair wintered at Turk Dam (*MacReynolds*).

Hairy Woodpecker, *Dryobates v. villosus*. Camden, N. J., nest with young, May 8 (*Potter*).

Red-headed Woodpecker, *Melanerpes erythrocephalus*. Juvenal bird, Marple, Feb. 12 (*Culver*); West Chester, two on Feb. 6 (*Brinton*); Haddonfield, N. J., June 15-29 (*Moore*).

Yellow-bellied Sapsucker, *Sphyrapicus varius varius*. Swarthmore, Jan. 9 (*Harrower*); Ridley Park, Jan. 2 (*Gross*).

Flicker, *Colaptes auratus luteus*. Addingham, four or five wintered (*Culver*).

Hummingbird, *Archilochus colubris*. Last seen Vineland, N. J., Sept. 28, 1914 (*Prince*).

Great-crested Flycatcher, *Myiarchus crinitus*. Last seen Buckshutem, N. J., Sept. 17, 1914 (*Prince*).

Olive-sided Flycatcher, *Contopus borealis*. Lopez, May 29 (*Behr*).

Yellow-bellied Flycatcher, *Empidonax flaviventris*. Last seen Buckshutem, N. J., Sept. 17, 1914 (*Prince*); Moorestown, N. J., May 8 (*Mickle*); Pocono Lake, Pa., nest and four eggs, June 26 (*Stuart*), nest and young, July 19 (*Baily*), eggs, May 24 (*Bewley*).

Alder Flycatcher, *Empidonax trailli alnorum*. Rushland, May 30 (*D. V. O. C.*); Pocono Lake, Pa., nest and one egg, June 12 (*Carter*), nest and three eggs, July 17 (*Baily*).

Blue Jay, *Cyanocitta cristata cristata*. Became much more plentiful at Media, Mar. 7 (*Moore*); not seen about Frankford until Apr. 26 (*Miller*); Haverford, none until Mar. 8, and quite abundant after Apr. 13 (*Hallett*); Forest Grove, nest and five eggs, May 23 (*Bewley*).

Meadow Lark, *Sturnella magna magna*. Rosemont, May 23, nest and five eggs (*Scoville*); Forest Grove, nest and four eggs, May 24 (*Bewley*).

Red-winged Blackbird, *Agelaius phoeniceus phoeniceus*. Rosemont, May 20, nest and four eggs (*Scoville*).

Bobolink, *Dolichonyx oryzivorus*. Torresdale, June 28 (*Miller*).

Purple Grackle, *Quiscalus quiscula quiscula*. Cape May, N. J., Dec. 27, 1914, flock (*Hand*); a flock wintered 1914-15 at West Chester (*Sharples*); a number wintered with Starlings in evergreens at Concordville (*Styer*).

Purple Finch, *Carpodacus p. purpureus*. Addingham, a few wintered (*Culver*); last seen at Norwood, May 2 (*Packer*); arrived Frankford, Oct. 21 (*Miller*); Haverford, none till Apr. 27 (*Hallett*); Rosemont, Mar. 18 and 25, flock in song, only one pink male (*Scoville*); Doylestown, Apr. 27 (*MacReynolds*); West Chester, Apr. 27 to May 8 (*Brinton*); Westtown, last seen May 2 (*Evans and Jones*).

Goldfinch, *Astragalinus tristis tristis*. Swarthmore, very abundant Apr. 28 (*Palmer*); Addingham, six wintered (*Culver*); rare until Mar. 26, Haverford, very abundant after May 3 (*Hallett*).

Redpoll, *Acanthis linaria linaria*. Wyncote, ten to fifteen, Jan. 24 (*Culver*).

Pine Finch, *Spinus pinus*. Audubon, N. J., Apr. 10 (*Tatum*).

Vesper Sparrow, *Poæctes gramineus gramineus*. Cape May, N. J., Feb. 28, 1915 (*Hand*); Norwood, Jan. 10, one feeding with Juncos (*Packer*).

Henslow's Sparrow, *Ammodramus henslowi*. Meadows along Maurice River, N. J., heard singing, Aug. 15, 1914 (*Prince*); Sussex, N. J., observed singing in bog, undoubtedly breeding or had bred there, July 9 (*Moore and Rhoads*); New London, Chester Co., six carefully observed Oct. 11, 1914 (*Roberts*); New Lisbon, N. J., nest and four eggs May 30 (*Stuart*).

White-throated Sparrow, *Zonotrichia albicollis*. Audubon, N. J., Nov. 10, 1914 to May 6 (*Tatum*); Moorestown, N. J., Sept. 22, 1914, to May 24 (*Mickle*); Rancocas, N. J., Sept. 20, 1914 to May 17 (*Haines*); Haverford, abundant Apr. 5 until May 19 (*Hallett*); last seen Camden, N. J., May 23 (*Potter*); Addingham, May 12 (*Culver*); Norwood, May 25 (*Packer*); Ridley Park, May 2 (*Lloyd*); Rosemont, May 23 (*Scoville*); Doylestown, Apr. 25 to May 16 (*MacReynolds*); Wayne, Sept. 25, 1914 to May 23 (*Baker*); Westtown, May

18 (*Jones and Evans*); West Chester, Sept. 11, 1914 to May 22 (*Sharples*); Beverly, N. J., Sept. 18, 1914 to May 16 (*Baird*).

Field Sparrow, *Spizella pusilla pusilla*. Addingham, six wintered (*Culver*); Swarthmore, Feb. 22 (*Harrower*).

Tree Sparrow, *Spizella m. monticola*. Last seen Camden, N. J., Apr. 4 (*Potter*); Norwood, Mar. 28 (*Packer*); Frankford, Oct. 22, 1914 to Apr. 18 (*Miller*); Westtown, Mar. 19 (*Jones and Evans*); Doylestown, scarce, only seen Mar. 15 and 29 (*MacReynolds*); arrived Wayne, Oct. 24, 1914 (*Baker*); West Chester, Mar. 17 (*Roberts*); Beverly, N. J., Oct. 5 to Feb. 12 (*Baird*).

Junco, *Junco h. hyemalis*. Last seen Camden, N. J., Apr. 23 (*Potter*); Addingham, Apr. 20 (*Culver*); Norwood, Apr. 18 (*Packer*); Ridley Park, Apr. 15 (*Lloyd*); Haverford, Apr. 21 (*Hallett*); Moorestown, N. J., Sept. 11, 1914 to Apr. 24 (*Mickle*); Rancocas, N. J., Sept. 28, 1914 (*Haines*); Yardville, N. J., Nov. 12, 1914 to Apr. 14 (*Allinson*); Frankford, Oct. 17, 1914 to Apr. 27 (*Miller*); Wayne, Oct. 1, 1914 to Apr. 27 (*Baker*); Westtown, Apr. 27 (*Jones and Evans*); West Chester, Apr. 18 (*Sharples*); Doylestown, Oct. 1 to Apr. 20 (*MacReynolds*); Beverly, N. J., Oct. 12 to Apr. 14 (*Baird*); West Chester, Sept. 21, 1914 to Apr. 17 (*DeHaven*), Apr. 23 (*Roberts*).

Fox Sparrow, *Passerella iliaca iliaca*. Swarthmore, Jan. 1 (*Palmer*).

Cardinal, *Cardinalis cardinalis cardinalis*. Nest at Forest Grove, Bucks Co., May 15 (*Bewley*); nests at Doylestown (*MacReynolds*).

Rose-breasted Grosbeak, *Zamelodia ludoviciana*. Oakview, July 14 (*Culver*); two nests at Torresdale (*Miller*).

Tree Swallow, *Iridoprocne bicolor*. Nest and six eggs, Pensauken Creek, N. J., June 1; two males and one female seen (*Miller*).

Cedarbird, *Bombycilla cedrorum*. Cape May, N. J., Nov. 6, 1914, flocks (*Hand*); Swarthmore, Feb. 10, flock of ten, common, Mar. 19-28 (*Harrower*); West Chester, flock of 100 on Mar. 23 (*DeHaven*).

Northern Shrike, *Lanius borealis*. Haddonfield, N. J., two, Mar. 2 (*Moore*).

Prothonotary Warbler, *Protonotarea citrea*. Henderson, Md., June 4-5, two new nests made of green moss in old Downy Woodpecker holes, also one with young (*Scoville* and *Stuart*).

Worm-eating Warbler, *Helmitheros vermivorus*. Addingham, Sept. 4, 1915, first I have seen in Darby Creek Valley (*Culver*); nest and four eggs, Chestnut Hill, June 17 (*Miller*).

Blue-winged Warbler, *Vermivora pinus*. Moorestown, N. J., May 1 (*Mickle*).

Hybrid Warbler, *Vermivora leucobronchialis*. Sussex, N. J., July 8, young bird of year secured from family of three or four; pure adult Golden-winged parent present. See "Auk" for April, 1916 (*Moore*).

Golden-winged Warbler, *Vermivora chrysoptera*. Moorestown, N. J., May 1 (*Mickle*); Norwood, May 2 (*Packer*); Haverford, Apr. 27 and May 18 (*Hallett*); May 9 (*Serrill*); Ardmore, May 9 (*Baily*).

Nashville Warbler, *Vermivora r. rubricapilla*. Audubon, N. J., May 25 (*Tatum*); Moorestown, N. J., Apr. 30 (*Mickle*); Swarthmore, May 3 (*Harrower*); West Chester, Apr. 28 and May 1 (*Roberts*); Ardmore, May 16 (*Baily*).

Tennessee Warbler, *Vermivora peregrina*. Addingham, one shot Sept. 26, 1914 (*Culver*); Ardmore, May 18 (*Baily*).

Cape May Warbler, *Dendroica tigrina*. Buckshutem, N. J., Sept. 14, 15 and 20, 1914 (*Prince*); Moorestown, N. J., May 22, many present for nearly a week, one on May 31 (*Wiermann*); Swarthmore, several May 12-19 (*Harrower*); Addingham, one shot, Sept. 26, 1914, another Sept. 4, 1915 (*Culver*); Lansdowne, May 13, 15 and 17 (*Carter*); Norwood, several males and four females, May 9 (*Packer*); Haverford, May 10-11, at least nine (*Hallett* and *Serrill*); West Grove, Chester Co., Sept. 12, 1914 (*Roberts*); Ardmore, May 10 (*Baily*); Concordville, May 10 (*Styer*); Rosemont, May 16 (*Scoville*); West Chester, May 7-19 (*DeHaven*).

Bay-breasted Warbler, *Dendroica castanea*. Camden, N. J.,

May 22-23 (*Potter*); Audubon, N. J., May 16 (*Tatum*); Mooretown, N. J., six on May 23 (*Wiermann*); Bernadsville, N. J., May 23 (*Kuser*); Swarthmore, May 19, 25-31 (*Harrower*); Ridley Park, May 15 (*Gross*); Haverford, May 18, 19, 28 and 31 (*Hallett and Serrill*); Rosemont, May 23 (*Scoville*); Westtown, May 18-19 (*Evans and Jones*); Ardmore, May 18 (*Baily*); West Chester, May 24-26 (*DeHaven*).

Pine Warbler, *Dendroica vigorsii*. Noted regularly at Ad-
dingham every spring and a few in autumn (*Culver*).

Palm Warbler, *Dendroica palmarum palmarum*. City Hall,
Oct. 25 (*Baily*); Oct. 17 (*Culver*).

Prairie Warbler, *Dendroica discolor*. New Lisbon, N. J.,
June 20, nest in laurel bush, lined with fern wool, four eggs
(*Scoville*).

Louisiana Water Thrush, *Seiurus motacilla*. Haverford,
Apr. 27, and several times later, well identified (*Hallett*).

Mourning Warbler, *Oporornis philadelphia*. Swarthmore,
male shot June 4 (*Palmer*).

Maryland Yellow-throat, *Geothlypis trichas trichas*. Buck-
shutem, N. J., arrived Apr. 21, building by May 8, two eggs
May 15, four eggs May 18, young well grown June 5 (*Prince*).

Hooded Warbler, *Wilsonia citrina*. Cape May, N. J., May
4 (*Hand*); Camden, N. J., May 9 and 11 (*Potter*).

Wilson's Warbler, *Wilsonia pusilla*. Ridley Park, May 12
(*Gross*); Haverford, May 16 and 18 (*Hallett*); Rosemont,
May 23 (*Scoville*); Westtown, May 20 (*Evans and Jones*);
Ardmore, May 16 (*Baily*); Beverly, N. J., May 17 (*Street*);
Camden, N. J., May 18 (*Potter*); Audubon, N. J., May 19
(*Tatum*); West Chester, May 18 (*Roberts*).

Redstart, *Setophaga ruticilla*. Buckshutem, N. J., seen a
great deal May 8-20, found with young at same spot June 22
(*Prince*).

Titlark, *Anthus rubescens*. Norwood, Mar. 28, flock of 10
to 15 (*Packer*); West Chester, Mar. 29 and May 10 (*Sharp-
les*); Doylestown, Nov. 8, 1914, and Apr. 30 (*MacReynolds*).

Mockingbird, *Mimus polyglottos*. Westtown, wintering
(*Morris*); Westgrove, nesting, June 25 (*Roberts*).

Catbird, *Dumetella carolinensis*. Pleasantville, N. J., Jan.

3 (*Packer and Potter*); Cape May, N. J., Dec. 9, 1914, and Jan. 24, 1915 (*Hand*).

Brown Thrasher, *Toxostoma rufum*. Cape May, N. J., Dec. 9, 1914, and Feb. 3, 1915 (*Hand*).

Carolina Wren, *Thryothorus ludovicianus ludovicianus*. Wayne, present in May, first time in years (*Baker*).

House Wren, *Troglodytes aedon aedon*. Forest Grove, nest and six eggs, May 28 (*Bewley*).

Winter Wren, *Nannus h. hiemalis*. Last seen Addingham, Apr. 27 (*Culver*); Norwood, Apr. 21 (*Packer*); Westtown, May 2 (*Jones and Evans*); Haverford, Apr. 20 to May 3 (*Hallett*); last seen Rosemont, May 9 (*Scoville*); Wayne, Oct. 1, 1914 to May 2 (*Baker*).

Brown Creeper, *Certhia familiaris americana*. Last seen Camden, N. J., Apr. 20 (*Potter*); Moorestown, N. J., Sept. 27, 1914 to May 6 (*Mickle*); Rancocas, N. J., Sept. 15 (*Haines*); Swarthmore, Apr. 27 (*Palmer*); Addingham, Apr. 27 (*Culver*); Norwood, Apr. 28 (*Packer*); Haverford, Apr. 21 (*Hallett*); Wayne, Sept. 21, 1914 to Apr. 24 (*Baker*); Westtown, Apr. 21 (*Jones and Evans*); arrived Beverly, N. J., Oct. 2, 1914 (*Baird*); West Chester, Sept. 26, 1914 (*DeHaven*) to Apr. 28 (*Roberts*); Doylestown, abundant, Apr. 13-20 (*MacReynolds*); Frankford, Oct. 13, 1914 to Apr. 10 (*Miller*).

White-breasted Nuthatch, *Sitta c. carolinensis*. Rosemont, Apr. 12, building nest, using wood fiber, down and fur (*Scoville*); Wayne, Dec. 30, 1914, one seen on ground drinking melted snow (*Alexander*).

Red-breasted Nuthatch, *Sitta canadensis*. Audubon, N. J., Apr. 10 (*Tatum*); Moorestown, N. J., Jan. 16 (*Mickle*); Germantown, Feb. 27 (*Mason*); Wayne, Oct. 2, 11 and 12, 1914, and May 19 and 23 (*Baker*).

Chickadee, *Parus atricapillus* (?). Haverford, Apr. 26 and May 11, one on each date (*Hallett and Dunn*); Crum Creek, Feb. 22 (*Baily*).

Golden-crowned Kinglet, *Regulus s. satrapa*. Last seen Apr. 27 (*Culver*); Norwood, Apr. 18 (*Packer*); Haverford, Apr. 16-21, common; last Apr. 23 (*Hallett*); West Chester, Apr.

10 (*Sharples*); Frankford, Oct. 13, 1914 to Apr. 10 (*Miller*); Beverly, N. J., arrived Oct. 18, 1914 (*Baird*); West Chester, Oct. 20 to Apr. 24 (*Roberts*); Wayne, Sept. 24, 1914 to Apr. 12 (*Baker*); Westtown, Apr. 18 (*Jones and Evans*); Vine-land, N. J., Oct. 28, 1914 (*Prince*).

Hermit Thrush, *Hylocichla guttata pallasi*. Lansdowne, Apr. 7, one sang freely for several minutes, and while the song was not up to the summer standard, it could not be called a "whisper song" (*Carter*); Rosemont, Apr. 19, heard one sing for nearly five minutes as loudly as in summer, sitting on low branch two feet from the ground (*Scoville*); Doylestown, Apr. 9-29 (*MacReynolds*); Darby Creek, Jan. 30 (*Baily*).

Abstract of the Proceedings of the Delaware Valley Ornithological Club, 1915

BY J. FLETCHER STREET, SEC.

January 7, 1915. The 25th Anniversary of the Club was duly celebrated at the Dinner held at the Roosevelt. The old officers were elected for the ensuing year as follows:—

President—Stewardson Brown,
Vice-President—Henry W. Fowler,
Secretary—J. Fletcher Street,
Treasurer—Samuel C. Palmer.

Ten visitors and sixty-five members present.

Dr. Spencer Trotter acted in the capacity of Toast Master. Short addresses were made by Dr. A. K. Fisher of Washington, D. C., Mr. J. H. Sage of Portland, Conn., Mr. C. F. Batchelder of Cambridge, Mass., Mr. John T. Nichols of New York, Dr. T. S. Palmer of Washington and Dr. Robt. T. Young of the University of North Dakota.

Dr. William E. Hughes responded to the toast, "The Oologist." Mr. Robt. T. Moore read from a rare volume of Club history, entitled "D. V. O. C. or How a Great Egg was Hatched." Dr. Witmer Stone made some pertinent remarks about the work of the Club and read original verses pertaining to the work and spirit of the organization.

January 21, 1915. Twenty-six members present.

Dr. Samuel C. Palmer addressed the Club upon the subject "Hos Zygotes Damnatos Trotteri." The processes of hybridization, as determined by Mendel's Law, were described with special reference to Lawrence's Warbler.

February 4, 1915. Seventeen members and one visitor present.

The following standing committees were appointed to serve during 1915.

On Publication—Messrs. Morris, Moore and Cope.

On Field Work—Messrs. Baily, Stuart and Street.

Mr. David Harrower addressed the Club upon the subject "Coast Mountain Notes." His remarks referred to the birds of the Coast Range Mountains of North-western California.

February 18, 1915. One visitor and fourteen members present.

Mr. Julian K. Potter made a communication entitled:—"Camden's Shore Bird Meadow." The communication was noteworthy by the fact of a great many shore birds having been recorded from a limited area close to the city of Camden. The rare White-rumped Sandpiper was first observed on May 19th, 1913. The Pectoral Sandpiper was listed only as a fall migrant.

Mr. Samuel Mason, Jr., spoke upon "A Plea for better Note Keeping," expressing several valuable suggestions along this line.

March 14, 1915. One visitor and sixteen members present.

Dr. Witmer Stone addressed the Club upon the subject, "Report on the Spring Migration of 1914." The necessity of recording the time of the bulk arrival of birds as well as the earliest arrivals was dwelt upon.

March 18, 1915. Twenty-two members present. Mr. George Spencer Morris addressed the meeting upon "The Valley of the Tacony." This being the vicinity of the speaker's home, the results of his observations of birds during the last thirty years were reviewed. Rough-winged and White-bellied Swallows were cited as formerly breeding in the district, but not at the present time. The Kentucky and Worm-eating Warblers were mentioned as comparatively recent additions to the region.

April 1, 1915. One visitor and seventeen members present.

Dr. Spencer Trotter gave an interesting talk entitled "Outlying Types of Certain Families of North American Passerines." The speaker's remarks pertained to the existing classification of passerines. The relations of certain groups and species were dwelt upon.

April 15, 1915. One visitor and twenty-five members present. President Brown addressed the Club upon the subject, "Some Impressions of Porto Rico and its Birds." Observations were made principally about the southwestern portion of the island. Grackles, mockingbirds and orioles were mentioned as characteristic birds of the low country. Finches and doves frequent the higher wooded districts.

May 6, 1915. One visitor and seventeen members present. Dr. Max M. Peet gave an interesting talk entitled "Birds of the Michigan Pine Barrens." The speaker made a comparison between the district and similar lands in New Jersey. The Kirtland Warbler was mentioned as the most abundant species of the district under observation.

Mr. Stewardson Brown gave a comparison of the flora of the Michigan and New Jersey Pine Barrens.

May 20, 1915. Nineteen members present. Mr. Samuel N. Rhoads addressed the Club upon the subject, "Some Remarkable Birds Observed in Guatemala." Mr. Rhoads described the bird-life of the dry country as comprising many species of parrots, cuckoos; also Roadrunners and Inca Doves, while in the wet country Macaws, Tinamous, Plumbeous Kites and Motmots were the common birds.

Mr. Poole, who accompanied Mr. Rhoads upon the trip, augmented Mr. Rhoads' remarks and described the call-notes and songs of several of the species observed.

The following were proposed for Associate Membership: Mr. Harry E. Parker, Southampton, Pa.; Mr. Edward Woolman, Haverford, Pa.; Mr. Wm. W. McCall, Jr., 4055 Chestnut St.; Mr. E. P. Irwin, Swarthmore, Pa.; Mr. Henry J. Fry, 224 W. Manheim St., Germantown.

October 7, 1915. Twenty-seven members present. The following resolution was adopted: "The members of the Delaware Valley Ornithological Club have heard with sincere sorrow of the death of their Associate, C. Few Seiss, and desire to place upon record their appreciation of the loss which they, both as an organization and individually, have sustained in his death."

Dr. William E. Hughes gave an interesting talk on "Italian Bird Notes." The talk was illustrated by a remarkable series of lantern slides from photographs taken in the Azores, Algiers, Pompeii, Paestum, Amalfi, Capri, and the hill-towns of Etruria.

October 21, 1915. Twenty-nine members present. Dr. Witmer Stone gave a most interesting account of his trip "To California and Return with the D. V. O. C. Glasses and a Vest Pocket Kodak." Going west, the Santa Fe route was taken, and the return trip was by the Canadian Pacific as far as Chicago. Many interesting places were visited, including the Yosemite Valley, Grand Canon, Vancouver and the Canadian Rockies. Characteristic birds of the points visited were described. The account was illustrated with lantern slides of great beauty and interest.

November 4, 1915. One visitor and twenty-two members. In the business session the following were elected to Associate membership: Edward Woolman, Haverford, Pa.; Henry J. Fry, 224 W. Manheim St., Germantown; Harry E. Parker, Southampton, Pa.; Wm. W. McCall, Jr., 4056 Chestnut St., Philadelphia; Everett P. Irwin, Swarthmore, Pa.

Mr. Samuel N. Rhoads addressed the Club upon the subject, "Snapshots and Field Notes from Guatemala." Mr. Rhoads read from his journal and that of Mr. Poole, who accompanied him. The bird-life of the country was described.

November 18th, 1915. Twenty-six members present.

The name of Mr. Richard Burdsall, Swarthmore, Pa. was proposed for Associate membership.

Mr. J. Fletcher Street described a spring field-trip under the subject: "Waylaying Boreal Birds in the Poconos." The speaker described a trip to the Pocono Lake in company with Messrs. Baily, Stuart, Hughes and Carter covering a period extending from June 11th to June 14th inclusive and on June 26th of the present year.

Thirty-four species of nesting birds were found including the Yellow-bellied and Alder Flycatchers, Canadian, Black-throated

Green, Black-throated Blue and Magnolia Warblers. The Olive-sided Flycatcher was noted and the Nashville Warbler was mentioned as a summer resident, although no nest was found.

Dr. Stone exhibited a beautiful series of lantern slides of the birds of California.

December 2nd, 1915. One visitor and twenty-three members present.

The annual meeting of the Ornithological Section of the Academy was held and the report of said section was read.

Under a general subject entitled "General Discussion upon recent Observations," Dr. Stone reviewed a paper of Dr. Watson relating to bird-flight.

December 16th, 1915. Eighteen members present.

Mr. David Harrower addressed the Club upon the subject: "Impressions of Central American Birds." Gatun on the Panama Canal was used as a base for several collecting trips. In Costa Rica the birds noted included motmots, parrots, macaws, honey creepers and certain species of Formicariidae. The most interesting jungles visited occurred between Guapiles and Greytown, Nicaragua.

Club Notes

SIXTEEN meetings were held during the year, the average attendance being 23.93, this being the nearest approach to an average of 24 possible, for if *one* member had attended *one* meeting, at which he was marked absent, the average would have been exactly 24. It should be noted that this is the average attendance of members only ; if visitors were included the attendance would average over 25. Twenty-four is the highest average the Club has had and was reached in the years 1905, 1906, and 1907.

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The first outing of the Club for the year was taken along the valley of the Crum Creek, Pa. February 22nd, 1915. The day was warm and fair. Two visitors and sixteen members were present and twenty-five species of birds were observed.

The Good Friday outing, April 2nd, 1915, was a walk to Bear Swamp and a visit to Camp Catoxen near Medford, N. J. Eighteen members and visitors participated. Thirty species of birds were observed, among them a host of Red-winged Black-birds. Fifty thousand was the conservative estimate determined upon by all. The flock which was nearly two miles long, was flying southeast. Later it was suggested that these birds were going south because of the snowstorm, which occurred on the following day, accumulating fourteen inches of snow by 5:00 p. m.

May 30th, 1915 was the date of the third Club outing taken in the vicinity of Rushland, Pa. along the Neshaminy Valley. Two visitors and fifteen members were present. Sixty-four species of birds were observed, including the Upland Plover and

Alder Flycatcher ; and twelve species were found breeding, including the Bobolink.

The following additions have been made to the Club collection of nests and eggs of Pennsylvania and New Jersey birds during the year:

Ruffed Grouse	Set of Eggs	R. P. Sharples.
Ruffed Grouse	Nest and Eggs	Street & Stuart.
Alder Flycatcher	Two nests	Carter & Baily.
Cliff Swallow	Set of Eggs	Carter & Stuart.
Bobolink	Nest and Eggs	Packer & Stuart.
Upland Plover	Set of Eggs	R. P. Sharples.

The nests or eggs of the following species are still desiderata:

Pied-billed Grebe,	Black-billed Cuckoo,
Loon,	Yellow-bellied Sapsucker,
American Bittern,	Pileated Woodpecker, ¹
Sora Rail,	Red-bellied Woodpecker,
Little Black Rail,	Alder Flycatcher, ¹
Coot,	Prairie Horned Lark,
Solitary Sandpiper,	Bronzed Grackle,
Upland Plover, ²	Pine Finch,
Wild Turkey,	Black and White Warbler, ¹
Red-tailed Hawk,	Golden-winged Warbler,
Bald Eagle,	Nashville Warbler,
Duck Hawk,	Mourning Warbler,
Long-eared Owl, ¹	Mockingbird,
Short-eared Owl,	Bewick's Wren,
Great Horned Owl, ¹	Red-bellied Nuthatch, ¹
Barred Owl,	Golden-crowned Kinglet,
Saw-whet Owl,	Gnatcatcher. ¹

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The thanks of the Club are due to Mr. Samuel N. Rhoads for the loan of the photogravure of Titian R. Peale, used in the making of the frontispiece.

¹ Only eggs desired.

² Only nest desired.

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OFFICERS AND MEMBERS
OF THE
Delaware Valley Ornithological Club.

1916.

STEWARDSON BROWN, *President*.
HENRY W. FOWLER, *Vice-President*.
J. FLETCHER STREET, *Secretary*, Beverly, N. J.
SAMUEL C. PALMER, *Treasurer*, Swarthmore, Pa.

ACTIVE MEMBERS.

WILLIAM L. BAILY, Ardmore, Pa.	Founder.
STEWARDSON BROWN, 20 E. Penn St., Germantown, Phila.....	*1891
JOHN D. CARTER, Lansdowne, Delaware Co., Pa.....	1900
I. NORRIS DE HAVEN, Ardmore, Pa.....	1891
ARTHUR C. EMLER, Awbury, Germantown, Phila.....	1897
HENRY W. FOWLER, Holmesburg, Phila.....	1894
WILLIAM E. HUGHES, M. D., 3945 Chestnut St., W. Phila.....	1891
ROBERT T. MOORE, Haddonfield, N. J.....	1897
GEORGE SPENCER MORRIS, Olney, Phila.....	Founder.
SAMUEL C. PALMER, PH. D., Swarthmore College, Swarthmore, Pa..	1899
LEONARD S. PEARSON, 5341 N. 13th St., Logan, Pa.	1908
JULIAN K. POTTER, 6th and Baily Sts., Camden, N. J.....	1911
JAMES A. G. REHN, 6033 Catherine St., Phila.	1899
SAMUEL N. RHODES, Haddonfield, N. J.	Founder.
WILLIAM E. ROBERTS, 5513 Irving St., Phila.	1901
WILLIAM A. SHRYOCK, 225 S. 6th St., Phila.	1891
WITMER STONE, Sc. D., Academy Nat. Sciences, Phila.....	Founder.
J. FLETCHER STREET, Beverly, N. J.....	1903
GEORGE H. STUART, 3RD, Girard Trust Co., Phila.	1910
SPENCER TROTTER, M. D., Swarthmore College, Delaware Co., Pa.	Founder.
CORNELIUS WEYGANDT, PH. D., Wissahickon Ave. below Frank St., Germantown, Phila.	1891
SAMUEL WRIGHT, Conshohocken, Pa.	1892

* Date indicates year of election to Club.

ASSOCIATE MEMBERS.

ROBERT ADAMS, JR., Oak Lane, Pa.	1910
ALBERT L. BAILY, JR., Bala, Pa.	1911
DAVID G. BAIRD, Beverly, N. J.	1913
J. P. BALL, M. D., Frankford, Phila.	1910
EDWIN B. BARTRAM, Wayne, Pa.	1908
GEORGE BEATTY, JR., Beverly, N. J.	1911
ARCHIBALD BENNERS, Ambler, Pa.	1913
GEORGE B. BENNERS, Ambler, Pa.	1913
HENRY S. BORNEMAN, 801 Franklin Bank Bld., Phila.	1913
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PAUL C. BREWER, 261 W. Rittenhouse St., Germantown	1906
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EDWARD L. CAUM, Swarthmore College, Swarthmore, Pa.	1914
FRANCIS R. COPE, JR., E. Washington Lane, Germantown, Phila. ..	1895
DELOS E. CULVER, Addingham, Pa.	1913
C. E. EHINGER, M. D., West Chester, Pa.	1909
WM. S. ESSICK, Union Trust Co. Bld., Harrisburg, Pa.	1908
JOSEPH S. EVANS, Marlton, N. J.	1913
WILLIAM B. EVANS, Westtown, Pa.	1898
GEORGE FORSYTH, West Chester (Route 4), Chester Co., Pa.	1891
FRANK B. FOSTER, Haverford, Pa.	1912
HENRY J. FRY, 224 W. Manheim St., Germantown, Phila.	1915
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ARTHUR F. HAGAR, 626 Westview Ave., Germantown, Phila.	1906
SAMUEL S. HAINES, M. D., 124 E. Main St., Moorestown, N. J.	1901
GEORGE H. HALLETT, Haverford College, Haverford, Pa.	1911
DAVID E. HARROWER, Swarthmore, Pa.	1905
HAROLD M. HARROWER, Swarthmore, Pa.	1914
PHILIP E. HOWARD, Swarthmore, Pa.	1914
EVERETT P. IRWIN, Swarthmore, Pa.	1915
CHARLES S. JACK, DDS., Media, Pa.	1906
WILLIAM W. JUSTICE, JR., 7803 St. Martins Lane, Chestnut Hill, Phila., Pa.	1893
NATHAN KITE, Moylan, Delaware Co., Pa.	1898
JOHN DRYDEN KUSER, Bernardsville, N. J.	1911
SHIPPEN LEWIS, 1820 Pine St., Phila.	1912
M. ALBERT LINTON, 409 Chestnut St., Phila.	1905
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PARKE L. LONGNECKER, DDS., 2015 Chestnut St., Phila.	1910
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WILLIAM MCCALL, JR., 4056 Chestnut St., Phila.	1915
RICHARD C. MCMURTRIE, Fort Washington, Pa.	1904
SAMUEL MASON, JR., 522 Locust Ave., Germantown, Pa.	1913

GUY F. MEYERS, 1010 S. Forty-seventh St., W. Phila.	1896
JAS. WATTS MERCUR, Wallingford, Pa.	1914
ISAAC P. MILLER, 409 Chestnut St., Phila.	1907
RICHARD F. MILLER, 2073 E. Tioga St., Phila.	1908
WILLIAM O. MILLER, 5002 Larchwood Ave., Phila.	1910
DR. B. W. MITCHELL, 4326 Pine St., Phila.	1914
WAYNE B. MORRELL, 5525 Jefferson St., Phila.	1905
WILLIAM HENRY NEWBOLD, Art Club, Phila.	1913
EDWARD NORRIS, St. Martins, Chestnut Hill, Phila.	1914
FREDERICK OLDACK, 2008 N. Marvine St., Phila.	1911
JESSE F. PACKER, Norwood, Pa.	1911
CHARLES W. PALMER, Westtown Boarding School, Chester Co., Pa.	1910
HARRY E. PARKER, Southampton, Pa.	1915
MAX M. PEET, M. D., University of Pennsylvania, Phila.	1913
WILLIAM PEPPER, M. D., 1811 Spruce St., Phila.	1912
CHARLES PLATT, 3RD, E. Graver's Lane, Chestnut Hill, Phila.	1912
EARL L. POOLE, 2027 N. 25th St., Phila.	1910
JAMES F. PRENDERGAST, M. D., 4012 Chestnut St., W. Phila.	1899
CHARLES J. RHOADS, 406 Chestnut St., Phila.	1890
S. EARL RIDDLE, Box No. 402, Chester, Pa.	1910
ANTHONY W. ROBINSON, 409 Chestnut St., Phila.	1898
WILLIAM B. SCHEUING, 317 N. 63d St., Phila.	1893
SAMUEL SCOVILLE, JR., Penna. Bldg., 15th & Chestnut Sts., Phila. ..	1907
EDWARD A. SELLIEZ, 1317 N. Nineteenth St., Phila.	1902
WILLIAM J. SERRILL, Haverford, Pa.	1891
DONALD SHERRERD, Haddonfield, N. J.	1913
WALTER G. SIBLEY, 6626 McCallum St., Germantown, Phila.	1900
L. I. SMITH, JR., 3908 Chestnut St., W. Phila.	1901
WALTER GORDON SMITH, Eyebrow, Saskatchewan, Canada	1898
WILLIAM H. STRANG, 277½ Chestnut St., Camden, N. J.	1907
JOSEPH C. SUDDERS, Olney, Phila.	1910
SAMUEL A. TATNALL, 409 Chestnut St., Phila.	1910
JOSEPH W. TATUM, Audubon, N. J.	1892
FRANCIS H. TOMLIN, DDS., Haddonfield, N. J.	1909
WILLIAM H. TROTTER, Chestnut Hill, Phila.	1899
HENRY TUCKER, M. D., 2000 Pine St., Phila.	1906
CHARLES A. VOELKER, Aldan, Delaware Co., Pa.	Founder.
PAUL VOSBERG, Franklin Bank Bldg., Phila.	1905
A. L. WHEELER, PH. D., Bryn Mawr, Pa.	1905
ALBERT L. WHITAKER, Cedar Grove, Frankford, Phila.	1896
JAMES L. WHITAKER, Cedar Grove, Frankford, Phila.	1904
WALTER R. WHITE, Lansdowne, Delaware Co., Pa.	1903
EDWARD L. WILDMAN, 4331 Osage Ave., Phila.	1914
FRANCIS WINDLE, West Chester, Pa.	1910
EDWARD W. WOOLMAN, 44 N. Thirty-eighth St., W. Phila.	1902
EDWARD WOOLMAN, Haverford, Pa.	1915

HONORARY MEMBER.

WILLIAM LOUIS ABBOTT, M. D., London, England 1912

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CHARLES H. BAKER, Verona, Allegheny Co., Pa. 1900
 O. E. BAYNARD, Clearwater, Fla. 1911
 THOMAS J. BEANS, Moorestown, N. J. 1895
 HERMAN BEHR, Jennings, Md. 1897
 OTTO BEHR, Lopez, Sullivan Co., Pa. 1897
 B. S. BOWDISH, Demarest, N. J. 1913
 W. H. BULLER, Marietta, Lancaster Co., Pa. 1895
 CHARLES BUVINGER, M. D., Newark, N. J. 1900
 HERBERT L. COGGINS, 770 Mission St., San Francisco, Cal. 1897
 WILLIAM J. CRESSON, Box 249, Pittsburg, Pa. 1899
 LIEUT. FRANK B. EASTMAN, U. S. A., Chester Military Academy, Pa. 1898
 MARCUS S. FARR, Princeton, N. J. 1901
 ALFRED M. GITHENS, New York City 1895
 HARRY L. GRAHAM, Redlands, Cal. 1897
 ALLEN H. GROSH, York, York Co., Pa. 1900
 H. WALKER HAND, 1002 Washington St., Cape May, N. J. 1900
 WM. E. HANNUM, Lynn, Mass. 1901
 RICHARD C. HARLOW, State College, Pa. 1904
 THOMAS R. HILL, Bee Building, Omaha, Neb. 1908
 CHRISWELL J. HUNT, Oak Park, Ill. 1902
 THOMAS H. JACKSON, West Chester, Pa. 1895
 J. WARREN JACOBS, Waynesburg, Greene Co., Pa. 1895
 THOMAS D. KEIM, 405 Radcliffe St., Bristol, Pa. 1902
 RAYMOND KESTER, Williamsport, Pa. 1892
 SAMUEL B. LADD, Reading, Pa. 1895
 W. H. LIEBELSPERGER, Fleetwood, N. J. 1913
 PAUL L. LORRELLIERE, Baltimore, Md. 1904
 EDW. J. F. MARX, Easton, Pa. 1909
 WALDRON DE W. MILLER, Plainfield, N. J. 1900
 HOWARD Y. PENNELL, M. D., Downingtown, Pa. 1894
 A. H. PHILLIPS, Princeton, N. J. 1895
 ALFRED C. REDFIELD, Cambridge, Mass. 1908
 H. JUSTIN RODDY, State Normal School, Millersville, Lanc. Co., Pa. 1895
 CHAS. H. ROGERS, 240 So. Broad St., Elizabeth, N. J. 1905
 ROBERT P. SHARPLES, West Chester, Pa. 1906
 C. F. SILVESTER, Princeton, N. J. 1901
 R. B. SIMPSON, Warren, Warren Co., Pa. 1907
 FREDERICK SÖRENSEN, Chalmersgarten, Göthenburg, Sweden 1900
 REYNOLD A. SPAETH, Cambridge, Mass. 1901
 FREDERICK W. STACK, Doubleday Page and Co., N. Y. City 1905
 HUGH E. STONE, Coatesville, Pa. 1895

H. A. SURFACE, Harrisburg, Pa.	1900
W. E. CLYDE TODD, Carnegie Museum, Pittsburg, Pa.	1895
HENRY WARRINGTON, San Francisco, Cal.	1896
ASA P. WAY, Bridgeton, N. J.	1902
WILLIAM L. WHITAKER, Ada, Okla.	1893
J. JAY WISLER, Columbia, Pa.	1904
ROBERT T. YOUNG, State University, N. Dakota.....	1892

DECEASED MEMBERS.

Died.

JOHN FARNUM BROWN, Active member.....	May 13, 1894
WALTER D. BUSH, Corresponding member.....	August 11, 1904
WILLIAM B. CRISPIN, Corresponding member.....	May 9, 1913
JOHN W. DETWILLER, M. D., Corresponding member	September 26, 1898
ERNEST M. EVANS, Associate member	June 29, 1911
HENRY HALES, Corresponding member.....	November 6, 1913
LARUE K. HOLMES, Corresponding member	May 10, 1900
JOSIAH HOOPES, Corresponding member.....	January 16, 1904
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FRANCIS W. RAWLE, Associate member	June 12, 1911
S. FEW SEISS, Associate member	September 5, 1915
EDWIN SHEPPARD, Associate member	April 7, 1904
WILLIAM W. SMITH, Associate member	July 3, 1892
CHARLES S. WELLES, Associate member	February 24, 1914
WILLIAM H. WERNER, Corresponding member.....	May 13, 1912
SAMUEL W. WOODHOUSE, M. D., Honorary member...	October 23, 1904

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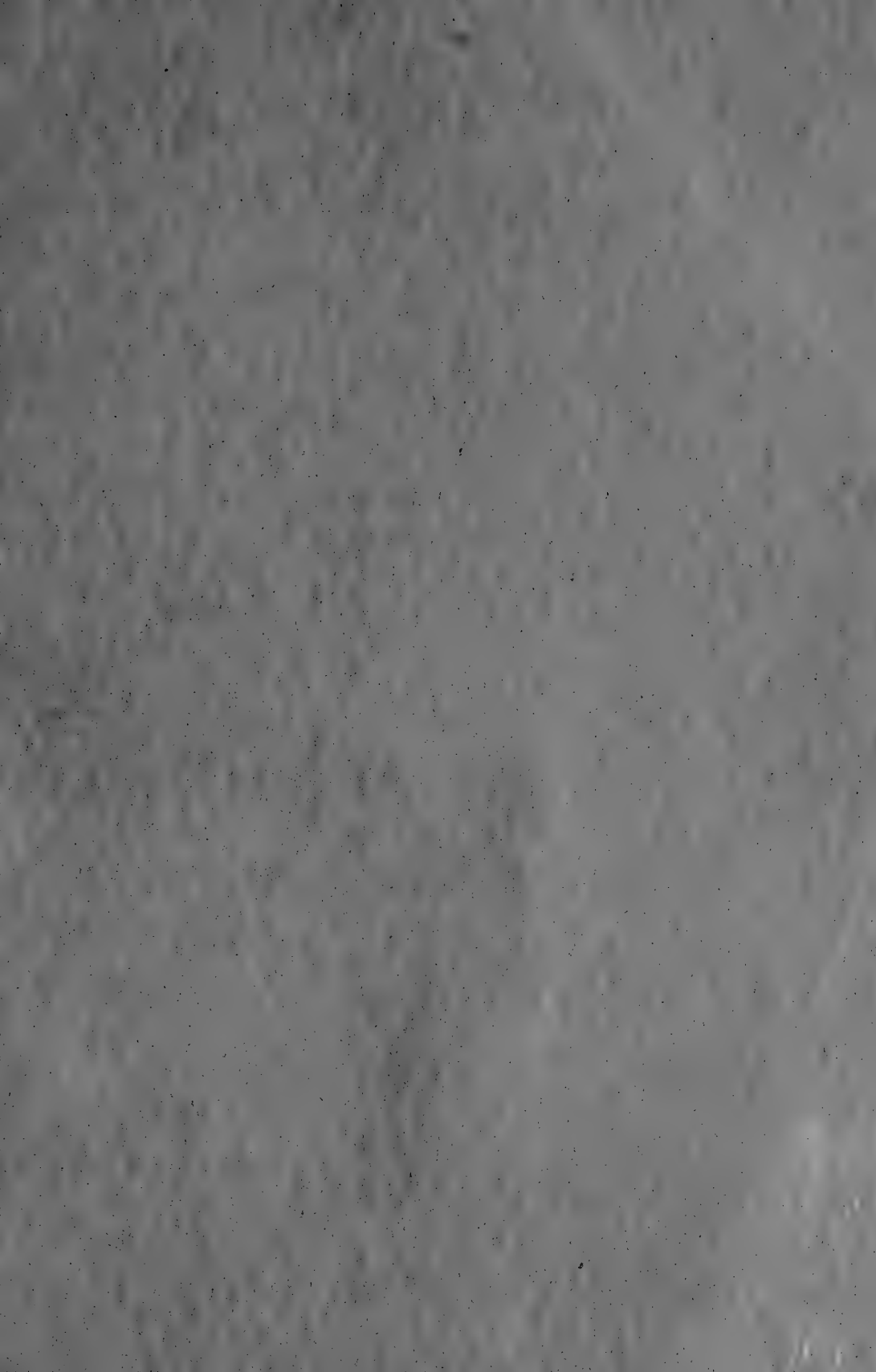
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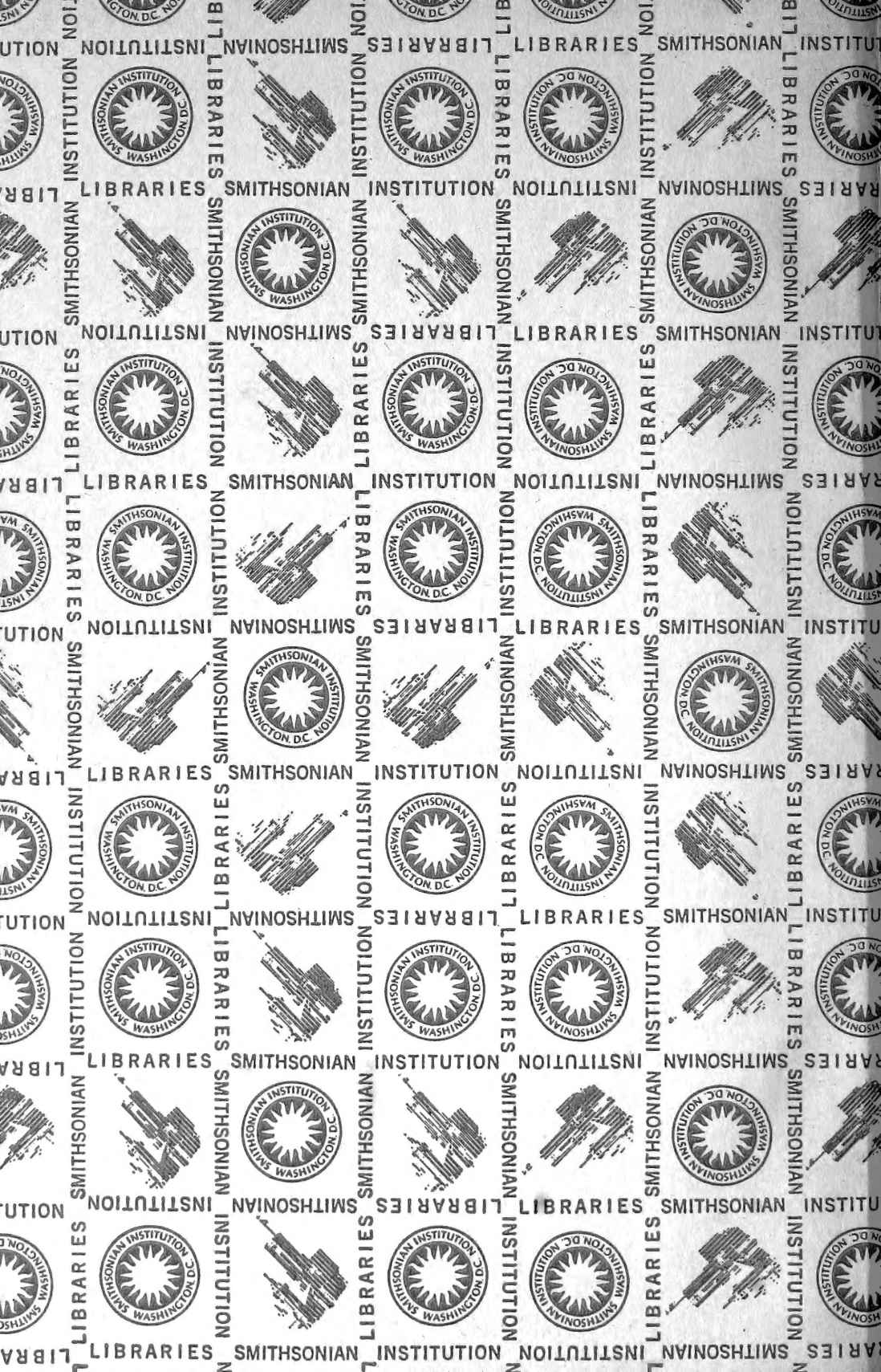


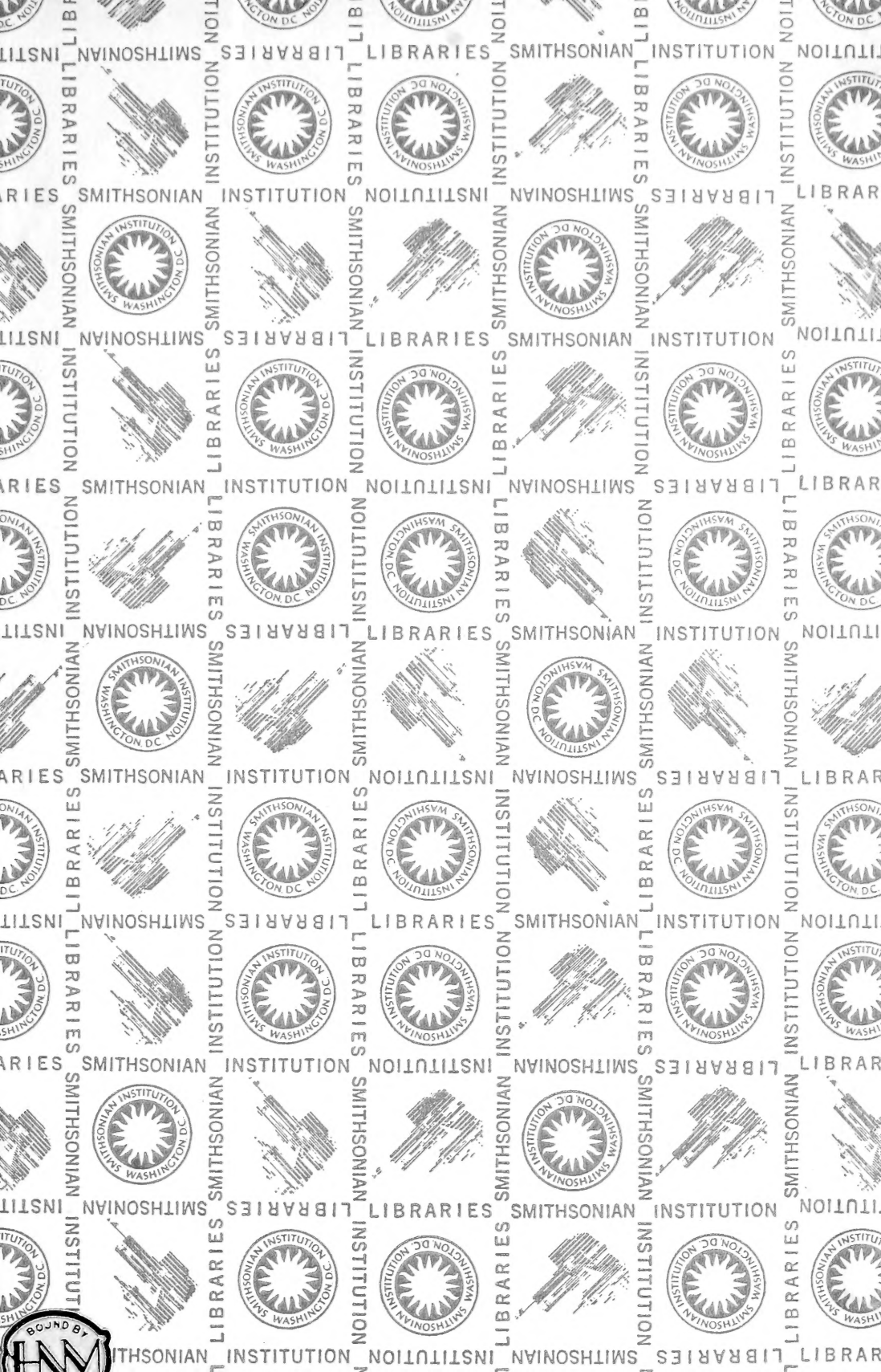
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