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EDITED BY PAUL M. REA, DIRECTOR
I

BIRDS
OF
SOUTH CAROLINA

BY

ARTHUR TREZEVANT WAYNE
Honorary Curator of Birds in the Charleston Museum

WITH AN INTRODUCTION BY THE EDITOR

CHARLESTON, S. C.
1910

The Charleston Museum

UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON

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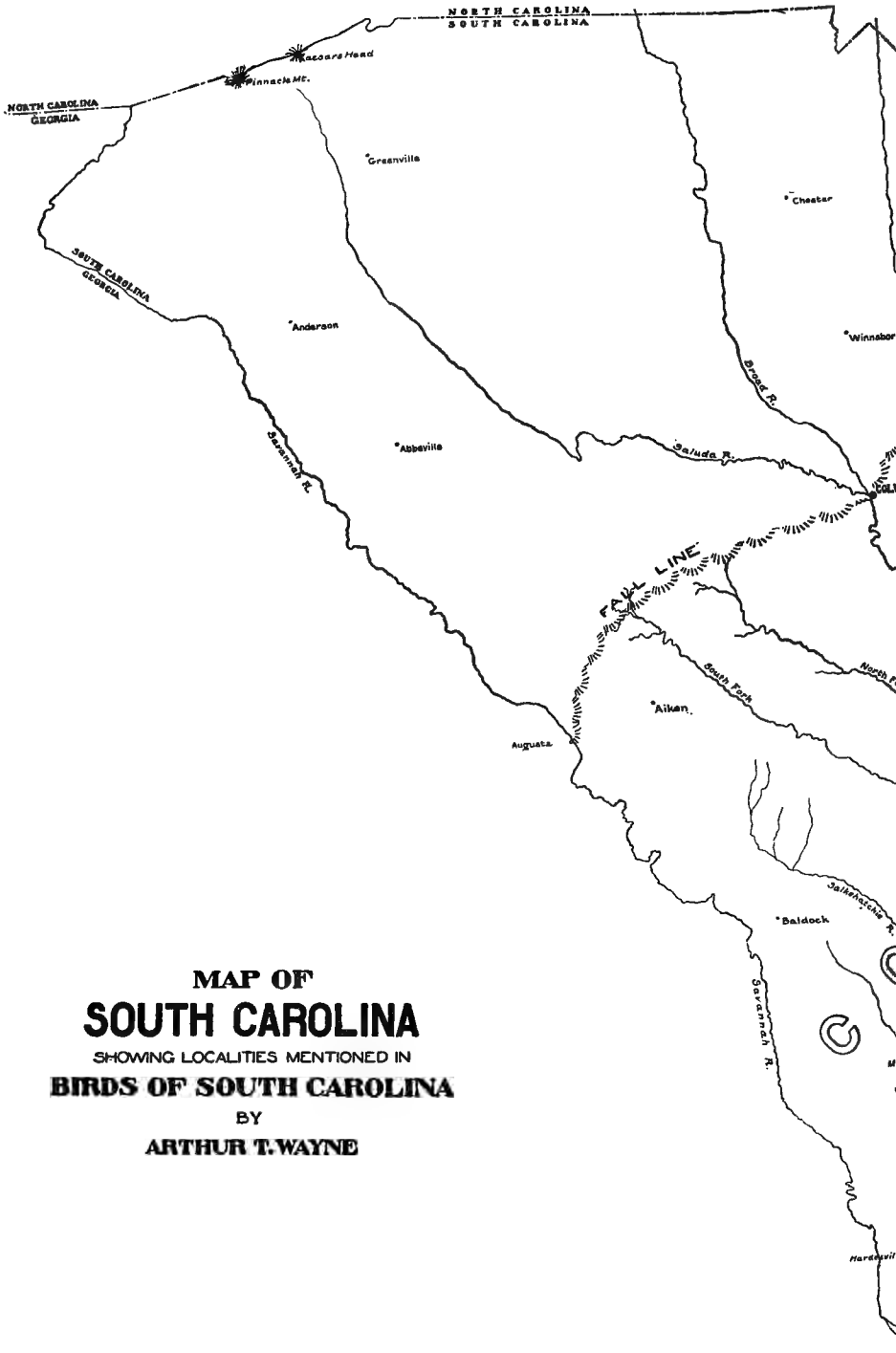

MAP OF

SOUTH CAROLINA

SHOWING LOCALITIES MENTIONED IN

BIRDS OF SOUTH CAROLINA

BY

ARTHUR T. WAYNE


FALL LINE
Lancaster
Society Hill
Black R.
Peee R.
Little Pee Dee R.
Camden
Catawba R. or Wateree R.
Lynches R.
Wateeemaw R.
Summerton
Black R.
Santee R.
Georgetown
PAWLEY'S I.
NORTH I.
Winyah Bay
SOUTH I.
Mt. Clellanville
Pinopolis
Oakley
Edisto R.
Cape Romain
RACOON KEYS
Bulls Bay
BULL'S I.
CAPERS I.
DEWEES I.
LONG I.
SULLIVANS I.
MORRIS I.
FOLLY I.
KIAWAH I.
EDISTO I.
Ashley R.
Woodstock
Sineares Sta.
Tan Mills
Cooper R.
Ashepoo
Ashepoo R.
Combahee R.
Frogmore
St. Helena Sound
ST. HELENA I.
HUNTING I.
PRITCHARD'S I.
Port Royal Sound
HILTON HEAD I.
TYBEE I.

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THE DAGGETT PRINTING CO.
CHARLESTON, S. C.
1910

To

WILLIAM BREWSTER

Who has always aided and encouraged my ornithological pursuits, this book is affectionately dedicated by the author.

PREFACE.

At the solicitation of many of my ornithological friends this work was begun more than five years ago, but for various reasons its completion has been retarded. It was originally intended to treat only the birds of the coast region, to which the greater part of my field work has been confined. In compliance with a request from Mr. Leverett Mills Loomis, however, I have added an annotated list of additional species of the Piedmont and Alpine regions, which are not found in the coast region. This is printed next in order after the coast list.

The scientific names used in this work are those adopted by the committee on nomenclature of the American Ornithologists' Union, up to and including the fifteenth supplement to the Check-List. With few exceptions, the nests and eggs of birds which breed in the coast region are described, all measurements being in English inches and hundredths, but no attempt has been made to give full life histories. In fact, the account of nearly every species is abridged as much as possible.

Dr. Elliott Coues' Synopsis of the Birds of South Carolina[1] is unfortunately so full of errors that I have placed many of his species in the hypothetical list, since they are based on purely hypothetical grounds in my opinion, and in the opinion of many of my ornithological friends. In the cases of the Yellow-bellied Flycatcher, Tree Sparrow, Warbling Vireo, Nashville Warbler, and Mourning Warbler, Dr. Glover M. Allen searched the collection of the Boston Society of Natural History, and Professor Wells W. Cooke examined the collections of the Smithsonian Institution, but neither was able to find specimens which might have been taken by Dr. Coues, and the accession lists did not show that any were ever received. Neither Mr. Loomis nor I have ever met with these species in South Carolina.

Although Mr. Loomis was the first person to report the occurrence of the Prairie Horned Lark in the State, I have not credited this form to the list of birds added to the fauna by him, since the birds recorded by Dr. Elliott Coues[2] in 1868 were un-

[1] *Proc. Bost. Soc. Nat. Hist.*, XII, 104–127.

[2] Ibid, 114.

doubtedly representatives of this race, which was not recognized nor described until 1884. Mr. Loomis' splendid work in the vicinity of Chester, as well as his papers on the birds of Mount Pinnacle and Cæsar's Head, needs no eulogy, as it speaks for itself.

I am greatly indebted to my friend, Professor Paul M. Rea, for revising the manuscript, as well as for carrying the work through the press. From the moment the manuscript was placed in his hands it has required a large part of his time and energy, and his services and advice have been simply invaluable to me. The proof-reading has been done by Mr. Rea. with my assistance on the final galley and page proof.

I am also much indebted to my friend Dr. Eugene Edmund Murphey, of Augusta, Georgia, for many records of birds new to the fauna of South Carolina, as well as for some interesting records made by him at Augusta. Dr. Murphey has made many trips to the Carolina coast and has explored it from South Island to Bay Point, Port Royal Sound.

To my wife I am deeply indebted for constant encouragement during many years of research work, for companionship on my field trips in Florida as well as in my native state, and for valuable assistance in the preparation of this book.

A. T. W.

MOUNT PLEASANT, SOUTH CAROLINA,
APRIL 30, 1910.

CONTENTS

INTRODUCTION[1]

BY

PAUL MARSHALL REA
Director of The Charleston Museum

PHYSICAL DIVISIONS OF SOUTH CAROLINA.

The state of South Carolina is composed of three distinct topographic areas: (1) The Appalachian or Alpine Region, comprising the foothills of the Appalachian Mountains, in the extreme northwestern part of the State; (2) the Piedmont Region, geologically the oldest portion of the State, lying between the Appalachian Region and the "fall line," which passes through Camden, Columbia, and Augusta, and marks the transition to the softer formations of (3) the Coast Region, extending from the fall line to the ocean.

These regions have been well characterized in a work published by the State Board of Agriculture.[2] In that work, however, the term "coast region" is applied only to the sea islands, the salt marshes, and the coast north of Santee River and Georgetown entrance, while the term as used by the Charleston Museum is co-extensive with the geological coastal plain.

The Coast Region, as the term is used in this work, may be divided for ornithological purposes into (1) the Sea Islands, (2) the Salt Marshes, (3) the Freshwater Swamps, (4) the River Rice Fields, (5) the Inland Rice Fields and Reservoirs, and (6) Main Land.

The Sea Islands are barrier beaches, consisting of sand dunes and arable land devoted to truck farming and sea-island cotton, and are said to contain about eight hundred square miles.

The Salt Marshes lie between the sea islands and the main land, and along the rivers to the head of tide water. Their area is estimated at six hundred square miles.

The Freshwater Swamps occupy extensive regions beyond the

[1] This introduction has been prepared at the request of Mr. Wayne, who was prevented from writing it by prolonged illness. The lists of species and other information have been furnished by Mr. Wayne.—Ed.

[2] South Carolina. Resources and Population. Institutions and Industries. Published by the State Board of Agriculture of South Carolina. Charleston, S. C., 1883.

influence of tide water, and are usually heavily timbered with cypress, tupelo, etc.

The River Rice Fields are confined to the region in which the fresh water of the rivers rises and falls as it is backed up by the tides. The rice fields themselves are reclaimed swamp lands protected from the river by dykes, and flooded by trunks controlled by gates.

The Inland Rice Fields are also reclaimed swamp land, but are flooded by water impounded in reservoirs formed by freshwater swamps.

The Main Land consists for the most part of plantations, pastures, and timbered land, with bushes growing along the roads and the edges of the fields. The Red Hills and the Sand Hill region have not been covered in the field work upon which this book is based, and do not, therefore, require special mention here.

HISTORY OF ORNITHOLOGY IN SOUTH CAROLINA.

The literature of ornithology in South Carolina includes works of three kinds: Narratives of early explorers, in which more or less space is given to accounts of birds in connection with descriptions of the country; scientific accounts based on ornithological field work; and nominal lists compiled from previous publications.

EARLY EXPLORATIONS.

The first description of South Carolina containing any extended account of birds is that of Hilton.[1] I have not seen this work in the original, but it has been reprinted in the South Carolina Historical Society Collections,[2] in Courtenay's Genesis of South Carolina, and in the Year Book of the City of Charleston.[3] The last has the appearance of a very careful reprint. In describing the coast from Port Royal to the Edisto River, Hilton says:

"The Country abounds with Grapes, large Figs, and Peaches; the Woods with Deer, Conies, Turkeys, Quails, Curlues, Plovers, Teile, Herons; and as the *Indians* say, in Winter, with Swans, Geese, Cranes, Duck and Mallard, and innumerable of other water-Fowls, whose names we know not, which lie in the Rivers, Marshes, and on the Sands:"

[1] Hilton [William], A relation of a discovery lately made on the coast of Florida, (From Lat. 31. to 33 Deg. 45 min. North-Lat.).... Lond. 1664.

[2] Vol. V. Richmond, 1897, 18-49. [3] 1884, 229-261.

In A Brief Description of Carolina, etc., published for Robert Horne, in 1666,[1] is found a casual reference to birds.

Quotations of a similar character are given by Mr. Leverett M. Loomis[2] from the section on Carolina in Ogilby's America (1671); from a description of Carolina published in 1682, by T[homas] A[sh]; and from The Present State of Carolina with Advice to the Settlers. By R. F. (1682). He also refers to observations on birds in Samuel Wilson's Account of the Province of Carolina in America (1682); in Carolina Described more fully than heretofore, published anonymously in 1684; and in A Letter from South Carolina, which appeared in three editions in 1710, 1718, and 1732. The notice of birds in Gov. Glen's Description of South Carolina (1761) is said to be drawn from this letter.

In the journal of his voyage from Charleston to North Carolina, John Lawson (1709) gives brief notes on the birds seen or shot for food.

CATESBY.

Scientific ornithology, however, begins in South Carolina with Mark Catesby's two large and handsome volumes on The Natural History of Carolina, Florida, and the Bahama Islands, published in London in 1731–1748. The parallel between the aims and achievements of Catesby and Audubon is striking.

Catesby arrived in Carolina May 23, 1722, and spent the first year in the coast country, "searching after, collecting and describing the Animals and Plants." He then visited the upper, uninhabited parts of the State, continuing up towards the mountains. An Indian guide carried his collecting box and painting materials, and he painted the plants while fresh and drew the birds from life. His attitude toward the work is best explained in his own words:

"...as there is greater Variety of the feather'd Kind than of any other Animals, (at least to be come at) and as they excel in the Beauty of their Colours, and have a nearer relation to the Plants which they feed on and frequent; I was induced chiefly (so far as I could) to compleat an Account of them, rather than to describe promiscuously Insects and other Animals; by which I must have omitted many of the Birds (for I have not Time to do all); by which method I believe very few Birds have escaped my

[1] Reprinted in Carroll's Historical Collections.

[2] An historical Sketch of South Carolinian Ornithology. (*Read February* 6, 1891, *before the Linnæan Society of New York.*)

knowledge, except some Water Fowl, and some of those which frequent the Sea.''

With regard to the names of the birds, he says:

''Very few of the Birds having names assigned to them in the country, except some which had Indian names; I have called them after European Birds of the same Genus, with an additional Epithet to distinguish them.''

He discusses the possible introduction of birds into America from Europe, and the problem of migration. In this connection he gives a list of twelve species of land birds which breed in Carolina but winter elsewhere; six land winter visitants; six European land birds found in America; twenty European land birds found as winter visitants in America; and five American species of land birds which are winter visitants in Carolina. The main body of the work is devoted to plates and text descriptions of one hundred and four species of birds, each represented in a full-page color plate with the species of plants which it frequents. Catesby apologizes for faults of perspective, etc., due to lack of training in painting.

Upon his return to England, being discouraged by the cost of engraving, he undertook to etch his own plates, after receiving some instruction from an artist friend. He notes especially that he gives the actual texture of the feathers in place of using the cross-hatching of the engravers, believing that the results are better.

HEWAT, DRAYTON, BARTRAM, ETC.

In the Historical Account of the Rise and Progress of the Colonies of South Carolina and Georgia (1779), attributed to Dr. Alexander Hewat, the birds are given cursory mention.[1]

Drayton's View of South Carolina (1802) contains a nominal list of eighty-one species of birds, which reappears, with some additions, in Ramsay's History of South Carolina (1809), and again in Mill's Statistics of South Carolina (1826). Drayton records the breeding of the Raven at Table Rock, Pendleton district (now Pickens county), and refers to the abundance of Wild Pigeons.

In 1791 William Bartram published an account of his botanical travels from 1773 to 1778 through the Carolinas, Georgia, etc. in which is included a list of two hundred and fifteen species of

[1] I, 85-86.

birds found between the Appalachian Mountains and the sea, from New England to the Gulf. This is the most complete list of birds previous to Alexander Wilson's, and is accompanied by notes on migration. Bartram's name has been given to the Upland or Field Plover (*Bartramia longicauda*).

WILSON.

Alexander Wilson did very little work in South Carolina, but passed through to Savannah and worked in the Savannah River region. Mr. Wayne confirms Wilson's account of the arrival and departure of the Marsh Hawk, which was rejected by Audubon on the testimony of Bachman.

AUDUBON AND BACHMAN.

Modern ornithology begins with the work of Audubon and Bachman. While Bachman has left few separate publications on birds he furnished a large part of the information contained in Audubon's accounts of the birds of South Carolina, as the quotations in the following pages abundantly show.

The work of Audubon and Bachman was done in the immediate vicinity of Charleston, making this a classic field in American ornithology. An especially interesting feature of the present work is that Mr. Wayne has covered the same field, and since he finds it necessary in the following pages to correct a number of errors of Audubon and Bachman, it may be well to indicate here that these errors are due chiefly to acceptance of second-hand information on migration and other matters, or to inadequate field work. It must be remembered that Mr. Wayne has worked almost continuously in a comparatively small region for nearly thirty years, while Audubon was a pioneer in a much larger field.

The following new species were discovered by Bachman, near Charleston:

1. *Passerherbulus maritimus macgillivraii.* Macgillivray's Seaside Sparrow.
2. *Peucæa æstivalis bachmanii.* Bachman's Sparrow.
3. *Helinaia swainsonii.* Swainson's Warbler.
4. *Vermivora bachmani.* Bachman's Warbler.

The following new species were discovered by Audubon:

1. *Rallus elegans.* King Rail.

2. *Stelgidopteryx serripennis.* Rough-winged Swallow.
3. *Penthestes carolinensis.* Carolina Chickadee.

The details of the ornithological work of Audubon and Bachman are too well known to need further mention here.

NOMINAL LISTS.

A nominal list of two hundred and seventy-one species of birds, based on Audubon's Synopsis, appears in the Catalogue of the Fauna of South Carolina, which Lewis Reeve Gibbes prepared for publication in Tuomey's Report on the Geology of South Carolina (1848). Professor Gibbes was a broad student of natural science, whose interest in birds was greatest at the time he compiled this list.

Before proceeding with the account of more scientific publications it may be noted that Simms' Geography of South Carolina (1843) contains casual mention of birds in the description of the several districts of the State. Elliott's Carolina Sports by Land and Water (1846) includes an annotated list "of the birds which are the objects of sport." To these Loomis adds Burnett's Notes on the Fauna of the Pine Barrens of Upper South Carolina (1851),[1] and Logan's History of the Upper Country of South Carolina (1859) as containing references to birds.

COUES.

No further ornithological work seems to have been done in the State until 1868, when Dr. Elliott Coues published a Synopsis of the Birds of South Carolina,[2] comprising two hundred and ninety-four species. While this list was based on actual field work in the vicinity of Columbia, during two years when Dr. Coues was stationed there as an army surgeon, he was but twenty-six years of age at the time, and the work is so unfortunately full of errors that little dependence can be placed upon it.

Dr. Coues has been the first to report the following species from South Carolina, the query (?) indicating doubtful records:

1. *Uria lomvia.* Brünnich's Murre.
?. *Empidonax flaviventris.* Yellow-bellied Flycatcher.
?. *Spizella monticola.* Tree Sparrow.
?. *Vireoslyva gilva.* Warbling Vireo.

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[1] *Proc. Bost. Soc. Nat. Hist.* IV, 115-118.

[2] Ibid, XII, 104-127.

?. *Vermivora rubricapilla.* Nashville Warbler.
?. *Oporornis philadelphia.* Mourning Warbler.

MERRIAM.

In 1874 Dr. C. Hart Merriam published a list of fifty-four species from Aiken.[1]

LOOMIS.

The only systematic ornithological work ever done in the Piedmont and Appalachian regions of the State is that of Mr. Leverett Mills Loomis, who worked in the vicinity of Chester, Caesar's Head, and Pickens county, between 1876 and 1892, when he removed from the State. His work was published chiefly in the *Auk*, and is admirably accurate and thorough.

The following species have been added to the fauna of the State by Mr. Loomis. It is of interest in this connection that four of these species have been taken in the coast region by Mr. Wayne.

1. *Lobipes lobatus.* Northern Phalarope.
2. *Xanthocephalus xanthocephalus.* Yellow-headed Blackbird.
3. *Euphagus cyanocephalus.* Brewer's Blackbird.
4. *Quiscalus quiscula æneus.* Bronzed Grackle.
5. *Calcarius lapponicus.* Lapland Longspur.
6. *Calcarius pictus.* Smith's Longspur.
7. *Passerherbulus leconteii.* Leconte's Sparrow.
8. *Dendroica dominica albilora.* Sycamore Warbler.
9. *Seiurus noveboracensis notabilis.* Grinnell's Water-Thrush.
10. *Hylocichla fuscescens salicicola.* Willow Thrush.
11. *Hylocichla aliciæ bicknelli.* Bicknell's Thrush.
12. *Psaltriparus minimus.* Bush-tit. (*fide* Dr. Cornelius Kollock in letter to Mr. Loomis.)

TRUE.

In 1883 Dr. Frederick W. True compiled A List of the Vertebrate Animals of South Carolina, including a nominal catalog of three hundred and twelve species of birds, for a work published by the State Board of Agriculture.[2]

HOXIE.

Between 1884 and 1892 Mr. Walter Hoxie published a series of

[1] Ornithological notes from the South. *Am. Nat.*, VIII, 1874, 6-9.

[2] South Carolina. Resources and Population. Institutions and Industries. Published by the State Board of Agriculture of South Carolina. Charleston, S. C., 1883.

papers based upon field work on the coast, especially about Frogmore. Unfortunately many of the records reported in these papers are regarded by Mr. Wayne as open to serious question.

Mr. Hoxie has added the following species to the fauna of the State.

1. *Sterna anæthetus.* Bridled Tern.[1]
2. *Dendroica kirtlandii.* Kirtland's Warbler.

SMYTH.

Mr. Ellison A. Smyth, Jr. did considerable ornithological work in Charleston and vicinity, chiefly in the years 1886-1888. Many of his records are cited in the text, and his publications are listed in the bibliography.

BREWSTER.

Among ornithologists who have visited South Carolina during the past thirty years Mr. William Brewster is of special importance, not only for the work he has done in the State, but for the continual encouragement and assistance which he has given Mr. Wayne.

Mr. Brewster has visited the State but three times, namely—1883, two weeks in May; 1884, March to May; 1885, May. He has added the following species to the fauna of South Carolina.

1. *Sterna anæthetus.* Bridled Tern.[1]
2. *Phalacrocorax carbo.* Cormorant.
3. *Quiscalus quiscula aglæus.* Florida Grackle.
4. *Passerherbulus nelsoni.* Nelson's Sparrow.[2]
5. *P. n. subvirgatus.* Acadian Sharp-tailed Sparrow.
6. *Lanivireo solitarius alticola.* Mountain Solitary Vireo.[2]

Through his intimate relation with Mr. Wayne, Mr. Brewster has been more closely identified with the ornithology of South Carolina since 1883 than any other worker outside the State.

WAYNE.

Mr. Wayne began serious ornithological work at the time of Mr. Brewster's visit to Charleston in 1883, although he had been interested in birds for many years previous. He worked with Mr. Brewster in a search for Swainson's Warbler, which had practi-

[1] Specimen taken by Mr. Hoxie, but recorded by Mr. Brewster.
[2] Specimens taken by Mr. Wayne, but recorded by Mr. Brewster.

cally been a lost species since it was first taken by Bachman in 1833. Success in this quest came first to Mr. Wayne, although Mr. Brewster took a specimen a week later.

For more than twenty-five years Mr. Wayne has maintained a continuity of field work seldom equalled. It is of interest to note that he has been absent from the coast region on but five occasions. From July to October 1882 he worked about Greenville, seeing two pairs of Wild Pigeons at Cæsar's Head in July of that year. He has made four trips to Florida: March to August, 1892; October and a part of November, 1892; February to June, 1893; and February to July, 1894. From August 1908 to the same month in 1909 he was away from the State on account of illness. With these exceptions Mr. Wayne has been continuously in the field for thirty years. The fact that some of his most remarkable records have been made on the plantation where he lives shows the possibilities of continuous observation of even small regions.

Mr. Wayne has added the following species to the fauna of the State:

1. *Stercorarius parasiticus.* Parasitic Jaeger.
2. *Stercorarius longicaudus.* Long-tailed Jaeger.
3. *Sterna caspia.* Caspian Tern.
4. *Oceanodroma leucorhoa.* Leach's Petrel.
5. *Querquedula cyanoptera.* Cinnamon Teal.
6. *Oidemia americana.* American Scoter.
7. *Grus canadensis.* Little Brown Crane.
8. *Aramus vociferus.* Limpkin.
9. *Phalaropus fulicarius.* Red Phalarope.
10. *Macrorhamphus scolopaceus.* Long-billed Dowitcher.
11. *Ereunetes mauri.* Western Sandpiper.
12. *Catoptrophorus semipalmatus inornatus.* Western Willet.
13. *Buteo platypterus.* Broad-winged Hawk.
14. *Aquila chrysaëtos.* Golden Eagle.
15. *Falco columbarius richardsonii.* Richardson's Pigeon Hawk.
16. *Cryptoglaux acadica.* Saw-whet Owl.
17. *Nuttallornis borealis.* Olive-sided Flycatcher.
18. *Empidonax traillii alnorum.* Alder Flycatcher.
19. *Otocoris alpestris.* Horned Lark.
20. *Passerculus princeps.* Ipswich Sparrow.

21. *Passerherbulus nelsoni.* Nelson's Sparrow.[1]

22. *Passerherbulus maritimus fisheri.* Fisher's Seaside Sparrow.

23. *Zonotrichia leucophrys.* White-crowned Sparrow.

24. *Peucæa æstivalis.* Pine-woods Sparrow.

25. *Calamospiza melanocorys.* Lark Bunting.

26. *Petrochelidon lunifrons.* Cliff Swallow.

27. *Lanivireo solitarius alticola.* Mountain Solitary Vireo.[1]

28. *Anthus spragueii.* Sprague's Pipit.

29. *Telmatodytes palustris marianæ.* Marian's Marsh Wren.

30. *Telmatodytes palustris griseus.* Worthington's Marsh Wren.

31. *Telmatodytes palustris iliacus.* Prairie Marsh Wren.[2]

32. *Sitta carolinensis atkinsi.* Florida White-breasted Nuthatch.

THE CHARLESTON MUSEUM.

In 1905 the Museum organized the Charleston Natural History Society and undertook to encourage popular study of birds. It was found, however, that no reliable summary of the birds of the coast region was available, and the Museum therefore began a survey, which has since been extended to include the general fauna and flora of the coast region. Record forms were devised and the data obtained are now filed in the Museum. Mr. Wayne greatly facilitated the early stages of this work by furnishing lists of seasonal occurrence. While records have been supplied by many members of the Natural History Society, the field work has been done chiefly by Messrs. Herbert Ravenel Sass and Francis Marion Weston, Jr., students at the College of Charleston and later assistants at the Charleston Museum. Neither has had more than occasional opportunities for field work. A number of important records have been recently contributed to the survey by Messrs. Burnham and Rhett Chamberlain, younger members of the Natural History Society.

The work has extended over a strip twenty-five miles wide between the Edisto and Pee Dee rivers, but the most complete records are for land birds in and immediately about Charleston. The haunts of swamp, marsh, and beach birds have been visited irregularly, resulting in incomplete records for some of the ducks,

[1] Specimens taken by Mr. Wayne, but recorded by Mr. Brewster.

[2] Specimens taken by Mr. Wayne, but recorded by Mr. Ridgway.

shore birds, sparrows, etc. In spite of these difficulties many important records have been made and published in the *Bulletin* of the Museum and elsewhere. When these records extend those given in the text of this book they have been inserted as editorial footnotes, since Mr. Wayne has been prevented by prolonged illness from revising the manuscript during its preparation for the printers.

OTHER WORKERS.

The work of other ornithologists in South Carolina is reviewed in the text or cited in the bibliography at the end of the book.

DISTRIBUTION OF FIELD WORK.

Mr. Wayne has worked in the counties of Charleston, Berkeley, Dorchester, Colleton, Beaufort, and Hampton, with four months in Greenville County. He has never been in Horry or Georgetown counties, and has not been in Beaufort or Hampton since 1891. He spent the winter, spring, and summer of 1887, the months of January and February, 1888, and part of August, 1890, at Yemassee and vicinity. In the spring of 1891 he worked in the Savannah River swamp from Purysburg to a point opposite the city of Savannah. He has devoted particular attention to Sullivan's, Long, Dewees, Capers', and Bull's islands, with the adjacent salt marshes and sounds. Much of his early work was done on Sullivan's Island, while the later years have been spent on the more northern islands. The work of Audubon and Bachman covered almost the same region as that of Mr. Wayne.

The Charleston Museum has a few records for Georgetown, based on work done by Mr. Weston in that vicinity.

Chester, Greenville, and Pickens counties were thoroughly worked by Mr. Loomis from 1876 to 1892. His records form the basis of the references in the text to the upper parts of the State.

The region about Columbia has been worked by Lewis Reeve Gibbes, Robert W. Gibbes, and Elliott Coues.

Birds of the Coast Region.

ORDER PYGOPODES: DIVING BIRDS.

FAMILY COLYMBIDÆ: GREBES.

1. **Colymbus auritus** Linn. HORNED GREBE.

The Horned Grebe is a common winter and early spring visitant, arriving between October 30 and November 3, and remaining in small numbers until the second week in April. The great majority migrate during the second week in March, and it is rare to see one in full nuptial plumage while they sojourn here. A belated example, in almost perfect nuptial plumage, was taken by Dr. Eugene Edmund Murphey at Cape Romain on May 15, 1904, and another specimen, also in nuptial plumage, was secured by the writer near Mt. Pleasant on June 5, 1907.

This species breeds from the northern United States northward.

2. **Podilymbus podiceps** (Linn.). PIED-BILLED GREBE.

This is an abundant permanent resident, breeding in freshwater ponds or large rice-field reservoirs, where the water is generally from four to ten feet deep. The birds are mated by the last of February, and the nests, which are commenced about the middle of March, are composed of decayed vegetable matter anchored to buttonwood bushes or reeds.

The number of eggs varies from six to eight. They are bluish white, usually stained with brown, and measure 1.75×1.20. A set of eight eggs which contained small embryos was taken April 11, 1900. Both sexes incubate and only one brood is raised. After the breeding season, both young and adults betake themselves to the saltwater creeks, very rarely going as far as the inlets. During the breeding season, the food consists mainly of leeches. The breeding plumage is worn for a long period, as a specimen taken July 26, 1898, was still in full nuptial plumage.

FAMILY GAVIIDÆ: LOONS.

3. **Gavia immer** (Brünn.). LOON.

The Loon is an abundant winter and early spring visitant. My earliest autumn record is October 17, 1895, and by October 27 the birds are always abundant. Adults are rarely seen, confining themselves to the bays and larger inlets and rarely visiting the numerous tidal creeks which abound on this coast.

The northward migration takes place in March, and is at its height by the 28th. This species is occasionally seen in June, and I herewith append three records: June 9, 1902, and June 12 and 19, 1905.

The Loon inhabits the northern part of the northern hemisphere, and, in North America, breeds from Massachusetts and northern New York northward.

4. **Gavia stellata** (Pont.). RED-THROATED LOON.[1]

This boreal species is a very rare visitor as far south as South Carolina, and I have taken but two specimens during the past twenty-five years, as follows: October 15, 1889, and April 8, 1905. Both specimens are in immature plumage.

The Red-throated Loon breeds in the Arctic regions.

ORDER LONGIPENNES: LONG-WINGED SWIMMERS.

FAMILY STERCORARIIDÆ: JAEGERS.

5. **Stercorarius parasiticus** (Linn.). PARASITIC JAEGER.

I have occasionally seen this species chasing gulls in November in Charleston Harbor. It may winter, but I have no knowledge of its presence except in November.

The Parasitic Jaeger breeds in the Arctic regions.

6. **Stercorarius longicaudus** Vieill. LONG-TAILED JAEGER.

At Capers' Island, on December 21, 1896, I observed a bird of this species chasing a flock of gulls. It was in the light phase. This is the only specimen that I have ever seen in South Caro-

[1]A Red-throated Loon in immature plumage was taken on Nov. 21, 1908, by Mr. Samuel Lapham, Jr., on the Ashley River within a few yards of South Battery, Charleston. This specimen was recorded in the *Bulletin* of the Charleston Museum (IV, 1908, 73), and is now in the Charleston Museum (Spec. No. 968). —Ed.

lina, but I have observed numbers in February off the mouth of the St. John's River, Florida.

The Long-tailed Jaeger breeds in the Arctic regions.

FAMILY LARIDÆ: GULLS AND TERNS.

7. **Larus argentatus** Pont. HERRING GULL.

With the exception of the Laughing Gull (*L. atricilla*), this is the most abundant of all the gulls which frequent the harbor of Charleston during the autumn, winter, and spring months. Herring Gulls are valuable scavengers, and hundreds can be seen daily from October until May, feeding upon the refuse matter along the wharves.

In North America, this species breeds from Maine to the Arctic regions.

8. **Larus delawarensis** Ord. RING-BILLED GULL.

This species is an abundant autumn, winter, and late spring visitant, and, like the Herring Gull, is commonly seen about the wharves in Charleston Harbor. It appears to migrate later in the spring than most gulls, for I have observed many birds as late as the middle of May.

The Ring-billed Gull breeds from the northern United States northward.

9. **Larus atricilla** Linn. LAUGHING GULL.

The Laughing Gull generally arrives from the north as early as August 13, and winters abundantly. All through the winter these birds can be heard uttering their weird notes, no matter what temperatures prevail.

Audubon says of this species:[1]

> The Black-headed Gull may be said to be a constant resident [*i. e.* breeds] along the southern coast of the United States, from South Carolina to the Sabine River; and I have found it abundant over all that extent both in winter and in summer.

Audubon was in error in supposing that this species bred in this state; in fact, no species of gull breeds in South Carolina, and he was doubtless misled by seeing birds in late summer.

By the third week in April, most of these birds have acquired their beautiful nuptial plumage, and, at that season, the under

[1] Birds of America, VII, 137.

parts are deeply suffused with a delicate peach-blossom hue, some individuals being more richly colored than others.

This gull breeds locally along the Gulf coast from Texas to Florida, and locally on the Atlantic coast to Maine.

10. **Larus philadelphia** (Ord). BONAPARTE'S GULL.

Bonaparte's Gull is a late autumn, winter, and late spring visitant. It generally arrives from the north early in October and is common by the 14th of the month. On August 20, 1909, one was seen in Charleston Harbor—a very early record.

Like the preceding species, this beautiful bird is in full nuptial plumage by the third week of April, and after it has acquired its breeding plumage it at once migrates to its breeding grounds, which are chiefly in the interior of British America. This species is common in the harbor of Charleston during its entire sojourn in this region. A specimen which I obtained on May 12, 1904, was so extraordinarily bleached that it closely resembled an albino.

11. **Gelochelidon nilotica** (Hasselq.). GULL-BILLED TERN.

This species is a transient visitant, arriving about the middle of April, and is sometimes common up to May 10, but does not breed. It does not frequent the salt marshes while on this coast but prefers the sandy beaches.

The Gull-billed Tern is a cosmopolitan species and, in North America, formerly bred commonly on the coast of Virginia.

12. **Sterna caspia** Pall. CASPIAN TERN.

Although the Caspian Tern was apparently unknown to both Audubon and Bachman, I have been well acquainted with it for many years, and published the first specific record for the State in 1905.[1] The local name of this great tern on the South Carolina coast is "Big Gull." In fact, all the larger terns are called "Big Gulls," while the smaller ones are known as "Little Gulls."

The Caspian Tern is a permanent resident and breeds in small numbers on "Bird Bank," Bull's Bay. The eggs, which are either one or two in number, are grayish or greenish buff, spotted with chocolate and lilac, and measure 2.70×1.75. Fresh eggs may

[1] *Auk*, XXII, 1905, 395-396.

be found in the latter part of May or the first week in June, but the birds are so harassed by people who systematically gather the eggs, that, in order to raise a brood, they continue to lay until late in July.

This tern and the Royal Tern (*S. maxima*) do not breed on the coast islands, although the conditions are favorable, but prefer a "key" or bank which is generally inaccessible in rough weather. The notes of this tern are very guttural and, when the weather is calm, can be heard at a great distance. Of all the terns and gulls which frequent our coast, this species is the shyest and most difficult to secure.

13. **Sterna maxima** Bodd. ROYAL TERN.

Inferior in size to the Caspian Tern alone, this beautiful species is still abundant on our coast. It is only a question of time, however, when it will no longer be plentiful, since it rarely raises a brood, being mercilessly persecuted by fishermen and by people who gather eggs in mere wantonness. How these birds continue to hold their own under such conditions is a mystery, for as soon as they are laid the eggs are taken. The height of the breeding season is the first week in June, but on account of being robbed, the birds continue to lay until late in July. Two or three eggs are laid in a hole scooped out in the sand. The eggs are white or grayish white, spotted and blotched with chocolate, and measure 2.60×1.70.

Mr. Ellison A. Smyth, Jr., in an article on this species, says:[1]

> The Royal Tern is one of the commonest in our Harbor, in the sense that, like the poor, it is always with us. But winter, spring and summer alike know the loud, harsh and not altogether unmusical cry of *S. maxima*.

Mr. Smyth is certainly in error in the statement that this species winters. He refers to a specimen taken December 26, 1887, but the fact that a specimen was taken in late December does not prove that the species winters.

14. **Sterna sandvicensis acuflavida** (Cabot). CABOT'S TERN.

This species is an extremely rare visitant. I have seen but two birds on this coast since 1883, one of which was secured by Mr. William Brewster, in whose company I was, on May 8, 1885, on Sullivan's Island. This specimen was an adult male in full nuptial plumage.

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[1] *Proc. Ell. Soc.*, II, Jan., 1888.

Cabot's Tern has been found breeding in small numbers on "Bird Bank," Bull's Bay, where the eggs are laid during the second week in June. Two or three eggs comprise the full complement, and these are creamy-buff marked with spots and blotches of brown and black, measuring 2.12×1.40.

Mr. T. Gilbert Pearson records[1] the breeding of this species in Pamlico Sound, North Carolina. This is the most northerly record, by two degrees, and must be considered the limit of its breeding range.

15. **Sterna forsteri** Nutt. FORSTER'S TERN.

This tern can fairly be considered a permanent resident, yet it does not breed. During the winter months, it is the only small tern to be seen. On June 18, 1901, I observed thousands of these birds on "Bird Bank," Bull's Bay. Two of these, in immature plumage (=*S. havellii* Aud.), were shot, but their sexual organs showed no approach to the breeding season. I doubt if this tern breeds in the immature plumage.

Forster's Tern breeds from Texas to Manitoba and locally on the Atlantic coast.

16. **Sterna hirundo** Linn. COMMON TERN.

This species is an abundant transient visitant during both migrations, but I have yet to see a specimen taken during the winter months. Audubon says:[2]

> It seems quite curious to see these young birds in winter, during boisterous weather, throwing themselves into the remotest parts of estuaries, and even visiting salt-water ponds at some distance from the sea, as I have often seen them do at Charleston, in South Carolina, when accompanied by my friend the Rev. Dr. Bachman.

The birds seen by Audubon were undoubtedly Forster's Terns, which he described as a new species, naming it Havell's Tern (*S. havellii*).

17. **Sterna dougalli** Montag. ROSEATE TERN.

This beautiful species is a rare transient visitant, evidently migrating at some distance from land, following the coast islands to and from its breeding grounds. Mr. Ellison A. Smyth, Jr., has taken it near Charleston in October.

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[1] *Auk*, XXV, 1908, 312. [2] Birds of America, VII, 99.

18. **Sterna antillarum** (Less.). LEAST TERN.

As a result of the custom of adorning women's hats with birds, these beautiful little terns have become practically, if not absolutely, extinct on this coast, where their graceful presence during the spring and summer months added a peculiar charm to the islands on which they bred. From 1878 to 1886, these terns bred in thousands on the extreme eastern end of Sullivan's Island, and also on Long, Dewees, Capers' and Bull's Islands, but they were mercilessly persecuted during the breeding season. All were shot that could be reached, very few being left. Hunters came from the north with regular outfits to wage war against these poor, defenceless creatures, and in one season alone, all of these terns breeding on Bull's Island were killed. About May 13, full complements of three or four eggs were to be seen. Only one brood was raised. The eggs are of a grayish or buffy color, spotted with dark brown and lilac, and measure 1.25×.90.

19. **Sterna anæthetus** Scop. BRIDLED TERN.

This species is tropical, and is accidental on our coast. A specimen was taken at Frogmore, St. Helena Island, August 25, 1885, by Mr. Walter Hoxie, and was recorded by Mr. William Brewster.[1] It was a young male, shot immediately after the great cyclone of 1885, and is now in Mr. Brewster's collection.

20. **Hydrochelidon nigra surinamensis** (Gmel.). BLACK TERN.

This peculiarly marked tern is a transient visitant very rarely seen in the spring migration, but exceedingly abundant in late summer and early autumn. It generally arrives during the latter part of July, and I mention July 10, 1894, as my earliest record. I have not observed it after the first week in October. The Black Tern winters as far south as Chile.

FAMILY RYNCHOPIDÆ: SKIMMERS.

21. **Rynchops nigra** Linn. BLACK SKIMMER.

The local name of this species on the South Carolina coast is "Shearwater." It is a summer resident, arriving about the middle of April and remaining until late in the autumn—November 16, 1885, being my latest record. The birds arrive while in moult,

[1] *Auk*, III, 1886, 131.

which is not completed until about June 16-18. This moult is constant in all the specimens that I have examined, and is not confined to a few individuals, though only the under parts appear to be renewed.

Twenty years ago these curious birds used to breed regularly on Sullivan's Island, and by May 15 full complements of eggs could be procured. At present, however, the breeding season is much later than formerly, and the birds, as a rule, have forsaken the coast islands (including Sullivan's, Long, and Capers') and breed—or try to—mainly on the larger keys. As fast as the eggs are laid they are taken by any boatman who happens to discover them. The birds are thus forced to lay again and again in order to raise a brood and hence the breeding season is a long one, being protracted through August.

From three to five eggs are laid upon the bare sand, and, as a rule, out of reach of the highest tides. The eggs vary endlessly, but may best be described as white or creamy white, spotted or blotched with dark brown or even black. They measure 1.75 × 1.30.

The Skimmer feeds entirely upon small fish, which it catches while on the wing by immersing the terminal half of the lower mandible in shallow water varying from one to eight inches in depth.

Myriads of these birds try annually to raise their young on "Bird Bank," Bull's Bay, but few are ever successful.

ORDER TUBINARES: TUBE-NOSED SWIMMERS.

FAMILY PROCELLARIIDÆ: SHEARWATERS AND PETRELS.

22. **Puffinus gravis** (O'Reilly). GREATER SHEARWATER.

This pelagic species occurs off the coast. The great cyclone of August 27-28, 1893, destroyed great numbers of these ocean wanderers. A few days after the cyclone, I visited Long Island, and found the beach literally strewn with dead birds.

23. **Puffinus l'herminieri** Lesson. AUDUBON'S SHEARWATER.

Audubon's Shearwater is a fairly abundant species off the coast during the summer months. One specimen has been taken

in Charleston Harbor. A great many of these birds must have perished during the cyclone of August 27-28, 1893. A single individual was found dead on Long Island beach a few days after the cyclone.

I quote the following account of this species from the *Proceedings* of the Elliott Society of Science and Art:[1]

Mr. E. A. Smyth remarked that on the 4th of August, he was collecting birds on the various islands that surround Stono Inlet. While walking on the front beach of the western end of Folly Island, he picked up a dead bird that was evidently washed ashore. The skin and flesh had been eaten away from the head and neck, but without destroying the beak or bones of the skull. The rest of the bird was in fairly good condition, although not suggestive of "Araby the blest." Mr. Smyth stated that he recognized the bird as the remains of a Dusky or Audubon's Petrel. Knowing the rarity of the bird in this quarter, he determined to attempt the preservation of the specimen and started back to his boat for that purpose. Upon getting into his skiff to row to his yacht which was anchored some distance off the beach, he observed what appeared to be a wounded bird in mid-stream, coming in apparently with the wind and tide. Having been shooting at Long-billed Curlews the greater part of the day, as they flew to and from Bird Key, he naturally supposed this to be one of the wounded that had fallen into the water. He rowed towards it with the intention of picking it up, but before getting within gunshot range, the bird rose and flew seaward, with that peculiar curvature of wing distinctive of the Puffins and Petrels. The squally appearance of the weather forbade a trip seaward in an open boat, so restraining his desire to obtain the bird, he turned and rowed back to the yacht. Scarcely five minutes had passed, when, happening to look seaward, he saw the same bird drifting down upon the boat as before. The bird continued to drift until almost on the boat when he shot it. Upon picking the bird out of the water it was found to be, like the first, a Dusky Puffin (*Puffinus Auduboni*), only in perfect condition. Mr. Smyth stated that it was the thinnest specimen of a sea bird that he had ever handled, the skin being entirely free from the masses of fat usually found in Ducks and Gulls. It is now in his collection.

This capture is worthy of record, being only the second authentic instance, in his knowledge, of the capture of this bird around Charleston; the other specimen was taken on Sullivan's Island, and is now in the collection of Mr. Arthur T. Wayne of Charleston.

The specimen to which Mr. Smyth refers as being in my collection is now in the collection of Mr. William Brewster.

Audubon's Shearwater breeds in the Bahamas.

24. **Puffinus griseus** (Gmel.). SOOTY SHEARWATER.

The Sooty Shearwater is very abundant off the coast in the summer months. During severe gales these birds are driven landwards and seek protection on the coast islands, as well as in the harbor of Charleston.

Their breeding grounds are pelagic islands in the southern hemisphere.

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[1] *Proc. Ell. Soc.*, II, Aug., 1888, 212.

25. **Oceanites oceanicus** (Kuhl). WILSON'S PETREL.

This species is a common summer and early autumn visitant off our coast. It breeds in the southern hemisphere, and, after the breeding season is over, the birds migrate northward to spend the winter off the North American coast. Anyone who makes a voyage from Charleston to New York in the summer months, can see numbers of these ocean wanderers as soon as the ship gets beyond the sight of land. When food is thrown overboard the petrels immediately gather and quickly dispose of the most tempting morsels.

ORDER STEGANOPODES: TOTIPALMATE SWIMMERS.

FAMILY SULIDÆ: GANNETS.

26. **Sula leucogastra** (Bodd.). BOOBY.

There were at least four specimens of this species in the Charleston Museum, labeled "South Carolina" by Dr. John Bachman. All of these birds were in immature plumage.

The Booby is a tropical species.

27. **Sula bassana** (Linn.). GANNET.

The Gannet occurs regularly along the coast during both migrations, but I have never seen it during the winter months, although it winters off the mouth of the St. John's River, Florida, in considerable numbers.

Audubon states:[1]

> My friend John Bachman has informed me that during one of his visits to the Sea Islands off the shores of South Carolina, on the 2nd of July, 1836, he observed a flock of Gannets of from fifty to a hundred, all of the colouring of the one in my plate, and which was a bird in its first winter plumage. They were seen during several days on and about Cole's Island, at times on the sands, at others among the rolling breakers. He also mentions having heard Mr. Giles, an acquaintance of his, who knows much about birds, say, that in the course of the preceding summer he had seen a pair of Gannets going to, and returning from, a nest in a tree!

Dr. Bachman must certainly have been mistaken, as the latest date upon which this species has yet been seen and secured is May, 1885, when Mr. William Brewster, in whose company I was, shot one on Sullivan's Island. The Snake Bird or "Water Turkey"

[1] Birds of America, VII, 47.

(*Anhinga anhinga*) and the Wood Ibis (*Mycteria americana*) are locally known on this coast as "Gannets," and the birds seen by Mr. Giles must have belonged to one of these species.

Mr. Ellison A. Smyth, Jr., informs me that in the winters of 1883 and 1884 he saw Gannets off Charleston Bar.

FAMILY ANHINGIDÆ: DARTERS.

28. **Anhinga anhinga** (Linn.). WATER TURKEY; SNAKE BIRD.

This peculiar bird is a summer resident which breeds abundantly in the cypress swamps or in large rice-field reservoirs, always avoiding salt water. In some forward seasons, a few birds arrive during the second week in March, and they are always abundant by March 21.

My earliest breeding record is April 25, 1908, when I took four fresh eggs. The nests, which are composed of sticks, are sometimes placed in the tops of the highest cypress trees, but they are usually built in small willows growing in water. The eggs are usually four in number, bluish white, with a calcareous coating, and measure 2.15×1.25. This species migrates southward upon the approach of autumn.

FAMILY PHALACROCORACIDÆ: CORMORANTS.

29. **Phalacrocorax carbo** (Linn.). CORMORANT.

I have never seen this fine species alive, but there were two mounted specimens in the Charleston Museum which were said to have been taken in South Carolina.

One of these birds in full nuptial plumage has been recorded by Mr. William Brewster.[1]

The Cormorant breeds adundantly in Labrador.

30. **Phalacrocorax auritus** (Less.). DOUBLE-CRESTED CORMORANT.

A winter visitant, arriving at the end of November and remaining until early in March. Every afternoon these birds fly out to sea to pass the night, and, at break of day, flock after flock may be seen returning to the tidal creeks and sounds in quest of food. They are at all times very shy and can rarely be approached within gunshot.

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[1] *Bull. Nutt. Orn. Club*, VIII, 1883, 186.

31. **Phalacrocorax auritus floridanus** (Aud.). FLORIDA CORMORANT.

This subspecies breeds, but I have yet to find its breeding ground on this coast. The birds do not breed on the coast islands, and I doubt if they breed near salt water, as few, if any, are to be seen during June and July. They are exceedingly abundant, and the stakes marking the channels in the various creeks are resorted to by these birds as favorite roosting places.

FAMILY PELECANIDÆ: PELICANS.

32. **Pelecanus erythrorhynchos** Gmel. WHITE PELICAN.

I have never seen this fine species alive on our coast. Dr. John Bachman procured it, however, and I quote his experience as related by Audubon:[1]

> This bird is now more rare on our coast than it was thirty years ago; for I have heard it stated that it formerly bred on the sand banks of our Bird Islands. I saw a flock on the Bird Banks off Bull's Island, on the 1st day of July, 1814, when I procured two full plumaged old birds, and was under the impression that they had laid eggs on one of those banks, but the latter had the day previous to my visit been overflowed by a spring tide, accompanied with heavy wind.

Mr. Edward Magwood told me that he had seen four White Pelicans in Bull's Island Narrows in the early part of March, 1902. These birds, however, may have been albinos of the Brown Pelican (*P. occidentalis*).

33. **Pelecanus occidentalis** (Linn.). BROWN PELICAN.

The Brown Pelican is a summer resident,[2] which breeds—or tries to—on Bird Bank, Cape Romain, Sandy Point, and perhaps another spot in the Bull's Bay region.

As far as I am aware, the only other breeding ground on this coast is St. Helena Sound, where fresh eggs were taken by Mr. Chester S. Day of Boston, on May 8, 1904.

Bull's Bay, which extends from the eastern end of Bull's Island to Cape Romain, has a few banks which are generally out of reach of high tides (except the spring tides), and it is to these banks that the Pelicans annually resort to breed. The breeding season is much later in Bull's Bay than in St. Helena Sound, the earliest date upon which fresh eggs have been taken at the former locality being May 23, 1901. The Pelicans seldom raise a brood, the eggs

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[1] Birds of America, VII, 22.

[2] The earliest record of the Museum for this species is March 24, 1907, when a specimen was taken at Drayton Station on the Ashley River. This capture was recorded in the *Bulletin* of the Charleston Museum, III, 1907, 30, and the skin is preserved in the Museum (Spec. No. 954).—Ed.

being gathered as fast as they are laid; consequently the birds lay again and again and the breeding season is extended into August.

Audubon quotes Dr. Bachman's experience with this bird as follows:[1]

> There is a naked bar, a few miles distant from the main land, between Charleston and the mouth of the Santee, on which my friend John Bachman some years ago saw a great number of these birds, of which he procured several.

There is nothing in this statement that would imply that Dr. Bachman believed these birds were breeding, although they must certainly have been. The eggs usually number three, and are white or bluish white in color, with a calcareous coating, and measure 3.00×1.90. This species builds no nest upon this coast, but lays its eggs in a hole scooped out in the bare sand. Upon the advent of cool weather in October, the birds migrate southward.

FAMILY FREGATIDÆ: MAN-O'WAR BIRDS.

34. **Fregata aquila** Linn. MAN-O'WAR BIRD; FRIGATE BIRD.

I have but one record of this species (which is tropical and subtropical) and that was made on August 26, 1893, just a few hours before the climax of the great cyclone which devastated the South Carolina coast. A specimen was taken on Sullivan's Island, by Mr. George Aldret, on October 20, 1906, between 7 and 8 A. M. At this time, the wind was blowing at the rate of twenty-four miles an hour from the north. At 5 P. M., a velocity of sixty-four miles an hour was reached. This capture was recorded by Professor Paul M. Rea[2] and the specimen is in the Charleston Museum.[3]

ORDER ANSERES: LAMELLIROSTRAL SWIMMERS.

FAMILY ANATIDÆ: DUCKS, GEESE, AND SWANS.

35. **Mergus serrator** Linn. RED-BREASTED MERGANSER.

A very abundant winter visitant, arriving as early as October 27, and remaining in large flocks until April 22, a few individuals occasionally spending the summer. From the time when these fish-eating ducks arrive until the first week in February, the adult

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[1] Birds of America, VII, 32. [2] *Bull. Chas. Mus.*, II, 1906, 66. [3] Spec. No. 946.

drakes are seldom, if ever, seen, but towards the second week in February they make their appearance in large numbers.

These ducks frequent sounds and creeks where there are oyster banks. The species is essentially maritime on this coast. The flesh is rank and fishy and hence unfit for food.

36. **Lophodytes cucullatus** (Linn.). HOODED MERGANSER.

This duck is also a very abundant winter visitant on the coast, but I have never detected it in the breeding season. My earliest autumnal record is November 2, and some birds remain until the second week in April. In almost all the autumn and early winter specimens that I have shot, the adult males have the breast bands coalesced, thus forming an uninterrupted band of black and ashy across the chest. This plumage may be seasonal, but it is present in nearly every specimen that I have examined during the past twenty years, and I suspect that this may prove to be a local form which has been known to breed on the Santee River, and also on the Altamaha River, in Georgia.

As regards the breeding of this species in South Carolina, I quote the following from Audubon:[1]

Dr. Bachman has favored me with the following note respecting this species:—On the 19th of April, 1838, at the plantation of Major Porches [Porcher] on the Santee River, in South Carolina, I obtained an old female Merganser and her fine young ones, the latter apparently from two to three weeks old. They were in a very small pond, and could not be driven from it. As we approached, the female sunk deep into the water, exhibiting only a very small portion of her back above the surface, and swimming with neck outstretched and low along the water. In endeavoring to drive the young to the high grounds, for the purpose of capturing them, they all dived in various directions, like Grebes. On conversing with an overseer, on the following day, he mentioned to me that he had on the previous week obtained several of the young in order to domesticate them, but having neglected to feed them on animal food they had all died. On the following day I met with two other broods, each of five, and was also shown a cypress tree (*Cupressus disticha*) in the hollow of which a pair had been breeding during the present season. As far as I could learn, they breed in similar situations with the Summer Duck (*Anas sponsa*), although generally a little earlier. They were all peculiarly marked with two white spots behind the wings on the back.

Bachman's record of the breeding of this species is the only well authenticated one for the State. The plantation referred to by Dr. Bachman is named "Mexico," and was owned by Major Samuel Porcher. His overseer, whose name was Samuel Foxworth, lived and died on the plantation, which is situated in St. Stephen's Parish, Berkeley county. I am indebted to Mr.

[1] Birds of America, VI, 404-405.

Philip E. Porcher for the information concerning the name of the plantation, its owner, and the overseer.

37. **Anas platyrhynchos** Linn. MALLARD.

The "English Duck," as this species is locally known in South Carolina, is a winter visitant generally arriving by October 20, and remaining in small numbers until the middle of March. A few belated individuals are to be seen during the second week in April, and I have also seen one in June. From the time these ducks arrive until they depart, war is waged upon them by members of gun clubs who control large areas of land. Mr. J. A. Patjens shot an albino of this species during the winter of 1905, near the Wando River.

38. **Anas rubripes** Brewst. BLACK DUCK.

This winter visitant is essentially maritime, being commonly found in salt water. My earliest autumn record is October 22, and by November 15 the birds are abundant. The species is at all times very shy, even in the coldest weather, and consequently but few are shot. The great majority migrate early in March, but some linger in backward seasons, until early in April.

39. **Chaulelasmus streperus** (Linn.). GADWALL.

The Gadwall is very rare in South Carolina, and I have seen but four or five specimens.

In Audubon's Birds of America, Dr. Bachman's experience with this species is related as follows:[1]

> My friend Dr. Bachman informs me that they are rather plentiful in South Carolina, where they are considered good eating, and where they arrive in the beginning of October, but are more frequently met with at that season, and in early spring, than during winter, when a single individual may sometimes be seen in a flock of other ducks.

My friend, the late Dr. Gabriel E. Manigault, has seen several specimens of this duck in the Charleston market. It has also been taken on the Savannah River near Augusta, Georgia, by Dr. Eugene Edmund Murphey.

40. **Mareca americana** (Gmel.). BALDPATE; WIDGEON.

This winter visitant is very abundant near the coast, but is confined chiefly to fresh water. Thousands used to winter on

[1] VI, 254.

Goose Creek, a few miles north of Charleston, and, at almost every bend of that historic stream, numbers were to be seen during the years of 1882, 1883, 1884, and 1885.

I do not think the species is as abundant now as it was fifteen years ago.

41. **Nettion carolinensis** (Gmel.). GREEN-WINGED TEAL.

The Green-winged Teal is a very abundant winter visitant on the rice plantations, and is capable of enduring severe cold. The winter of 1886 will long be remembered on account of the intensely cold weather which prevailed for a week in January, the thermometer registering as low as 8° F. between January 11 and 14. On January 14, I obtained many specimens which were sitting on the ice in a reservoir. This species migrates very much earlier in the spring than the Blue-winged Teal. It is one of the best ducks for the table.

The great majority of these ducks breed far to the northward of 49° north latitude.

42. **Querquedula discors** (Linn.). BLUE-WINGED TEAL.

This winter visitant arrives earlier in autumn than any other duck, and departs later. My earliest autumn record is September 19, 1884, when I procured a specimen on Sullivan's Island. Few of these teal remain in South Carolina when the weather is very severe, as they appear to be susceptible to severe cold.

The female of this species very closely resembles the female of the Cinnamon Teal (*Q. cyanoptera*), and it is not always possible to separate them with certainty. I took a female on April 12, 1904, which closely resembles the female of *cyanoptera* in having the entire under parts very heavily washed with reddish, and the abdomen distinctly spotted, though the bill is much too short for *cyanoptera*.

43. **Querquedula cyanoptera** (Vieill.). CINNAMON TEAL.

Mr. William Brewster has shown[1] that the bird that I recorded[2] as a representative of this species is really the Blue-winged Teal (*Q. discors*). Upon verifying some ducks in the Charleston Museum recently, I noticed a specimen[3] bearing the following label, "Blue-

[1] *Auk*, XXIV, 1907, 157. [2] Ibid, XXII, 1905, 396. [3] Spec. No. 130.

winged Teal, *Querquedula discors*, female," written by the late Dr. Gabriel E. Manigault when curator of the Museum. The extreme narrowness of the bill at once arrested my attention, for it measured but .50 of an inch, and the culmen (from feathers) 1.67. Although there is no locality on the label, the specimen was unquestionably bought of one of the game dealers in the Charleston market by Dr. Manigault, who daily visited the market during the winter months for the purpose of securing ducks for the Charleston Museum. This specimen, I am certain, is really a representative of *Q. cyanoptera*. It was probably killed on the Cooper River, the supply of ducks for the market usually coming from that region. This duck was mounted by the late Mr. John Dancer, who was employed by Dr. Manigault to mount birds for the Museum, and was taken probably in the winter of 1884 or 1885. Although the specimen is labeled "female," there can be little doubt that it is a young male, for the speculum is rich, uniform green. The capture of this specimen in South Carolina is the sole record for the State.

The Cinnamon Teal is a common species in the western United States, where it has been found breeding from Texas and Lower California northward to British Columbia.

44. **Spatula clypeata** (Linn.). SHOVELLER.

The Shoveller is not abundant in this state, although a few are taken in November on rice plantations. It is essentially a freshwater duck, being rarely, if ever, seen in salt water. The finest drake that I ever saw was taken near Charleston in March, 1883, and was mounted by the late Mr. John Dancer for the Charleston Museum.

Audubon, in his Birds of America, says in reference to the flesh of this species: "No sportsman who is a judge will ever pass a Shoveller to shoot a Canvas-back."

The breeding range is confined chiefly to the interior, from Texas to Alaska.

45. **Dafila acuta** (Linn.). PINTAIL.

This is a freshwater duck and is rarely seen in salt water except during the migrations. My earliest record for the southward migration is November 11, 1893, but I suspect that the species arrives much earlier. It is an abundant bird on the

Cooper and Combahee Rivers and also on Goose Creek. Like all freshwater ducks, its flesh is excellent.

The Pintail breeds as far north as the Arctic Ocean

46. **Aix sponsa** (Linn.). WOOD DUCK; SUMMER DUCK.

This species is a permanent resident, being found even in very severe winters. It is still locally abundant, and, with the single exception of the Hooded Merganser (*Lophodytes cucullatus*), is the only species of the family Anatidæ which breeds in the State.

Though I have seen hundreds of the young of this beautiful species in nearly every reservoir that I have visited, from the Savannah River to the latitude of Cape Romain, I have found but one nest, on April 25, 1906. The eight eggs were nearly hatched, and were laid in a sleeping hole of the Pileated Woodpecker (*Phlœotomus pileatus*), in a living sweet gum tree, forty feet above the ground and more than a mile from the nearest reservoir. I obtained young on May 16, 1890, which could dive with ease, although they could not have been more than a few days old.

The birds are mated in the early part of March, and the eggs must be laid in March in some forward seasons. The eggs vary from eight to fifteen in number, and are of a buff color, measuring 2.00×1.50. They are deposited in natural cavities of trees or in deserted holes of the Pileated Woodpecker. As soon as the female begins to incubate she is forsaken by her mate, who now joins other males, but, when the young are hatched, both sexes look after their wants most assiduously. Only one brood is raised, and these are strong of wing by August, when they are tender and juicy and afford excellent eating.

47. **Marila americana** (Eyt.). REDHEAD.

Never having seen this species alive in South Carolina, I quote from Audubon:[1]

> In South Carolina, these ducks are now much more abundant than they were twenty years ago, especially on the Santee River, where my friend Dr. Samuel Wilson has shot many of them, as well as of the Canvas-back species.

These ducks are still found during the winter on the Santee River, and I am indebted to Mr. A. H. Lucas, who has seen many specimens, for this information. I have frequently seen

[1] Birds of America, VI, 312.

Redheads in the Charleston Market, which were said to have been killed on the Santee River.

48. **Marila vallisneria** (Wils.). CANVAS-BACK.

This is another species that I have never seen alive, but it has long been known to occur in positive abundance in winter on the lower Santee and Savannah Rivers. My friend Dr. Eugene Edmund Murphey procured several specimens on the Savannah River, near Augusta, on January 16, 1905.[1]

The Canvas-back breeds from Colorado to Alaska.

49. **Marila marila** (Linn.). GREATER SCAUP DUCK.

This is one of the rarer ducks on our coast, frequenting salt water in small flocks to feed upon mussels and other mollusks, which it obtains by diving in shallow water. My earliest autumn record is October 31, and the great majority migrate during the third week in March, though many are still to be seen in the early part of April. On July 2, 1901, I saw a pair of this species or the next which were apparently uninjured, judging from their extreme shyness.

50. **Marila affinis** (Eyt.). LESSER SCAUP DUCK.

On the upper Cooper River this duck winters in large numbers, and my belief is that it is decidedly more of a freshwater species than the preceding form. It arrives at or about the same time as the Greater Scaup, but appears to migrate much later in the spring. On the Wacissa river, Florida, this duck occurs in enormous flocks during the winter. During the migrations, it is found in immense flocks in Charleston Harbor.

51. **Marila collaris** (Donov.). RING-NECKED Duck.[2]

The only specimen of the Ring-necked Duck that I ever shot was obtained on January 11, 1886, eight miles from Charleston on the Cooper River, during a blizzard which lasted a week.[3]

Although this species is said to be abundant in this state, I have been unable to verify this assertion.

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[1] A Canvas-back was taken on Cooper River by Mr. E. H. Burton on February 4, 1908. The specimen is preserved in the Charleston Museum (Spec. No. 7233), and its capture was recorded in the *Bulletin* of the Charleston Museum, IV, 1908, 34.—Ed.

[2] A Ring-necked Duck was taken on the Cooper River by Mr. E. H. Burton, February, 8, 1908, and was recorded in the *Bulletin* of the Charleston Museum, IV, 1908, 34. The specimen was identified by Mr. Herbert R. Sass, but was too far gone for preservation when received at the Museum.—Ed.

[3] This specimen is now in the Charleston Museum (Spec. No. 143).—Ed.

52. **Clangula clangula americana** (Bonap.). GOLDEN-EYE.

The American Golden-eye winters abundantly on the coast, preferring salt or brackish water, where it obtains a small mussel which appears to be its favorite food. It arrives during the early part of December and remains until the first week in April.

The old males predominate, generally going about in small flocks of from six to ten. They are so shy that I have never been able to shoot an adult drake. Numbers of these ducks winter near the head of the Wando River and the drakes always predominate; but, as they are constantly on the alert, even in the coldest weather, it is hard to approach them closer than three hundred yards.

When it leaves the water, the Golden-eye almost always flies very low for a hundred yards or more, when it rises to a great height. In calm weather, the whistling of its wings can be heard plainly for more than half a mile. The flesh is unfit for food, being rank and fishy.

53. **Charitonetta albeola** (Linn.). BUFFLE-HEAD.

This species is an exceedingly abundant winter visitant, arriving early in November and remaining until the second week in April. The adult males are very hard to obtain and are always outnumbered by young males and females. These ducks frequently resort to freshwater ponds, but they appear to prefer the salt water at all times while on this coast. As a diver, the Bufflehead equals the Golden-eye or the Horned Grebe, in the company of which it is frequently seen.

This diminutive species breeds from Maine and Wisconsin northward to the limit of trees.

54. **Harelda hyemalis** (Linn.). OLD-SQUAW.

This boreal species is usually rare as far south as the latitude of Charleston, but during very severe winters it is frequently to be seen in positive abundance.

Audubon, in Birds of America,[1] says:

> My friend Bachman informs me that he has never seen one with any appearance of the summer plumage at Charleston in South Carolina, where however, he adds, this species is not common.

Mr. Ellison A. Smyth, Jr., has recorded in the *Auk*[2] three specimens of this duck; two having been shot by Mr. Henry Hun-

[1] VI, 382. [2] *Auk*, V, 1888, 203.

ter on the 30th of December, 1887, and the other on January 16, 1888, within a hundred yards of the sea wall of the Battery, in Charleston. Mr. Charles B. Cory saw two of these ducks at Cape Canaveral, Florida, in December, 1894. In January and February, 1895, I saw numerous flocks of these ducks near Long Island and, on February 26 secured an adult female, which I recorded in the *Auk*.[1] The Old-squaw ascends the Savannah River as far as Augusta, Georgia, where Dr. Eugene Edmund Murphey obtained a pair on February 10, 1904, one of which (the male) is now in my collection. During the winter of 1905, I saw several adult males near Capers' Island in January and February.

The Old-squaw is frequently to be seen in company with the Surf Duck (*Oidemia perspicillata*), and during the month of February, 1905, I observed a female in a flock of these ducks that was feeding upon a species of mussel which adhered to dead live oak trees, in the surf on Capers' Island. I saw this duck until March 3, and its powers of diving and eluding the surf, convinced me that it was as much at home among the breakers as the Surf Duck. When shot at while on the wing, this species sometimes dives in order to elude the shot.

The Old-squaw has been found breeding as far north as latitude 82°.

55. **Oidemia americana** Sw. & Rich. SCOTER.

I have never seen this species alive, and am indebted to my friend Dr. Eugene Edmund Murphey, of Augusta, Georgia, for the privilege of recording it. An adult male in very worn plumage was taken by him in Bull's Bay, on May 7, 1903. As far as I am informed, this is the first instance of the capture of this duck in the State; indeed there are only two records for the Atlantic coast south of New Jersey, the most southern being Florida.

The Scoter breeds in northern Ungava and the region about Hudson Bay.

56. **Oidemia perspicillata** (Linn.). SURF SCOTER; SURF DUCK.

Fifteen years ago, the Surf Duck was very abundant in winter within a few hundred yards of the village of Mount Pleasant,

[1] XII, 1895, 293.

where the birds fed upon a species of mussel, but at the present time few, if any, of these ducks are to be seen in the harbor of Charleston.

The Surf Scoter arrives with great regularity in autumn, and I mention three dates upon which the first birds have been seen, namely: November 4, 1895; November 7, 1902; and November 12, 1904. On October 24, 1906, however, I took a specimen near Mt. Pleasant. This duck is still abundant on Bull's Bay, and also off the beach of Capers' Island. A portion of the beach on Capers' Island is strewn with the remains of huge live oak trees, some of which are far out in the surf, while others are merely covered by each tide. Upon these live oaks innumerable mussels grow, forming an abundant food supply for many species of shore birds.

If the weather is favorable, most of the ducks which have wintered on Capers' Island, migrate during the second week in February, while others which have spent the winter to the southward take their places.

57. **Erismatura jamaicensis** (Gmel.). RUDDY DUCK.

In Audubon's Birds of America, he says:[1]

> My friend Dr. Bachman informs me that this species is becoming more abundant every winter in South Carolina. In the month of February he has seen a space of the extent of an acre covered with it. Yet he has never found one in full summer plumage in that country.

I, also, have never seen this duck in full summer plumage in this state. It winters regularly, despite low temperatures that occasionally occur. I saw numbers of Ruddy Ducks, on January 19, 1886, a few miles from Charleston on the Cooper River, and the winter of 1886 was remarkably severe.

The Ruddy Duck occurs more frequently in fresh than in salt water, and is an exceptionally tame bird, rarely flying when it can escape by diving.

58. **Chen hyperborea nivalis** (Forst.). GREATER SNOW GOOSE.

I have never seen this goose alive; in fact I have never seen nor heard any species of "Wild Goose" during all my wanderings through the states of South Carolina, Georgia, and Florida. I therefore quote from Audubon's Birds of America,[2] Dr. Bachman's experience:

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[1] VI, 324. [2] VI, 214-215.

My friend Dr. Bachman, of Charleston, South Carolina, kept a male Snow Goose several years along with his tame geese. He had received it from a friend while it was in its grey plumage, and the following spring it became white. It had been procured in the autumn, and proved to be a male. In a few days it became very gentle, and for several years it mated with a common goose; but the eggs produced by the latter never hatched. The Snow Goose was in the habit of daily frequenting a mill-pond in the vicinity, and returning regularly at night along with the rest; but in the beginning of each spring it occasioned much trouble. It then continually raised it head and wings, and attempted to fly off; but finding this impossible, it seemed anxious to perform its long journey on foot, and it was several times overtaken and brought back, after it had proceeded more than a mile, having crossed fences and plantations in a direct course northward. This propensity cost it its life: it had proceeded as far as the banks of the Cooper river, when it was shot by a person who supposed it to be a wild bird.

This must be the form that is known to occur regularly in the winter on the Wateree, Congaree and Saluda rivers in the upper part of the State, but I have never been able to procure a specimen for identification.

59. **Branta canadensis** (Linn.). CANADA GOOSE.

Mr. Ferdinand Gregorie saw and also heard a large flock of these geese flying over the Wando River on October 24, 1905, and Mr. H. R. Hale shot one (which had attempted to alight on his house) from a flock of five on November 22, 1905. This specimen is now in my collection, and agrees in some respects with Hutchin's Goose; but the brownish white cheek-patches are separated by a black throat-stripe, and the culmen measures 1.90 inches. Mr. Hale shot this goose in a potato field on his plantation, near the Wando River. One specimen has been taken on Long Island, while three were taken about twenty years ago near Mount Pleasant. This goose still occurs commonly on the rivers in the upper part of the State, but it is a *rara avis* on the coast.

60. **Olor columbianus** (Ord). WHISTLING SWAN.

During very severe winters these beautiful birds are occasionally seen and taken on the Waccamaw and Combahee rivers, and in the winter of 1905, a young bird was taken on the latter river. There were two specimens of this swan in the Charleston Museum, both of which were taken on this river. My friend, Dr. Gabriel E. Manigault, told me that when he was a young man, one of these swans spent the entire winter in an artificial pond on his grandfather's plantation on the banks of the Combahee. Mr. Nathaniel Heyward, the owner of the plantation, prohibited anyone from molesting this swan as he believed that the bird would get a mate and breed on the place. No one could convince him

to the contrary, and upon the approach of spring the bird, of course, migrated.

A specimen of this species was taken at Ridge Springs, Edgefield county, on November 26, 1907. The bird was sent for mounting to Mr. James P. Garick, Jr., of Weston, S. C., who, upon learning of my desire to obtain it for my collection kindly used his influence in my behalf with the person who sent it to him. Upon writing to Dr. Jonathan Dwight, Jr., of New York City, about the swan, he very generously purchased the specimen and presented it to me.

Mr. Garick informs me that the bird was shot in a small pond and seemed to be very tired, and that it was greatly emaciated —in fact skin and bone—but despite its condition it measured (in the flesh) fifty-two inches in length and eighty-four inches in extent of wing. This swan, although a young male and apparently a bird of the year, has the legs and feet black as in the adult. In the works of Audubon, Baird, Brewer and Ridgway, Coues, Ridgway, and Chapman, the color of the feet of the young is described as "yellowish flesh color," "grayish or whitish," and by the last named author as "light."

Although the Whistling Swan winters in great numbers on the northern coast of North Carolina, there are few authentic records of the capture of these magnificent birds in this state.

This species breeds on the Barren Grounds along the Arctic coast.

ORDER ODONTOGLOSSÆ: LAMELLIROSTRAL GRALLATORES.

FAMILY PHŒNICOPTERIDÆ: FLAMINGOES.

61. **Phœnicopterus ruber** Linn. FLAMINGO.

In his Birds of America, Audubon says: [1]

> A very few of these birds have been known to proceed eastward of the Floridas beyond Charleston in South Carolina, and some have been procured there within eight or ten years back.

Since Audubon's work was published, another Flamingo has been taken in this state, which I recorded in the *Auk* [2] as follows:

> Learning from my friend Dr. G. E. Manigault, that W. St. Julien Mazyck, Esq., captured the bird, I wrote to him for a full account of its capture. Mr. Mazyck

[1] VI, 170. [2] IV, 1887, 72.

very kindly wrote me, under date of November 22, (1886), as follows:—"The fall of the year 1876 was stormy, with much rain. Somewhere between the 10th and 16th of September there was a gale of wind. A day or so after the gale, Mr. B. H. Ward observed a large, strange bird on De Bardien Island, which he determined to watch and make an effort to capture. Inadvertently mentioning what he had seen, one of his neighbors the next day killed the bird, and brought it to Pawley Island, when I identified it as the Flamingo.

"That night, several hours after it was killed, I skinned such parts as I judged would be acceptable to Dr. Manigault. The legs and other long bones were badly shattered by the turkey shot, and with no experience I made a poor job of the bird. The heat and moisture of the weather softened it so much, Dr. Manigault wrote, that he could do nothing with it. He, however, identified it as a young male. The bird was evidently lost in the storm and driven to this shore, where he remained four or five days before being killed."

The Flamingo is a tropical and subtropical species, and its presence on this coast is purely accidental.

ORDER HERODIONES: SPOONBILLS, IBISES. HERONS, ETC.

FAMILY PLATALEIDÆ: SPOONBILLS.

62. **Ajaia ajaja** (Linn.). ROSEATE SPOONBILL.

I have never seen this beautiful species alive in South Carolina, but Dr. Bachman has observed it, and I quote from Audubon's Birds of America:[1]

My friend John Bachman informs me that he has observed only three individuals in the course of twenty years. He once obtained a specimen in full plumage about ten miles north of Charleston.

Since Dr. Bachman wrote, two other specimens of this beautiful bird have been taken in this state; one in June, 1879, by Dr. T. Grange Simons, at Lucas' Mill Pond, in the western part of the city of Charleston. This was beautifully prepared as an osteological specimen by my friend Dr. Gabriel E. Manigault, and is now in the Charleston Museum.[2] The second specimen was shot by my late friend, Mr. Eugene Gregorie, in the autumn of 1885, on his rice plantation "Retreat," near Yemassee.

FAMILY IBIDIDÆ: IBISES.

63. **Guara alba** (Linn.). WHITE IBIS.

The White Ibis is exceedingly abundant on the rice plantations during the spring and summer, generally arriving during the second week in April. It must breed in immense numbers, but

[1] VI, 72. [2] Spec. No. 518.

I have not been able thus far to find its breeding grounds, although I am informed that the birds have enormous rookeries near the Savannah River in Hampton county. The adult birds leave the rice plantations about the middle of May, and, of course, must go to their breeding grounds, which cannot be very far off. The immature birds, however, remain on the rice plantations throughout the entire summer, and I doubt if this species breeds in the immature plumage.

These birds are very rarely to be met with on the salt marshes, although I have a record of large flocks seen there on July 29 and August 8, 1894. A small flock of immature birds seen on the coast was feeding upon "fiddler" crabs. On the rice plantations crayfish appear to be their chief food. These birds have a fetid odor, and even in prepared specimens the scent remains for a long time.

The local name of this species is "Gannet."

FAMILY CICONIIDÆ: STORKS AND WOOD IBISES.

64. **Mycteria americana** Linn. WOOD IBIS.

This curious species can fairly be considered a permanent resident as I have repeatedly observed a few that wintered here. From the middle of June until the last of October, enormous flocks composed entirely of young birds can be seen daily on Copahee Sound in front of my house. The Wood Ibis is very gregarious, being more often seen in flocks of thousands than singly or in small numbers. It is generally shy but is sometimes very unsuspicious and confiding. I have seen one of these birds deliberately follow a boat as long as fish, which it devoured ravenously, were being thrown to it, one at a time.

It is a bird of the tidal flats while it is on the coast. When the banks are being uncovered by the receding tide, large flocks come to feed upon mullet and other small fish, but on the flood tide they betake themselves to the woods on the coast islands for fresh water and rest. I have never taken the eggs of this species, but it breeds in some numbers in Caw-Caw Swamp, Colleton county, where I observed a breeding colony on June 1, 1885, in a large cypress swamp.

FAMILY ARDEIDÆ: HERONS, BITTERNS, ETC.

65. **Botaurus lentiginosus** (Montag.). BITTERN.

The Bittern, which is locally known as "Indian Pullet," and "Grass Hen," is abundant during the winter months. It is essentially a freshwater species, but is occasionally seen in the salt marshes. The birds vary greatly in size, some specimens being very large while others are unusually small. The food is chiefly frogs in summer, while fish and mice appear to be the diet during the winter months.

Dr. Bachman's experience relative to the breeding of this species in South Carolina is interesting, and I herewith quote his observations from Audubon's Birds of America:[1]

> Dr. Bachman procured, on the 29th of April, 1833, about forty miles from Charleston, individuals, in the ovaries of which he found eggs so large as to induce him to believe that they would have been laid in the course of a single week. Some others which were procured by him and myself within nine miles of Charleston, on the 29th of March, had the eggs extremely small.

I have never found the nest and eggs of this species, but it unquestionably breeds in the rice-field reservoirs near Yemassee, where in June, 1887, I saw young birds. In 1890, I spent eight months at Yemassee, and although I observed many Bitterns from March until October, I was unable to find a nest with eggs.

The nest, which is composed of grasses, is placed upon the ground in freshwater marshes, and the eggs, which vary from three to five, are brownish drab and measure 1.95×1.50.

66. **Ixobrychus exilis** (Gmel.). LEAST BITTERN.

The Least Bittern arrives early in April and remains until the last of October, breeding abundantly in both fresh and salt water. The nest is composed of reeds, grasses, and small sticks, and is placed in marshes and bushes. In 1879, I found on Sullivan's Island a nest which was placed in the top of a small tree about twenty feet from the ground. This location is exceptional, however, as the nest is generally built within a few feet, or even a few inches of the water. The eggs are pale bluish white and are usually four in number and measure 1.20×.90. Two broods are raised, as I have seen the young in August. A set of four fresh

[1] VI, 96.

eggs was taken May 1, 1900, near Mount Pleasant, but in the region about Yemassee this species breeds at least a week earlier.

Three Least Bitterns were seen in gardens on Tradd St. in Charleston on April 9, 1908. One of these was captured and partly eaten by a cat. The head, feet, and wings of this specimcen are preserved in the Charleston Museum.[1] This record was published in the *Bulletin* of the Charleston Museum[2] by Mr. Herbert Ravenel Sass.

This peculiar little species is nocturnal and is seldom seen during the day, unless flushed, when it flies for a short distance and drops suddenly into the marshes. During the migrations in late September and the early part of October, numbers of these birds can be seen on the salt marshes during high tides.

67. **Ardea herodias** Linn. GREAT BLUE HERON.

This heron, which is exceedingly abundant, is a permanent resident, and I have seen many during the severe winters of 1886, 1895, 1899, and 1904. I mention this merely to show that it is a very hardy bird, apparently not susceptible to a temperature of 8° above zero.

The birds breed in large colonies within a couple of miles of the sea and every day large numbers are to be seen going to and coming from their nesting resorts, which are in swamps in pine woods. In some forward seasons the eggs are laid during the second week of March, but they are usually laid in the latter part of the month. The nests that I have seen near the sea were invariably placed in the tops of the tallest pine trees, from ninety to one hundred and twenty feet, approximately, above the ground. Some of the most suitable trees contained as many as ten nests. Upon visiting one of these breeding rookeries on a very windy day in March, I noticed that all the incubating birds, upon the approach of a gust of wind, would arise in their nests, but as soon as the gust subsided they would quietly resume their sitting posture, although many eggs were thrown out by the wind. About Yemassee, this species breeds in the cypress swamps, placing its nests in the tops of the tallest cypress trees. Three or four eggs are laid, which are of a greenish blue color, and

[1] Spec. No. 7067. [2] IV, 49.

measure 2.50×1.50. As far as I have been able to ascertain, only one brood is raised in a season.

This species is locally known as the "Poor Jo," and is, as a rule, very shy, but when not molested it is absolutely fearless, frequently coming to within fifty yards of my house to feed. The Great Blue Heron is as much a nocturnal species as the Black-crowned and Yellow-crowned Night Herons, and it is not uncommon to hear it nearly every night on the various sounds and creeks while flying over or feeding.

68. **Herodias egretta** (Gmel.). EGRET.

This beautiful summer resident used to be very abundant on the rice plantations near the coast in spring, summer, and autumn, but at present it is very locally distributed, being entirely absent in some localities while comparatively abundant in others, especially where it is afforded protection.

The species has been, and still is, mercilessly shot for its plumes (which are present only in the breeding season) for millinery purposes, and the day is not distant when it will be absolutely extinct unless laws are made and enforced for its protection. These birds are now so very shy that the sight of a human being causes them to take wing when they are more than a quarter of a mile away.

That this warfare has been waged against these birds for a very long time is evinced by the following quotation from Audubon's Birds of America:[1]

The long plumes of this bird being in request for ornamental purposes, they are shot in great numbers while sitting on their eggs, or soon after the appearance of the young. I know a person who, on offering a double-barrelled gun to a gentleman near Charleston, for one hundred White Herons fresh killed, received that number and more the next day.

My friend John Bachman gives me the following account of his visit to one of its breeding places, at the "Round O," a plantation about forty miles from Charleston: "Our company was composed of Benjamin Logan, S. Lee, and Dr. Martin. We were desirous of obtaining some of the Herons as specimens for stuffing, and the ladies were anxious to procure many of their primary feathers for the purpose of making fans. The trees were high, from a hundred to a hundred and thirty feet and our shot was not the right size; but we commenced firing at the birds, and soon discovered that we had a prospect of success. Each man took his tree, and loaded and fired as fast as he could. Many of the birds lodged on the highest branches of the cypresses, others fell into the nest, and, in most cases, when shot from a limb, where they had been sitting, they clung to it for some time before they would let go. One thing surprised me: it was the length of time it took for a bird to fall from the place where it was shot, and it fell with a loud noise into the water. Many wounded birds fell some distance off, and we could not conven-

[1] VI, 135-136.

iently follow them on account of the heavy wading through the place. We brought home with us forty-six of the large White Herons, and three of the Great Blue. Many more might have been killed, but we became tired of shooting them.

As far as I have observed, these birds breed only in freshwater reservoirs or in river swamps, placing their nests, which are composed of sticks arranged in a circular manner, in the tops of cypress trees, or in willows which are growing in the water. About the first week in May full complements of three or four eggs are laid. These are bluish green, and measure 2.25×1.50. Only one brood is raised.

69. **Egretta candidissima** (Gmel.). SNOWY EGRET.

The Snowy Egret is now almost extinct on this coast[1] where it was formerly to be seen in enormous numbers during the spring, summer, and autumn. I well remember the time when thousands bred on a small island out in the marsh near Secessionville, James Island, but it is so rare a bird at the present day that I have not seen an example for more than ten years, although Dr. Eugene Edmund Murphey saw three in May, 1904, near St. Helena Sound. These lovely birds have been annihilated by plume hunters who pursue them unrelentingly from the time of their arrival until their plumes are cast, and consequently few, if any, are now to be found on this coast. The birds used to arrive by the middle or third week in March, and remained until late in October.

They always bred in large colonies, placing their nests in low trees or bushes, and the eggs, which were generally three in number, were laid during the first week in May. Bushels of eggs could have been obtained from 1879 to 1887. As in all the species of this family, the eggs are bluish green and measure 1.80×1.25.

70. **Hydranassa tricolor ruficollis** (Gosse). LOUISIANA HERON.

Since this graceful heron winters in sheltered ponds on the coast islands[2] it is a permanent resident—a fact which I have discovered only in recent years. It breeds in company with the

[1] Two strong breeding colonies of Snowy Egrets (one on the island opposite Secessionville referred to in the text) were discovered by Mr. Herbert R. Sass, May 15, 1908, and recorded by him in the following journals: *Bull. Chas. Mus.* IV, 1908, 47-48; *Auk*, XXV, 1908, 313-314; *Bird Lore*, X, 160-162. One of these breeding grounds has been leased by the Charleston Museum, the National Association of Audubon Societies having offered to assist in its protection.—Ed.

[2] The Charleston Museum has records of the Louisiana Heron on the Drum Island marshes in Charleston Harbor, February 22, 1909. This indicates that this species, as well as the Little Blue Heron, may winter more generally than stated in the text.—Ed.

Little Blue, [Snowy,] Green, and Black-crowned Herons, but always in very small numbers, and it is equally at home while breeding in a freshwater reservoir or on an island in the salt marshes. By the 23rd of April full complements of four eggs are laid, and these measure 1.75×1.35. With the exception of the Green Heron, this species is the least shy of all the smaller herons.

71. **Florida cærulea** (Linn.). LITTLE BLUE HERON.

This heron is very abundant along the coast, where it breeds either in freshwater reservoirs or on islands in the salt marshes, but it prefers fresh water as a rule. It is a permanent resident since both young and adults winter in sheltered ponds on the coast islands.[1]

I have often seen the immature (white) birds mated with the adult (blue) birds, and I think this fact has escaped the notice of most ornithologists. In some forward seasons the eggs are laid during the third week in April, but in backward seasons they are not laid until the last few days of that month. On April 23, 1901, I obtained a set of five eggs, and counted many more nests which contained as many. The eggs measure 1.75×1.25.

These birds pass and repass our settlement to and from their breeding places every day during the months of April, May and June, while in July and August multitudes wing their way every afternoon to the coast islands on which they roost for the night.

72. **Butorides virescens** (Linn.). GREEN HERON.

Audubon states[2] that he has seen this species "breeding in the grounds of the Hon. Joel R. Poinsett in Charleston."

Since Audubon wrote, I have frequently taken the eggs of this bird on the beautiful grounds of Mr. D. C. Ebaugh, where it bred from 1878 to 1882. These grounds are now the site of the cigar factory near the Union Station, in the extreme northeastern portion of the city.

This heron winters in small numbers on the coast islands, and is, therefore, a permanent resident. It is universally known on this coast as the "Skeow," from its note, and it breeds abundantly, either in isolated pairs or in large colonies. The eggs, which are laid in the second week of April, generally number four or five, and measure 1.40×1.10.

[1] The Charleston Museum has records of the Little Blue Heron, in both immature and adult plumage, from open marshes in Charleston Harbor in the vicinity of Drum Island and Magnolia Cemetery throughout the winter.—Ed.

[2] Birds of America, VI, 106.

73. **Nycticorax nycticorax nævius** (Bodd.). BLACK-CROWNED NIGHT HERON.

I quote Dr. Bachman's experience with this bird, from Audubon's Birds of America:[1]

My friend John Bachman is acquainted with a place on Ashley River, about four miles distant from Charleston, where, among the branches of a cluster of live-oak trees, he has for the last fifteen years found a flock of about fifty of these birds during the winter. They were all young, not a single individual having been observed in the adult plumage, which is the more remarkable, because it is usual for young birds to retreat farther south during winter than the old. It is very common at this period for the sportsmen near Charleston to take their stand along the margins of the salt water ponds, to which the Herons generally resort about dusk; and they frequently obtain several shots in an evening, but not a single old bird is known to have been killed at this season.

During the past twenty-five years, I have never observed an adult of this species in winter on any part of the coast, while the young winter numerously in sheltered ponds on the coast islands. While at Capers' Island, on February 6, 1905, I saw in a large pond of brackish water, all congregated together, and seemingly in perfect harmony, Great Blue, Louisiana, Little Blue, Green, and young Black-crowned Night Herons.

The adults arrive during the second week in March, and nest-building begins late in April, but some birds do not commence building until after the middle of May. This species breeds in the freshwater reservoirs and also in islands in the salt marshes. I have never seen it breeding in large colonies.

The eggs, which usually number four, are of a pale bluish green color, and measure 2.00×1.40. My earliest breeding record is April 25, 1908, when I took four eggs.

The local name of this species on the coast is "Indian Pullet," but in the interior it is known as the "Qua-Bird."

74. **Nyctanassa violacea** (Linn.). YELLOW-CROWNED NIGHT HERON.

The Yellow-crowned Heron is a locally abundant summer resident on the coast, being entirely absent in some localities, while abundant in others during the breeding season. My earliest spring record is March 24, 1891, and the birds remain until about October 16. None winter, however, as this species is very susceptible to frost.

These herons breed only in small colonies of two or three pairs, generally in cypress swamps where they obtain crayfish

[1] VI, 82.

and mussels, which appear to be the favorite food during the breeding season. I secured a nest and three eggs on April 20, 1896, which is a very early breeding date. The nest was composed of sticks, and was placed upon a horizontal branch of a short-leaf pine, forty feet from the ground, and half a mile from water. The eggs usually number three, are bluish green, and measure 1.90×1.40.

On March 23, 1907, I observed a mated pair in a maple swamp near Charleston, and upon shooting one of them, which proved to be the female, I found by dissection that she had already laid two eggs, while the third would have been laid the following day. It must be borne in mind, however, that the winter of 1907 was exceptionally mild, and July and August temperatures prevailed during the latter half of March. The day on which this heron was shot the thermometer registered 94.2 degrees. This is my earliest spring record and I have no other breeding record earlier than April 20.

After the breeding season, these birds resort to the salt marshes, and feed chiefly upon fish and "fiddler" crabs. Although somewhat solitary in habit, they are sometimes seen in considerable numbers, as on April 15, 1905, when I counted sixteen individuals in a radius of ten rods, on a rice plantation owned by Mr. Furman in Charleston county. I consider this bird as much a diurnal species as the Great Blue Heron.

ORDER PALUDICOLÆ: CRANES, RAILS, ETC.

FAMILY GRUIDÆ: CRANES.

75. **Grus americana** (Linn.). WHOOPER CRANE.

I have never seen this fine species alive and it no longer visits this state, but there was an adult specimen in the Charleston Museum that was taken on the Waccamaw River about 1850. Audubon mentioned in his Birds of America,[1] that

> A Mr. Magwood [Col. Simon Magwood] residing near Charleston, in South Carolina, kept one for some time, feeding it on maize. It accidently wounded one of its feet on the shell of an oyster, and, although the greatest care was taken of it, died after lingering some weeks.

The Whooper Crane breeds as far north as Great Slave Lake.

[1] V, 193.

76. **Grus canadensis** (Linn.). LITTLE BROWN CRANE.

This species occurs in the interior of North America and breeds as far north as the Arctic coast.

On October 21, 1890, I shot an adult male near Mount Pleasant, and I quote the account of the capture of this bird which I wrote for the *Auk*:[1]

On October 18, 1890, I heard a most remarkable sound, something like that made by blowing a large tin horn. I was told by one of the negroes on the plantation that it was a Wild Goose. Early in the morning of the following day I heard the note again and saw the bird flying in the heavens. One glance was enough to show me it was a crane. After sailing about for some hours it flew down in a corn field among a drove of cows. I started in pursuit with my brother-in-law, he taking a stand, and I one, about a hundred yards away. The bird rose, but sailed away from both of us, not near enough for a shot. It sailed about in circles until it was lost to our view.

On the 21st I started to the corn field again with the hope of seeing the bird. Upon shooting four doves (*Zenaidura macroura*), the crane arose from the field where it had been feeding along with the cows and flew about a mile away. Away I went in pursuit but found it was impossible to get nearer than a hundred yards without being seen. I waited under some bushes for an hour hoping it would come nearer. The whole time the bird remained on the ground it was making the trumpet-like sound. Finally it flew and lit about half a mile off in a myrtle pasture, where there were two ponds of water. I knew I would in the end secure the bird, so walking cautiously about I at last saw the red on his head. He was standing in the middle of the pond and as he rose I secured him. The bird is an adult male in perfect plumage. Although the specimen is considerably smaller than average *Grus mexicana*, for the present it may stand as such.

This bird was originally recorded as the Sandhill Crane (*G. mexicana*), but proved to be the Little Brown Crane (*G. canadensis*), and a correction was made in the *Auk* for October, 1894.[2]

This is the first record of this species for the State, and the second for the Atlantic coast, one specimen having been taken in Rhode Island.[3]

77. **Grus mexicana** (Müll.). SANDHILL CRANE.

There were many mounted specimens of this species in adult plumage in the Charleston Museum, which were labeled "Whooping Crane." All of them were dust-stained and moth-eaten, and when Dr. Gabriel E. Manigault became the curator, he considered them as trash and they were thrown away. As this species breeds in the Okeefinokee swamp in Georgia, it is possible that it still occurs in this state during the migrations, but I have never seen a specimen taken here during the past twenty-five years. The specimens which were in the Charleston Museum were taken on the Waccamaw River.

[1] VIII, 1891, 308-309. [2] This specimen is now in the Charleston Museum (Spec. No. 226).—Ed. [3] See Brewster, *Auk*, VII, 1890, 89.

FAMILY ARAMIDÆ: COURLANS.

78. **Aramus vociferus** (Lath.). LIMPKIN.

The first record for the occurrence of the Limpkin in South Carolina was based upon two specimens taken in Aiken county on the Savannah River. I herewith transcribe the account which I published in the *Auk*:[1]

I am indebted to Dr. Eugene Edmund Murphey for the privilege of recording the capture of two Limpkins (*Aramus giganteus*) that were taken at Twiggs Dead River, Aiken County, South Carolina. One of them, an adult male was taken by Mr. W. H. Twiggs, October 18, 1890, and preserved by Mr. George P. Butler, of Augusta, Georgia. This specimen is now in my collection. The negroes on the plantation told Mr. Twiggs that there had been a pair of the birds, but that they had killed and eaten one a few days before. This record is a very important one, as the Limpkin has not been taken before in any part of the United States except in Florida. In 1894, I found this species breeding abundantly on the Wacissa River, Florida, which brought its range to within eighteen miles of the Georgia line. (See 'The Auk,' October, 1895, p. 366.)

A specimen of this peculiar species was taken by Mr. W. L. Harris, in his yard on Water Street, in the city of Charleston in July, 1904. The bird is mounted and is now in the Charleston Museum. Prof. Paul M. Rea has reported the capture in the *Bulletin* of the Charleston Museum.[2]

FAMILY RALLIDÆ: RAILS, GALLINULES, AND COOTS.

79. **Rallus elegans** Aud. KING RAIL.

This fine species, which is locally known as the Freshwater Marsh Hen, is abundant on abandoned rice plantations and in ponds of fresh water where there is a dense growth of reeds and water plants. It is a permanent resident, but during protracted droughts is forced to migrate from the ponds in order to procure food and water. On the freshwater rivers it is most numerous, and breeds in numbers.

Dr. Bachman says in Audubon's Birds of America:[3]

The nests were placed *on the ground*, and raised to the height of six or eight inches by means of withered weeds and grasses. The number of eggs was nine or ten. About the middle of March I found a few nests containing two or three eggs each; but, in my opinion, the greater number of these birds commence breeding about the middle of April.

My experience in regard to the breeding of this species has been exactly contrary to Dr. Bachman's, as the numerous nests that I have found have been invariably placed in rushes or button-wood bushes, eight inches to a foot and a half over water.

[1] XXIII, 1906, 231. [2] II, 55. [3] V, 161.

Then again, I have never taken full complements of eggs until the first week in May. I made observations on a nest in the spring of 1900, and noted that the female laid an egg each day after 11 o'clock in the morning, and upon laying the last egg, which was the twelfth, she began to incubate.

In the month of April, 1900, I was observing a nest of this species in a button-wood bush, which was in a pond of water, and, about every other day, I waded into the pond to see how many eggs were there. About the 8th of May, I judged that the full complement of eggs would be completed, and upon visiting the nest in the afternoon, which was very cloudy, I saw what I supposed to be the bird incubating. But upon close inspection I was very much surprised to find that what I took for the bird was a huge Moccasin (*Ancistrodon piscivorus*), which I promptly shot. This snake had eaten all the eggs and perhaps caught the bird as the feathers were scattered around the nest.

The eggs range from nine to fourteen, and the ground color is cream, or light buff, spotted and speckled with brown and lilac. They measure 1.65×1.20.

80. **Rallus crepitans** Gmel. CLAPPER RAIL.

This northern form is a winter visitant, arriving the last of October—between the 28th and 30th—and remaining until March 15. During the spring tides in October and November, numbers of these birds are shot, together with *R. c. waynei*, and the two forms can be very easily distinguished.

This species, together with the following, is locally known as "Marsh Hen."

81. **Rallus crepitans waynei** Brewst. WAYNE'S CLAPPER RAIL.

My friend Mr. William Brewster has bestowed upon me the honor of naming this subspecies after me. This bird is well known to all the inhabitants along the coast, and during the spring tides in September, October, and November, countless thousands are annually killed, yet there is no diminution in its numbers, as the birds are vigorous and very prolific, and two broods are annually raised, each pair being able to raise twenty-four young under favorable circumstances. These birds, however, have innumerable enemies to contend with during the breeding season, as crows take their eggs at every opportunity, crabs catch

the young, and the mink is ever on the alert; while spring tides often wash away the nest and eggs. Yet with all these vicissitudes there is absolutely no diminution of their numbers. From the last of February until November the notes of this bird can be daily heard, and I have often heard it shriek when the Marsh Hawk (*Circus hudsonius*) was attacking it. These birds are generally very quiet at high water, but as soon as the tide begins to recede, their notes can be heard all through the marshes.

The breeding season commences in March and by the last of the month a few eggs are laid. An exceptionally early breeding date is April 10, 1903, when a nest was found which contained eleven heavily incubated eggs. The nest, which is made of rushes or sedge, is placed in high marsh or in reeds on the shore. The number of eggs laid ranges from nine to fifteen. They are creamy white or deep buff, spotted with rufous brown and lilac, and measure 1.70×1.15.

This subspecies is a permanent resident and, together with the Clapper Rail, is locally known as "Marsh Hen."

82. **Rallus virginianus** Linn. VIRGINIA RAIL.

The Virginia Rail is a miniature of the Freshwater Marsh Hen (*R. elegans*), and is an abundant winter visitant on abandoned rice plantations where there is cover of reeds and briars. It arrives early in the autumn, September 21 being my earliest record. At this season the birds occasionally frequent fields where pea vines are growing and about ready to be harvested, and appear not to be dependent on water when in such situations.

Although this rail is said to breed at Charleston,[1] this statement is certainly an error, as I have yet to see a specimen taken later than April 5, anywhere within one hundred miles of Charleston and I believe that the bird does not breed in any portion of South Carolina.

In specimens of this species that I have taken in the autumn and winter months, the anal region and crissum is almost invariably marked with chestnut or even bright red.

83. **Porzana carolina** (Linn.). SORA. CAROLINA RAIL.

Although the Sora is said to winter in South Carolina,[2] I have yet to see one after November 10.[3] It arrives, however, very

[1] Baird, Brewer, and Ridgway, Water Birds, I, 365.
[2] Chapman, Birds of Eastern North America, 143.
[3] Two specimens were taken at Otranto, February 3, 1909, and recorded in the *Bulletin* of the Charleston Museum, V, 1909, 18.—Ed.

early in the spring, for I secured an adult female on March 4, 1895, and it remains until the second week in May. My earliest autumn record is August 20, 1899, and during the spring and autumn migration it is commonly seen in the salt marshes. This species, which is locally known as the "Coot," is also very abundant in the rice plantations, as well as in fields where pea vines are growing, and is very difficult to flush.

84. **Coturnicops noveboracensis** (Gmel.). YELLOW RAIL.

Audubon states in Birds of America that "Dr. Bachman has procured specimens near Charleston."

As far back as 1879, there were no specimens of this species in the Charleston Museum and the first intimation I had of its occurrence was on February 4, 1898, when one was caught by a cat. This bird had been "picked" by a negro man, who took it from his cat, and being just in time to see it before the head was completely denuded I saved that member and sent it to Dr. Charles W. Richmond of the Smithsonian Institution for positive identification. On December 19, 1903, another Yellow Rail was caught by a cat.

I quote from the *Auk* [1] my experience with this elusive little species:

On February 3, 1904, while out partridge shooting, I saw my dog pointing in a low, wet piece of open land with a dense growth of short, dead grass, and being unable to flush anything myself, although I trampled the grass down in every direction, I told her to take it. She at once caught a Yellow Rail, which was the first I had ever seen alive in South Carolina.

I then made her hunt the entire field, and in less than ten minutes she caught two more. These three Yellow Rails were caught near sunset. The next morning, February 4, I again visited the field, in company with my dog, and in less than five minutes she had caught another; while a second specimen was flushed and shot. On February 5 and 8, two more were taken, which made seven in all. On November 19, 1904, my dog again captured one alive.

These rails would not flush, although in every instance I tried my utmost to make them fly, and the only one that did elude the dog by flying, was due to the dog's failure to seize it in a very thick growth. The stomachs of these rails contained the remains of a species of freshwater snail. One of the specimens taken February 3, an adult female, shows melanism in a marked degree.

Between October 26 and March 10, 1910, I took thirty-four Yellow Rails near my house.

The Yellow Rail is a winter resident, and breeds as far north as Hudson Bay.

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[1] XXII, 1905, 396-397.

85. **Creciscus jamaicensis** (Gmel.). LITTLE BLACK RAIL.

It appears that neither Audubon nor Bachman ever met with this diminutive, but exceedingly interesting species.

On October 17, 1891, I flushed one of these rails in a corn field, but although I saw the exact spot where it alighted I was unable to flush it again. In this same field I procured a superb specimen on September 13, 1899, and on June 10, 1903, I secured a nest and eight eggs, and captured both parents in the same locality. On November 9, 1906, a specimen was found dead in this field. I here transcribe the account of the nest and eggs and capture of the birds that I published in the *Warbler*: [1]

On June 10th, 1903, a small negro boy came to me and said he had found eight eggs in a nest on the ground in an oat field, which was nearly cut over by a reaping and binding machine drawn by three mules. I questioned him closely and asked him if the eggs were unspotted, as I supposed they were, of course, Partridge eggs (*Colinus virginianus*). He said the eggs were spotted and looked like Redbird's eggs (*Cardinalis cardinalis*), but added that he saw no bird on the nest and left the eggs undisturbed. When the boy adhered to his story that the eggs were spotted I immediately knew that the nest was that of the extremely rare Black Rail and I hastened with gun and collecting basket to the oat field which was less than one-fourth of a mile from my house.

He had not marked the spot where the nest was by any sign, therefore we had to hunt for it most carefully. I, at last, found it, and to my delight actually saw the female *on the nest*. It can be readily imagined with what pleasure I saw the parent incubating the eggs, as I was the *first* person who had *ever* seen this secretive bird *actually* on her nest! My first impulse was to catch her alive on her nest and this could have been very easily accomplished as I was within an inch of her and with my hands outstretched it would have been a very easy matter to catch her. But I thought I would let her go and learn something of the song, habits and flight of these rare birds. Upon touching her she *ran* a short distance, then flew into a portion of the oats which were not cut, but of a very small area. The nest contained eight eggs, and was built among the oats on high ground, and made entirely of the dry oat leaves arranged in a circular manner, but not arched over. It was 10.00 A. M. when she left the nest and I remained in the near vicinity until 11.00 A. M., when she again was found incubating. She ran, upon my approaching the nest, into the nearest cover of standing oats—about eighty yards away. So swiftly was this done that I had in mind a field mouse. Although the entire aspect of the field was changed the bird had no difficulty in finding her home.

As soon as she entered the standing oats she began to call, which notes resemble the words, *croo-croo-croo-o*, and then again almost exactly like the commencement of the song of the Yellow-billed Cuckoo. This was answered at once by the male, but his song was very different and the notes may best be described by the words *kik,kik,kik,kik*,or even *kuk, kuk, kuk, kuk*. As the birds were rare, and the field would be ploughed as soon as the oats were harvested, I determined to make every effort to capture both parents, after listening to the song of both birds for more than one hour.

I walked into the standing oats, and little did I dream of ever flushing one of the birds, but to my great surprise one flushed almost immediately and with a squib charge of dust shot I killed it which proved by dissection to be the female. I then tried to flush the male, (knowing the one I had was the female by the coloration) so as to be positive of the song of *both* sexes. After hunting for more than forty

[1] Second Series, I, No. 2, 1905.

minutes I failed to flush the mate, so went home and skinned the one which I had secured.

At 3.00 o'clock P. M. I went in search of the male, accompanied by a friend, Lieut. J. D. Cozby, who brought with him his fine pointer dog. Although we heard the notes of the bird incessantly, which never changed from *kik, kik, kik, kik, or kuk, kuk, kuk, kuk,* it was absolutely impossible to flush him but once in two hours' careful search, when he flew into the oat stubble, but *ran* like a phantom into the standing oats. It was nearly 7.00 o'clock P. M. and I was fast losing hope of obtaining the male, when I saw the dog pointing, but the bird ran between Lieut. Cozby and myself, then flushed as it passed me. I quickly requested my friend to shoot and by a fortunate shot he succeeded in killing it. When it is realized that it required *four* hours' constant search in order to secure the male it can be understood how secretive this Rail is in its environment.

The eggs would all have hatched in four or five days, but with care and patience I preserved them. It seems almost miraculous that none of the eggs were injured, as the hoof-prints of seven feet were all around the nest and one had actually lifted the nest from the ground, but despite the fact that a huge mowing machine, drawn by three mules, had passed over the nest twice and cut the stubble close above it, not an egg was broken. The complete group, nest, eggs and birds, mounted by Mr. R. D. Hoyt, are now in the collection of Mr. John Lewis Childs. The eggs are creamy white or light buffy white, and are profusely speckled with reddish brown and lilac shell markings. Size 1.03x.75.

On the Atlantic coast this species is apparently very rare, but on the Pacific coast and especially in California it is common. The Black Rail ranges southward to the West Indies.

86. **Ionornis martinica** (Linn.). PURPLE GALLINULE.

This beautiful and graceful summer resident is locally abundant during the breeding season on abandoned rice plantations, and also on freshwater rivers where the wampee (*Pontederia cordata*) grows in profusion. This plant bears purplish blue flowers which act as a protective coloration to this species. Where the plant is growing in profusion the gallinules are always most abundant, but where it is absent scarcely more than one or two pairs can be found. The birds generally arrive between April 10 and 17, and are common by the 25th.

In the region about Yemassee, I observed in May, 1887, about five hundred pairs, which were breeding in a large abandoned rice field. It was a very beautiful sight to observe the graceful creatures while walking over the large leaves of the pond lily, every now and then flirting their tails or holding their wings over their heads, as they walked from one leaf to another.

When engaged in the sport of chasing one another while flying, the legs always hang down and the birds cackle continuously. They have very peculiar call notes. One, which is very guttural, is to be heard incessantly. The birds are exceedingly tame, and one can almost step on them before they fly. If wounded,

they dive immediately and remain under water for fully five minutes. It is folly to waste time in following them, as they rise with only the point of the bill out of water.

The nests are commenced about May 5, and are built in the wampee and rushes, invariably over water, and are made of half decayed leaves of these plants. They are substantially built and well secured to the wampee as it grows in the water. The birds have regular trodden paths leading to their nests, and strange to relate, there are always three or four nests in different stages of completion near each nest which contains eggs. The eggs range from four to nine in number, are of a pale cream or yellowish color, spotted with brown and lilac, and measure 1.60×1.15. Full complements of eggs are to be obtained by May 21st. I have seen but one of these birds apparently incubating, and that was on May 29, 1890. Since the eggs were fresh, however, she may have been laying, and I really believe the eggs are hatched by the decomposition of the vegetable matter which composes the nest. The breeding season must be long, for I had a very young bird in the down sent me alive from Yemassee on September 17, 1887. These young can be very easily raised, becoming tame very soon. The Purple Gallinule feeds largely upon rice during the autumn.

Audubon states in Birds of America,[1] that "in South Carolina it is rare," and, "I have found young birds in their jetty down clothing in February," and he also says: "My friend Bachman considers this species as rather scarce in South Carolina and Georgia." As I have already pointed out, this species is common in South Carolina, as well as in Georgia, and it breeds in May and not in February.

87. **Gallinula galeata** (Licht.). FLORIDA GALLINULE.[2]

The Florida Gallinule is a much less common species than the Purple Gallinule, but it is found in the same localities, arrives earlier, and hence breeds earlier.

The nest, which is composed of the same materials as that of the preceding species, is also placed over water, and the eggs, which range from six to thirteen, are buffy or ochraceous buff, spotted and speckled with reddish brown. They measure 1.75×1.20.

[1] V, 129.

[2] A Florida Gallinule was taken on the mud flats at the foot of Council St., Charleston May 19, 1906, and is now in the Charleston Museum (Spec. No. 947).—Ed.

I found a nest with six eggs on May 21, 1904, in a clump of thorny vines in a reservoir, three feet from the water, which is a very unusual nesting site. The eggs of this species as well as those of the preceding are always in different stages of incubation, and consequently young are hatched and take to the water, while eggs still remain in the nest. Hence some of the young from one nest are from one week to twelve days older than the others.

I have never observed this species in winter, but Dr. Murphey saw at least twenty on the Ashepoo River, above Ashepoo Station, on December 30 and 31, 1904, and three specimens were obtained. This species is therefore a permanent resident.

88. **Fulica americana** Gmel. COOT.

The local name of this bird is "Blue Peter." It is very abundant on the rice plantations and also on some of the freshwater rivers from November until the last of April,[1] but it is very rarely seen on or near salt water on this coast; in fact the only specimens I have ever seen on the salt water were on March 11, 1899, November 2 and 9, 1907.

Audubon states in Birds of America:[2]

> At Charleston it was supposed that it breeds in the neighborhood of that city; but my friend Bachman while searching for their nests at the proper season, saw that the Common Gallinule was in fact the bird that had been taken for the Coot.

Dr. Bachman's statement has been verified, as the Coot does not breed here.

ORDER LIMICOLÆ: SHORE BIRDS.

FAMILY PHALAROPODIDÆ: PHALAROPES.

89. **Phalaropus fulicarius** (Linn.). RED PHALAROPE.

I have never seen this fine species alive, and the only record I have for the coast is an adult male in fine winter plumage that was captured in an exhausted and emaciated condition, by Mr. W. D. Hamlin on December 4, 1900, near Mount Pleasant.[3] This specimen is now in my collection.

Mr. Gerald H. Thayer records in the *Auk*,[4] the following:

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[1] This species was reported at Otranto, June 6, 1909, by Mr. F. M. Weston, Jr., and July 7 and in August, 1909, by Mr. H. R. Sass, tending to establish it as a permanent resident. Mr. Wayne, however, suggests that the birds seen were young Florida Gallinules, whose whitish bills led them to be mistaken for Coots.—Ed.

[2] V, 140. [3] See *Auk*, XVIII, 1901, 271. [4] XIX, 1902, 286

On March 17, 1898, my father and I, with Mr. L. A. Fuertes, saw from a steamer enormous flocks of Phalaropes, apparently Red, about fifty miles off the coast of northern South Carolina.

The Red Phalarope is a circumpolar species during the breeding season.

90. **Lobipes lobatus** (Linn.). NORTHERN PHALAROPE.

The Northern Phalarope undoubtedly occurs abundantly off the coast during the migrations, but I have yet to see this species alive, and my only evidence of its occurrence is a specimen brought into my house by a cat, on the morning of June 3, 1903.[1] Before I could secure it, she had eaten all except a wing, which is the only evidence I have. The specimen was evidently an adult female in high plumage, and the date is very late for this species to be found in this latitude.

The Northern Phalarope breeds only in the Arctic regions. This species and the preceding are pelagic in their habits except during the breeding season.

FAMILY RECURVIROSTRIDÆ: AVOCETS AND STILTS.

91. **Recurvirostra americana** Gmel. AVOCET.

In Audubon's Birds of America,[2] he says:

My friend John Bachman considers them [this species] as rare in South Carolina, where, however, he has occasionally seen some on the gravelly shores of the sea islands.

During the past twenty-five years I have failed to detect the presence of this species in South Carolina.

The Avocet breeds from Texas to Great Slave Lake, and is rare at all times on the Atlantic coast.

92. **Himantopus mexicanus** (Müll.). BLACK-NECKED STILT.

Audubon says that this species "is rather scarce along the shores of the Carolinas."[3]

About the middle of May, 1881, I was in quest of eggs of the Least Tern (*Sterna antillarum*), Black Skimmer (*Rynchops nigra*), Willet (*Symphemia semipalmata*), Wilson's Plover (*Ochthodromus wilsonia*), and Oyster Catcher (*Hæmatopus palliatus*), which in those days bred abundantly on Sullivan's Island, and I observed at least two pairs of stilts in a freshwater pond, with a growth of reeds, tussocks of grass, and small myrtle bushes, on the ex-

[1] See *Auk*, XXII, 1905, 397. [2] VI, 27. [3] Birds of America, VI, 32.

treme end of the island. The birds were very noisy and their antics so peculiar, that I watched them closely for a long time. In those days my knowledge of ornithology was very limited as regards the geographical distribution of species, and I was not aware of the importance of my discovery.

There is no question whatever that these birds were breeding, but I did not wade into the pond on account of moccasin snakes, which were abundant. About two weeks later, however, a relative who had been spending several months at Cape Canaveral, Florida, brought to me, upon his return to Charleston, several complete sets of eggs of the Black-necked Stilt, that he had personally collected at the Cape. His description of the breeding habits of the birds, left no doubt in my mind that the birds I saw were breeding.

The pond was destroyed by a very severe storm before 1884, and since my discovery was made, I have failed to note again the presence of this species in South Carolina.[1]

The nest of the Black-necked Stilt is placed upon the ground and lined with grass, but sometimes it is built in tussocks of grass in a pond. The eggs number three or four, and are of a brownish or buff color, spotted and blotched with black, and measure 1.75×1.25.

FAMILY SCOLOPACIDÆ: SNIPES, SANDPIPERS, ETC.

93. **Philohela minor** (Gmel.). WOODCOCK.

As this well-known game bird breeds regularly here it is a permanent resident. In the summer months, however, it is very hard to find. The woodcock is very erratic in its movements in winter. During some winters scarcely more than a few pairs are to be seen, and these I take to be the resident, non-migratory birds. At intervals of five or six years enormous flights take place and the region about Mount Pleasant seems to be the objective point. A great flight occurred on December 27, 1892, and the numbers were so great that many clumps of bushes contained from ten to fifteen individuals.

The greatest flight on record took place on February 13 and 14, 1899, and I quote the account I published in the *Auk*:[2]

[1] See *Auk*, XXIII, 1906, 57-58. [2] XVI, 1899, 197.

The Woodcock (*Philohela minor*) arrived in countless thousands. Prior to their arrival I had seen but two birds the entire winter. They were everywhere and were completely bewildered. Tens of thousands were killed by would-be sportsmen, and thousands were frozen to death. The great majority were so emaciated that they were practically feathers and of course were unable to withstand the cold. One man killed two hundred *pairs* in a few hours. I shot a dozen birds. Late Tuesday afternoon I easily caught several birds on the snow and put them into a thawed spot on the edge of a swift-running stream in order that they would not perish, but upon going to the place the next morning I found one frozen. These were fearfully emaciated and could scarcely fly. Two birds were killed in Charleston in Broad street. It will be many years before this fine bird can establish itself under the most favorable conditions.

The Woodcock "peeps" and sings from the last of December until the middle of March—this being its love song. Audubon states that the eggs are laid from February to June. This is substantiated by a fine set of four eggs which were found on Capers' Island, February 13, 1903. The nest was on the ground, on a slightly rising plain, and near a wet cover. The eggs were perfectly fresh. On March 4, 1903, another Woodcock nest was found with four freshly-laid eggs.

The nest was merely a depression in the ground, lined with pine needles or dry leaves. The eggs, which are usually four in number, are buffy, spotted and blotched with brown and subdued lavender, and measure 1.50×1.15. The Woodcock's nest is very hard to find; indeed, the two nests above mentioned are the only ones I have seen during the past twenty-five years.

94. **Gallinago delicata** (Ord). WILSON'S SNIPE.

The local name of this winter visitant on our coast is "English Snipe," and I have known it by that name since I was a boy. I doubt if there is a state in the whole Union where these birds are found in larger numbers.

Wilson's Snipe generally arrives about August 15 and remains until late in April, but during very cold weather it is forced to migrate to milder regions because its feeding grounds are frozen. The birds are most abundant during the months of February and March, and at that time multitudes frequent the rice plantations, provided the water is not too deep over the land. The species seldom visits the salt marshes or even the coast islands where there are freshwater ponds, but appears to prefer the mainland at all times. It is, however, very erratic in its movements, and in places where hundreds were found one day, none are to be seen the following day. This peculiar habit

is due to changes of the weather, since a heavy rain, or a sudden fall in the temperature will drive them away.

The best time to shoot these birds is in cloudy and misty weather, as they are then loth to leave their feeding grounds. On sunny days very few snipe are to be found, since they generally hide in sequestered places among bushes and high grass. Upon the approach of night hundreds can be heard and seen going to their favorite bogs.

The great majority of the birds I have shot have the lores deeply tinged with bright rusty color. I do not find this character mentioned in the numerous ornithological works, though Audubon's plate clearly shows it.

Wilson's Snipe breeds from the northern United States to Hudson Bay.

95. **Macrorhamphus griseus** (Gmel.). DOWITCHER; RED-BREASTED SNIPE.

This is one of the commonest waders on the coast, and is a resident species, being found in small numbers in June, although the birds that are here then are almost always in winter plumage. The adults in worn breeding plumage arrive from the Arctic regions as early as July 5, and are common by the 16th. They disappear towards the last of the month or the first week in August. The young then arrive in enormous flocks, being most abundant between August 15 and September 1. The Red-breasted Snipe begins to moult about March 15, and by April 28 most of them have acquired their beautiful breeding plumage and are so fat that, when shot while flying, they burst open upon falling on any hard object. This snipe is a very hardy bird and is capable of enduring intense cold; indeed I have seen it braving a temperature of 6° above zero.

Like all the waders found on this coast, this species is a bird of the tidal flats, feeding when the banks are uncovered and resorting to the beaches or marshes at high tide. During the latter part of April, and up to May 20, it is characteristic of the males to soar high in the air with wings set and to sing their love-making song. I have often seen the male pursue the female on wing even at so low a latitude.

These birds migrate to their breeding grounds in the far north between May 1 and 15, and when the tide is low in the afternoon

and a light southerly wind prevails, flock after flock can be seen migrating in a northwesterly direction. I have yet to see these birds migrate along the coast line in the spring.

Audubon states in Birds of America:[1]

> In South Carolina it is more abundant in the autumnal months than in spring, when I should think they fly directly across from the Floridas towards Cape Hatteras, as my friend Dr. Bachman informs me that he never saw one of them in spring in the vicinity of Charleston.

As I have pointed out, Dr. Bachman was certainly in error, as this species is resident (although it does not breed), and it is even more common in spring than in autumn.

These birds breed in Arctic America, from the eastern seacoast to the Rocky Mountains.

96. **Macrorhamphus scolopaceus** (Say). LONG-BILLED DOWITCHER.

Although the Long-billed Dowitcher occurs regularly on the coast it is by no means an abundant bird like the preceding. It is positively rare in the spring, but I have taken a few specimens on April 30, in full breeding plumage.

About July 20, the adult, in worn breeding plumage, sometimes appears in flocks of *M. griseus.*

The greatest number of birds of this species that I positively identified were observed on September 10, 1885, on Sullivan's Island, when hundreds of individuals were seen, and a few secured. I have yet to see a specimen taken during the winter months, though the habits of this species are identical with those of the preceding.

The Long-billed Dowitcher breeds abundantly in Alaska.[2]

97. **Micropalama himantopus** (Bonap.). STILT SANDPIPER.

This rare species is included on the authority of Dr. Bachman, who appears to have taken many specimens near Charleston. Dr. Bachman says in his Essay on the Migration of the Birds of North America:[3]

> The pectoral sandpiper, (*Pelidna pectoralis*, Say) and the long-legged sandpiper, *(*Tringa himantopus* Bonap.) which were formerly so exceedingly rare that Wilson knew nothing of their existence, are now found every summer, in small numbers, along our sea coast...From these facts, we may easily perceive,

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[1] VI, 12.

[2] See Nelson, E. W., Report upon Natural History Collections made in Alaska, 1877-1881.

[3] Am. Journ. Sci. (Silliman's Jour.), XXX, 1836, 91.

that after all the additions that have been made to our American ornithology, by Wilson, Bonaparte, Cooper, Nuttall, Richardson, and especially by the indefatigable Audubon, the field still remains open to the investigation of the student of nature and promises a rich reward.

*From specimens in various stages of plumage, which I posess, of the long-legged sandpiper, I am disposed to believe, that Swainson and Richardson, in their Fauna Boreali-Americana, have been deceived by the variations in the plumage and size to which this bird is subject, and have described it three time under the names of Tringa himantopus, T. Audubonii, and T. Douglassii.

During the past twenty-five years I have devoted much time and study to the Limicolæ, but as yet I have not taken a specimen of this rare bird, although I believe I saw a small flock on August 1, 1901, near Mount Pleasant. As I did not secure a specimen in order to place the identification beyond question, I do not wish this record to be accepted as valid until a specimen is secured.

The Stilt Sandpiper was found breeding at Rendezvous Lake in the Arctic Regions of North America, by MacFarlane.

98. **Tringa canutus** Linn. KNOT.

The earliest date upon which I have observed this beautiful transient visitant in the spring is April 27, 1903, when two were seen on Bull's Island. These waders used to be abundant by the second week in May, but at the present time very few are to be seen while they pass along this coast *en route* to their breeding grounds in the Arctic regions. On May 18, 1895, I saw, on Long Island beach, a flock of these birds which I estimated to contain fully fifteen hundred individuals, while on May 21 of the same year, I observed a flock that had alighted on the beach, and that comprised without a doubt more than three thousand birds.

The Knot is a beach bird and its migrations to and from this coast are governed by the presence or absence of a small bivalve which is found a few inches under the sand. It is upon this shellfish that the birds feed almost exclusively.

A few birds remain until June 5, but the great majority migrate between the 21st and 28th of May. By July 20 they are here again to remain until October 15. I have never seen this species migrating overland in a northwesterly direction like the Red-breasted Snipe. It always seems to follow the coast islands and migrates in a northeasterly direction.

Dr. Bachman has stated in Audubon's Birds of America,[1]

[1] V, 256.

that "he has never seen it there [South Carolina] in full plumage." It is now well known that the Knot attains the highest possible plumage long before it migrates to the Arctic regions.

This species is circumpolar during the breeding season and has been found breeding at Discovery Harbor, latitude 81° N., by Lieut. A. W. Greely. The Knot visits the Southern Hemisphere in the winter and has been found in Brazil, Africa, and New Zealand.

99. **Pisobia maculata** (Vieill.). PECTORAL SANDPIPER.

The Pectoral Sandpiper is a transient visitant and is very rare during the spring migration. The only record I have is March 26, 1886, when I obtained a male on Sullivan's Island. In the autumn, however, this species is very abundant whenever there is an abundance of fresh water on the coast islands (where a species of maritime grass affords protection) and the weather is stormy.

The greatest flight I ever witnessed was on September 13, 1884, on Sullivan's Island, where large numbers were seen. On October 12, 1885, I again saw this species on Sullivan's Island, and obtained three specimens.

The Pectoral Sandpiper breeds in numbers at Point Barrow, Alaska, and winters as far south as Patagonia.

The male of this species is much larger than the female.

100. **Pisobia fuscicollis** (Vieill.). WHITE-RUMPED SANDPIPER.

This sandpiper is a rare transient visitant on this coast, where it seldom makes a lengthy stay. My earliest record is May 7, 1902, and the latest May 29, 1906. In 1886, it was first noted May 13, and remained until May 19, while in 1888 I observed it from May 17th until the 22nd. The greater part of May, 1903, was stormy, with much rain, and I observed from the 13th until the 25th fully two dozen of these rare sandpipers. All of them were seen in a cotton field, among thousands of other waders, while the ground was partially covered with water, and I noticed that this species invariably waded up to its belly in the water.

I have detected this sandpiper but once in the autumn—October 17, 1904.

Bonaparte's Sandpiper, as this species is also called, breeds on the Barren Grounds of Arctic America, and in winter ranges southward to the Falkland Islands.

101. **Pisobia minutilla** (Vieill.). LEAST SANDPIPER.

As a few individuals winter regularly, this diminutive species can be considered a permanent resident. I have seen it in every month of the year, though it does not breed.

The birds arrive in numbers by the last week in April and seldom tarry long during the northward migration. All of the smaller species of shore birds are known on this coast as "Sand Chickens," and this species is best known to nearly all the inhabitants of the coast.

The Least Sandpiper seems to prefer beaches where there are pools of water formed by the action of the tides, rather than the mud flats.

This species breeds to the northward of the United States. Audubon found its nest containing four eggs on the 20th of July, 1833, in Labrador.

102. **Pelidna alpina sakhalina** (Vieill.). RED-BACKED SANDPIPER.

This winter visitant usually arrives from the north during the first week in October and remains until May 25. The earliest autumn record I have is September 30, 1901. It is a very hardy bird and is apparently not inconvenienced by a temperature of 6° above zero. With the exception of the Western Sandpiper (*Ereunetes mauri*), this species is the most common of all the waders that winter on this coast.

The birds that have wintered here begin to moult early in April, and by May 10 they have acquired breeding plumage, and migrate at once to their breeding grounds. I have yet to see a specimen on this coast from May 25 until September 30.

This species breeds abundantly at Point Barrow, Alaska, and when it arrives on our coast scarcely a trace of the summer plumage remains.

103. **Ereunetes pusillus** (Linn.). SEMIPALMATED SANDPIPER.

I have never observed this species in the winter months, but it is exceedingly abundant in the spring and autumn migrations, being found in company with the Semipalmated Plover and Red-backed Sandpiper. The female of this species has the bill even shorter than the male of *E. mauri*. When the birds arrive in the spring they are always in full breeding plumage, and by May

25 they have all departed for their breeding grounds, which are in the Arctic regions.

104. **Ereunetes mauri** Gundl. WESTERN SANDPIPER.

The Western Sandpiper is the most abundant of all the waders that winter on this coast. It is not unusual to see thousands of these birds any day during the winter months. It can almost be considered a permanent resident, as it is only absent from May 20 until July 8. The adults arrive in worn breeding plumage, and immediately begin to moult the feathers of the head and throat. By the first week in August they have acquired their autumn plumage.

The measurements given by Audubon for the Semipalmated Sandpiper (*Ereunetes pusillus*) clearly indicate that the species he described was not *E. pusillus*, but the Western Sandpiper (*E. mauri*). Audubon says: "Adult [male] bill along the ridge $1\frac{1}{12}$ inches," proving conclusively that he was describing a new species, although he was not aware of the fact. The measurement "$1\frac{1}{12}$ inches" for the male is more than the maximum for that sex and agrees with the measurements for the female.

The Western Sandpiper breeds abundantly in Alaska.

105. **Calidris leucophæa** (Pall.). SANDERLING.

The Sanderling is a permanent resident on this coast, yet it does not breed, and the birds that are found in June and the early part of July are always in immature, *i. e.* winter, plumage. By the 30th of April they have acquired their breeding plumage, and if the wind is from the south they migrate in the afternoon, following the coast line to their breeding grounds, which are in the Arctic regions.

The adults in worn breeding plumage arrive from their breeding grounds by July 14, and by July 30 they have commenced to undergo the autumn moult. This is so rapid that by August 18 scarcely any trace of their summer plumage remains. The female is larger than the male, and the male in winter plumage differs from the female at this season by having the lesser and middle coverts, as well as the tertials, edged with blackish.

This interesting species is eminently a beach bird and I have never seen one on a mud flat at any season of the year.

The Sanderling is cosmopolitan, being found in Patagonia,

Africa, etc., but it breeds only in the Arctic regions. Capt. H. W. Feilden obtained a nest and two eggs of this species in Grinnell Land, latitude 82° 33′ N. on June 24, 1876.

106. **Limosa fedoa** (Linn.). MARBLED GODWIT.

Audubon[1] states that this species "breeds in South Carolina," but he mentions no authority for this statement. The fact is that the Marbled Godwit never bred in South Carolina, nor is it likely that it will breed there as it is one of the very rarest of birds at the present time on this coast. I have seen perhaps twenty individuals during the past twenty-five years, and of that number I secured two specimens, as follows: No. 443, November 3, 1884, female, Mount Pleasant; No. 1023, October 9, 1885, male, Sullivan's Island. Both of these specimens were taken in the extensive mud flat which, at low tide, extends from the Mount Pleasant shore to Sullivan's Island.

This species breeds from Iowa to the Saskatchewan River region, and winters as far south as the Argentine Republic. It is rare on the Atlantic coast.

107. **Totanus melanoleucus** (Gmel.). GREATER YELLOW-LEGS.

The Greater Yellow-legs is found in every month of the year, and is therefore a permanent resident, but it does not breed. It is most abundant during the migrations in April and May, when thousands can be heard and seen almost any day. Like most of the waders, this species is a bird of the tidal flats and feeds as soon as the water leaves the mud banks, but upon the banks being covered by the flood tide it resorts to the marshes and coast islands. About the middle of April a few birds have acquired their breeding plumage, but it is not until the last of that month or the first week in May that the majority are in their perfect summer dress. These birds appear to migrate in a northwesterly direction and are calling incessantly during the whole time they are in flight. They are common during the entire winter.

The Greater Yellow-legs breeds from Minnesota and Anticosti northward.

108. **Totanus flavipes** (Gmel.). YELLOW-LEGS.

This species is a transient visitant, arriving during the second week in March, in winter plumage, and moulting while here

[1] V, 333.

before departing for its breeding grounds. This spring moult is sometimes acquired by April 21, but it is not generally completed before the first week in May. The northward migration is over about May 20 and by the second week in July a few flocks reach this coast on their return. They are not common, however, until August 1, and, strange to relate, most, if not all, of the birds pass on without stopping. I have never seen this species in the winter months. Its range at that season extends as far south as Patagonia, but it breeds only in the Arctic and sub-Arctic regions of North America. In the spring the birds migrate to their breeding grounds in a northwesterly direction.

109. **Helodromas solitarius** (Wils.). SOLITARY SANDPIPER.

The earliest record I have of the occurrence of this transient visitant in the spring is April 16, 1902, and it remains as late as May 27. The adults in worn breeding plumage return during the second week in July and are common by the 31st, if the ponds are full of water, but if there is a drought the birds pass on without stopping as they seem to know that the country is dry. I have found this to be the case with all migratory birds. The ponds were full of water in the autumn of 1895, and consequently this sandpiper was found on Long Island as late as November 18.

The name "Solitary" is hardly applicable to this species as I have seen it in flocks of eight or ten individuals.

Although this sandpiper breeds in the northern states it is more abundant in Canada during the season of reproduction.

110. **Catoptrophorus semipalmatus** (Gmel.). WILLET.

The Willet is a permanent resident, stated by Audubon to breed "along the shores of the Carolinas about the beginning of April." I have, however, invariably found it incubating during the first week of May. The nest is merely a hole scooped out in the ground at the foot of a bunch of grass near high water mark and lined with grass. In some cases, it is placed in wild oats (*Zizania miliacea*) and in this situation I have found two nests on the top of a high sand hill. The eggs number four or five—the latter number being very rare—and are greenish or brownish olive, spotted and blotched with dark brown, and measure 2.05×1.50.

The young are hatched by May 29, and the parents sometimes remove them between the thighs (as the Woodcock is also known to do) to a place of safety, fully a quarter of a mile away. I observed this trait on May 29, 1899. I found a nest in an oat field, which contained one young bird just hatched and three eggs on the point of hatching. I remained near the place until the eggs were hatched, and the Willets were greatly alarmed all the time. Presently I saw one of the old birds remove a young one and fly with it across three creeks and marsh land to an island a quarter of a mile away. This was repeated until all the young were removed.

This species, which is also known as the "Stone Curlew," raises but one brood each season, unless the eggs are taken, when it will lay again and again in order to raise a brood. During the breeding season the birds alight on the top of the tallest trees, as well as stumps, fences, etc., and are at all times very noisy. The worst enemy of the Willet in the breeding season is the crow.

111. **Catoptrophorus semipalmatus inornatus** (Brewst.). WESTERN WILLET.

This subspecies occurs commonly in autumn, winter, and early spring. It is a larger bird than *semipalmatus* and is sometimes much grayer, but the most characteristic feature seems to be the bill, which is longer and slenderer.

The breeding range is supposed to be from the source of the Saskatchewan to California.

112. **Bartramia longicauda** (Bechst.). UPLAND PLOVER.

The "Field Plover," as this species is locally called, generally, if not invariably, arrives by March 22, and was formerly most numerous between April 10 and 16, but it is now one of the rarest of the waders on our coast. My earliest record is March 11, 1906. A pair of these birds undoubtedly bred within half a mile of my house in the year 1901, but all attempts to find the nest proved futile. On May 11, 1901, one of these birds actually followed me, as the Willet (*Catoptrophorus semipalmatus*) does in the breeding season. The nest was, or had been, in a cotton field, but must have been destroyed the previous day as the field was ploughed. When this sandpiper grew tired of hovering over me (with almost motionless wings), it alighted on the top of a dead oak tree. These birds must have eventually raised a

brood on this plantation (Oakland), as they were seen until June 20. This is the most southerly record for the breeding of this species.

About the middle of July the "Field Plovers" used to appear on the southward migration, remaining until October 28, which is my latest date.

On June 19, 1906, I secured an adult female which was moulting the feathers of the head, neck, and body, as well as one of the tertials in each wing. This specimen had undoubtedly bred to the northward of this state, and is the earliest record I have for the autumn migration. During the migrations in March and April I have occasionally seen this bird alight on the top of a dead tree.

This species winters as far south as the Argentine Republic and breeds as far north as Alaska. The eggs usually number four, and are creamy white or clay, spotted with reddish brown and purplish, and measure 1.75×1.25.

113. **Actitis macularia** (Linn.). SPOTTED SANDPIPER.

Since this species is found during every month of the year it is a permanent resident, although it does not breed. It is most numerous in April and the early part of May, and there is scarcely a place where it cannot be seen in large flocks during these months.

A female taken on April 25, 1903, has the outer web of the first primary margined with white for about three quarters of an inch from the tip. In some winter specimens from South Carolina, there are fine spots on the flanks.

The Spotted Sandpiper winters as far south as Brazil, and breeds locally in the United States and as far north as Hudson Bay.

114. **Numenius americanus** Bechst. LONG-BILLED CURLEW.

The "Spanish Curlew," as this species is locally known, is now almost extinct on the South Carolina coast, where it once swarmed in countless multitudes. Since 1885 it has been supplanted by the Hudsonian Curlew (*N. hudsonicus*), which is still exceedingly abundant during the spring and autumn migrations. From 1879 to 1885, *americanus* was to be found in the immediate vicinity of Charleston, but its numbers steadily diminished year after year until at the present time it is so rare that it is seldom seen; in fact I have not seen one since September 23, 1899. I do

not think that *americanus* has been exterminated by being shot, but that it has changed its route of migration. Audubon, in his Birds of America,[1] states, upon the authority of Dr. Bachman, that this curlew "breeds on the islands on the coast of South Carolina, and it places its nests so close together, that it is almost impossible for a man to walk between them, without injuring the eggs."

Later writers have also asserted that this curlew breeds abundantly on the South Atlantic coast, viz.—Dr. Elliott Coues,[2] Daniel Giraud Elliot,[3] and Wickersham.[4]

I am of the opinion that the authors above mentioned accepted Audubon's account of Dr. Bachman's statement, and did not substantiate it by personal experience. It may appear hypercritical to question Dr. Bachman's statement that this species bred on the coast islands, but the eggs were not described by either Audubon or himself, and as far back as 1879 there were no eggs of *N. americanus* in the Charleston Museum, while the eggs of the "Stone Curlew" (*Catoptrophorus semipalmatus*) were well represented and were classified as eggs of the Long-billed Curlew, I have been unable to obtain any evidence, even from the "oldest inhabitants," that this species ever bred anywhere on the South Carolina coast. The birds simply appeared in the autumn and winter, and migrated to their breeding grounds in the northwest in the spring. It will thus be seen that the Long-billed Curlew must be excluded from the list of birds which breed in the South Atlantic states.

Dr. Bachman made many errors respecting the Limicolæ and I may mention a few. He stated in Audubon's Birds of America,[5] that the Knot (*Tringa canutus*) does not occur in South Carolina in "full plumage;" and again[6] that the Dowitcher (*Macrorhamphus griseus*) does not occur "in the spring in the vicinity of Charleston." It is hardly necessary to mention that both the Knot and the Dowitcher occur abundantly on the South Carolina coast during the northward migration. Both of these species attain the highest possible plumage before they start on their long journey to the Arctic regions. In 1885, Mr. William Brewster and the writer collected a very fine series of *Tringa canutus* in the month of May on Sullivan's Island. *Macrorham-*

[1] VI, 35-36. [2] Birds of the Northwest, 508; Key to North American Birds, 645.
[3] North American Shore Birds, 153; A. O. U. Check List, 1895, 97.
[4] *Auk*, XIX, 1902, 353. [5] V, 256. [6] Ibid, VI, 12.

phus griseus is in full nuptial plumage by April 28, and it is characteristic of the males during the months of April and May to soar high in the air with wings "set," and sing their love song.

115. **Numenius hudsonicus** Lath. HUDSONIAN CURLEW.

The Hudsonian Curlew arrives by April 1, and remains until October 2, but the height of abundance is from the third week in April until the second week in May, and from July 5 or 11 until the middle of September. A few birds remain all through June and I have innumerable records showing the presence of the bird even in that month, *e. g.*, June 6, 1895, and June 10, and 26, 1896. Although Audubon has stated[1] that he "saw a large flock [of this species] near Charleston, in the month of December," I have yet to observe them on this coast later than October 2.

This species supplanted the Long-billed Curlew between the years 1883 and 1885, for previous to these dates the former species was rare, but it gradually became more abundant each year until it established itself firmly in great numbers. The result was that the Long-billed Curlew was driven from its accustomed range by a smaller species, in the struggle for existence. The Long-billed Curlews fed almost entirely upon fiddlers, and the Hudsonian Curlew also subsisted upon them, and as the food supply was inadequate, one species was forced to seek other paths of migration.

The Hudsonian Curlews pass this coast in multitudes in April and May, and every afternoon for at least five weeks flock after flock may be seen going to the coast islands to spend the night.

During the spring the notes of this species can be heard almost incessantly while they are feeding or going to and returning from their feeding grounds.

This species breeds only in the Arctic regions of North America.

116. **Numenius borealis** (Forst.). ESKIMO CURLEW.

I have never seen this curlew alive, but in the Charleston Museum there were many mounted specimens that were labeled by Dr. Bachman as follows: "South Carolina, Winter." All of these specimens were dust-stained and somewhat moth-eaten, and when Dr. Gabriel E. Manigault became curator they, among other birds, were thrown away as trash.

[1] Birds of America, VI, 42.

The Eskimo Curlew is now considered by most ornithologists to be on the verge of extinction. It formerly bred in enormous numbers in the Anderson River region of Arctic America, where the eggs have been taken by R. MacFarlane, Esq. In winter it is found as far south as Patagonia. It may now even breed in the Antarctic regions for, having been slaughtered by thousands for more than a hundred years while *en route* from its breeding grounds to the Labrador coast, as well as during the return migrations through the Mississippi valley, it may have been forced to seek new breeding grounds.

FAMILY CHARADRIIDÆ: PLOVERS.

117. **Squatarola squatarola** (Linn.). BLACK-BELLIED PLOVER.

This plover is a permanent resident as it occurs during every month of the year, yet it does not breed. The birds that are found in June and the early part of July are generally in winter or immature plumage, though a few adults in full nuptial plumage are occasionally to be noted during these months. I mention a few dates upon which I have observed these birds in June, namely—22nd, 1895; 26th, 1896; 18th, 1901; 11th, 1902, and 19th, 1905. About the middle of March, or towards the last of that month, the birds begin their spring moult, which is very gradual and is not entirely completed until about May 15 or 22, there being numbers of undeveloped feathers in all stages of growth. I have never seen one of these birds in full breeding plumage after October 15.

The Black-bellied Plover is very shy when it has acquired its nuptial plumage so that it is almost impossible to approach it nearer than a few hundred yards. During the winter months, however, it is comparatively tame, and, as a rule, is easily approached. This fine species is a bird of the tidal flats and feeds as soon as the mud is exposed, but resorts to the beaches when the tide rises and covers the oyster banks. When the wind is from the south and the tide is low in the afternoon, these birds migrate in small flocks in a northwesterly direction to their breeding grounds and form a beautiful sight, especially if the sun is shining. The whole time a flock is migrating each individual whistles constantly as long as there is light.

In North America, the Black-bellied Plover has been found breeding in the Anderson River region and in Melville Peninsula. Eggs

have been procured in the former locality on July 4, 1864, by R. MacFarlane, Esq.

118. **Charadrius dominicus** Müll. GOLDEN PLOVER.

The Golden Plover is so rare on this coast that I have shot but one during the past twenty-five years. This specimen was taken within sight of the city of Charleston in December, 1880, and is now in the Charleston Museum.[1]

In winter this species is found as far south as Patagonia. It breeds in Arctic America, chiefly the Anderson River region.

119. **Oxyechus vociferus** (Linn.). KILLDEER.

Although this well-known species breeds in the upper part of the State, it occurs on the coast only from July to April, and does not breed. During very cold weather the Killdeer rises several hundred yards in the air, hovering on almost motionless wings and uttering its far-reaching notes. I have known a pair to remain in the heavens for fully an hour during the coldest weather.

This species is very partial to fields which are being ploughed, and at this time they are always very tame, following each furrow as soon as it is turned in order to secure the worms which are exposed. It is to some extent a tidal species, but usually prefers fields. I once saw a flock of at least two thousand individuals which remained in the vicinity of Mount Pleasant for a week, but the birds are generally to be seen in numbers ranging from five to twenty. Audubon says of the species:[2]

> Not one, however, has ever been found breeding in the low lands of South Carolina, although these birds remain there until the beginning of May.

This only substantiates what I have said in reference to the non-breeding, but the Killdeer does not remain until the beginning of May as far as my records show.

120. **Ægialitis semipalmata** Bonap. SEMIPALMATED PLOVER.

Since this species is found in June, and since it also winters sparingly, it is a permanent resident, yet it does not breed. There is a small salt-water lagoon on Dewees Island, bordering the inlet, where this plover winters regularly in small numbers. During the latter part of April, and until the middle of May, vast flocks of these waders frequent this coast. Their numbers are so

[1] Spec. No. 36. [2] V, 209.

great that it is difficult to understand what becomes of all of them in the struggle for existence while *en route* to the Arctic regions. It is certain that the vast armies of these birds do not return in July and August in the same numerical strength, but during the following migration in May they are as abundant as ever. The Semipalmated Plover is a bird of the tidal flats and feeds as soon as the banks are uncovered, but resorts to the fields and beaches at high water.

In winter, this species is found as far south as Brazil, but it breeds only in the Arctic and sub-Arctic regions.

121. **Ægialitis meloda** (Ord). PIPING PLOVER.

Audubon states [1] that this plover "breeds on all parts of the eastern coast of the United States," and that "great numbers spend the winter from South Carolina to the mouths of the Mississippi." This species does not breed on the coast of South Carolina, being simply a transient visitant. It does not winter in "great numbers;" in fact I have seen but one during the winter months. That was on February 4, 1889, and I may have been mistaken then as this species very closely resembles the Sanderling (*Calidris leucophæa*). The birds arrive during the second week in March, in winter plumage, and at once commence to moult the feathers of the head and breast, assuming their summer plumage by April 10. A few individuals remain until May 15, and they are not to be seen again until August 2, when they remain until about October 16.

This beautiful species is a beach bird and is to be seen only along the ocean front. I have yet to see one of these birds alight on a mud bank, and they are at all times the very shyest of all waders, so that it is next to impossible to get within range after they have once been shot at. On April 25, 1903, I followed a small flock of these birds for more than fifteen miles, but I was unable to get nearer than two hundred yards, while at times I could not approach within a quarter of a mile. The Piping Plover is a very uncommon species, in fact rare, and I have never seen more than five or six in a flock.

This species breeds from Virginia to Newfoundland.

122. **Ochthodromus wilsonius** (Ord). WILSON'S PLOVER.

Wilson's Plover generally arrives late in March—my earliest date being March 26, 1886—and remains until September 22, or perhaps until October.

[1] Birds of America, V, 223-225.

This species is a beach bird, but only breeds near an inlet, where there is a mixture of sand and mud, upon which it is dependent during the breeding season.

As soon as the birds arrive they begin to mate and four or five males start in pursuit of a female, either flying or running over the sand and uttering their plaintive whistle.

In some forward seasons the eggs are laid by April 27, but in the latitude of Charleston, or a few miles to the northward, the birds generally lay about the second week in May. The nest is merely a hollow in the sand, among shells or under a small maritime plant, and generally near high water mark. The full complement of eggs is invariably three. They are creamy white or buff, finely spotted (or sometimes blotched) with blackish brown, and measure 1.45×1.05. The young, which run shortly after they are hatched, are generally seen about May 25. Only one brood is raised unless the eggs have been destroyed, when the birds will lay again and again until a brood is raised.

Although Audubon states[1] that "great numbers are at all times to be met with from Carolina to the mouths of the Mississippi, and in all these places I have found it the whole year round," I have never seen one of these birds during the late autumn, much less winter, on any part of this coast, and he certainly was in error, as this species departs long before the advent of cool weather.

Wilson's Plover is a very gentle species, especially in the breeding season, and can easily be approached to within a few feet when the eggs are laid or when the young are hatched. It is very solicitous in regard to the safety of its young, and in order to lead one away it will fall over, or beat the sand with its wings, as many birds are known to do when their young are in danger.

In winter this species is found as far south as Brazil.

FAMILY APHRIZIDÆ: SURF-BIRDS AND TURNSTONES.

123. **Arenaria interpres morinella** (Linn.). RUDDY TURNSTONE.

The Turnstone is a permanent resident on the coast, for I have seen or taken it in every month of the year, but it does not breed. It is not uncommon to see many individuals in full nuptial plumage all through June and I have seen nine high-plumaged birds on June 11, 1895, and one on June 12, 1905. The birds in immature or winter plumage, however, are seen in June more frequently

[1] Birds of America, V, 215.

than the adults in nuptial plumage. By the middle of July the adults that have bred in the Arctic regions make their appearance. They are generally, if not always, in very worn plumage and plainly show that they have bred, by bare spaces on the lower breast. The Turnstone migrates later in the spring than any of the waders, and invariably follows the coast line. It does not migrate in a northwesterly direction like the Red-breasted Snipe, Black-bellied Plover, and Greater Yellow-legs. This species is very tame in winter, and comes near the ocean beaches. On Capers' Island it frequents live oak trees which are covered with small mussels, upon which it eagerly feeds. If some of the mussels happen to be on an inclined limb the birds walk, instead of flying, to reach them. I have seen as many as four of these birds, one behind the other, on a small limb out in the surf.

FAMILY HÆMATOPODIDÆ: OYSTER-CATCHERS.

124. **Hæmatopus palliatus** Temm. OYSTER-CATCHER.

Twenty years ago this permanent resident used to breed on the eastern end of Sullivan's Island, and also across the inlet on Long Island, but at the present time it has abandoned these places on account of the building of cottages upon the breeding grounds. A few pairs breed on Dewees Island, but the greater number breed on Capers' and Bull's Islands.

The habits of the birds have changed in regard to their breeding, as ten or twenty years ago full complements of eggs could not be obtained before May 13-15; whereas in later years the birds invariably breed in April, as the following record shows: May 15, 1895, three eggs, Long Island; May 13, 1896, three eggs, Long Island; May 15, 1897, three eggs, Long Island; April 20, 1903, two eggs (incomplete); April 12, 1903, three eggs, Bull's Island; April 30, 1904, three eggs, Long Island. The eggs, which invariably number three, are laid on the sand or among shells, in a hole scooped out near high water mark, and are cream color, spotted and blotched with dark brown, and measure 2.25×1.55.

Only one brood is raised unless the eggs have been taken, when the birds will lay again and again in order to raise their young. Scarcely more than four or five pairs breed together, and sometimes only one pair inhabits an island during the breeding season. In the winter, however, the Oyster-catcher is very gregarious

and it is not unusual to see flocks containing from twenty to seventy-five individuals. The majority of these birds are undoubtedly migrants from points to the northward of South Carolina and not the resident breeding birds, which apparently go together in pairs or small flocks of from four to six individuals.

This species is at all times very shy and even in the breeding season or in the coldest weather is ever on the alert and knows the danger line. I have seen these birds open Raccoon oysters by inserting the bill into the gaping shell, like a wedge, when the shell at once opens. As soon as the tide leaves the oyster banks the birds at once resort to them, returning to the beaches when the banks are covered.

ORDER GALLINÆ: GALLINACEOUS BIRDS.

FAMILY ODONTOPHORIDÆ: BOB-WHITES, QUAILS, ETC.

125. **Colinus virginianus** (Linn.). BOB-WHITE; "PARTRIDGE."

This well known game bird is a permanent resident and is exceedingly abundant along the entire coast. On Oakland plantation, near Mount Pleasant, there are no less than twenty-six coveys. Mr. Philip E. Porcher, the present owner, tells me that when he moved to this place in February, 1859, he observed a flock of these birds near the dwelling house, and I may add that the descendants of this particular covey are still to be seen at this date—1910. As long as the aspect of the country is unchanged the Bob-white will be found in the same locality year after year, but when the cover is destroyed the birds are forced to find other places which are suitable. Any thorough sportsman can recognize a place where this species can be found, without inquiry, by the character of the land.

A plantation will contain a certain number of coveys, year after year, without any apparent increase of additional flocks. This fact is well-known by land owners who are interested in the preservation of the birds. That the birds undoubtedly increase is shown by the presence of enormous coveys in the autumn in places where none were known to exist before. These birds were undoubtedly bred on the land where their ancestors lived for years, and consequently are their descendants. But they do not remain, as the same coveys are still to be found in the same places where they have been for years. The question at once

arises: what becomes of the innumerable numbers that are annually raised? I have seen late in the autumn, upon the approach of sunset, a covey fly high in the air and depart in a southerly direction. These birds were undoubtedly migrating. If all the partridges which are annually hatched and raised were to remain on the plantations where they were bred, the crops of grain would be seriously injured.

The birds which frequent the forest are always shyer, and, when flushed, fly to greater distances than those which frequent the fields.

Although the birds commence to pair during the second week in April, I have frequently observed them in large flocks as late as the middle of May. Audubon states[1] that "in the neighborhood of Charleston, in South Carolina, it breeds twice in the year, first in May, and again in September." This statement is certainly an error, as the birds have but one brood, unless the eggs have been taken, when they continue to lay for an indefinite period until a brood is raised. I have caught young birds, which were about two days old, in the second week of November. During the breeding season the birds have many enemies to contend with, including negroes, snakes, foxes, crows, and protracted rains. But the greatest enemy is the negro, who never passes a nest of this fine bird without taking the eggs, even when they are on the point of hatching. The birds are thus forced to lay again and again in order to raise a brood, which accounts for young birds being seen in different stages of growth so late in the summer and autumn.

The nest is composed of grasses and weeds and is arched over. It is placed on the ground at the foot of a tuft of grass or among bushes, and generally in a secluded place. The eggs are pure white, generally nest-stained, range from thirteen to twenty in number, and measure 1.25×.95. The Bob-white is a late breeder. Full complements of eggs are completed between May 22 and 31, but much depends upon the season.

FAMILY MELEAGRIDÆ: TURKEYS.

126. **Meleagris gallopavo silvestris** (Vieill.). WILD TURKEY.

The Wild Turkey is a permanent resident but fast becoming a very rare bird, and, unless laws are enacted and vigorously en-

[1] Birds of America, V, 63.

forced, this valuable and magnificient species will be unknown to future generations. This species is only to be met with in the wilder and less settled parts of the country at the present time. Man is its greatest enemy and as soon as the season is "open," the turkeys are located, then baited, and just as long as any come to the bait they are shot from the "blind." In this manner a whole brood is annihilated. Another method of procuring these birds is that known as "roosting." The turkeys are located late in the afternoon, and just before darkness sets in the birds fly from the ground to roost in the tops of the tallest pines, where they are shot during the night if it is moonlight, or at day-break. This practice of shooting them by moonlight should be prohibited by law.

The beard is present in both sexes, and in old hens I have yet to see it wanting. The old birds breed much earlier than the younger ones. On March 30, 1896, I examined a nest which contained fifteen slightly incubated eggs. The nest was situated on the ground in a dense forest, and was composed of pine needles and a few cane leaves. This is an exceptionally early date. Most of the birds begin to lay their eggs about the middle of April. A nest which contained thirteen eggs was found on May 4, 1897, and another nest containing thirteen eggs was observed on May 22, 1897. This species, therefore, lays from thirteen to fifteen eggs. The female is a very close setter, in fact so closely does she incubate that it is an easy matter to catch her on the nest.

In some forward seasons the young birds are following their mother by May 10. Only one brood is raised unless the eggs or young have been destroyed, when the birds lay again. This is characteristic of all birds from the lowest to the highest orders.

The eggs are of a buff color speckled with brown, some specimens having large spots or even blotches. They measure 2.55×1.95.

ORDER COLUMBÆ: PIGEONS AND DOVES.

FAMILY COLUMBIDÆ: PIGEONS AND DOVES.

127. **Ectopistes migratorius** (Linn.). PASSENGER PIGEON.

Although the Wild Pigeon formerly occurred in enormous numbers on the coast, there is no evidence to prove that it ever bred there. It undoubtedly bred in the interior of the State,

and as late as 1882, since in the summer of that year I observed two pairs of these birds at Cæsar's Head, Greenville county.

The only specimen I ever saw on the coast was shot by a colored man while on a "deer stand," November 21, 1885, at Sineath's Station, thirteen miles north of Charleston. I was at the station waiting for the train to Charleston, when two hunters came up. One of them took from his bag a young female Wild Pigeon and showed it to me with much pride. As the bird was shot with buckshot it could not be preserved.

Wilson observed a flock of these birds near Frankfort, Kentucky, about 1808, which he estimated to contain 2,230,272,000 individuals.

This species is now almost extinct, having been caught in enormous numbers in nets, and drowned in multitudes in the Gulf of Mexico during migrations.

128. **Zenaidura macroura carolinensis** (Linn.). MOURNING DOVE.

This permanent resident is exceedingly abundant along the entire coast, and in the autumn large flights occur. If the weather is cool in the early part of October, these birds fly along the beach at Mount Pleasant every morning and evening in very large flocks. This particular place is a regular "flight line" for the birds in October, and this fact has been well known for more than a century. The Carolina Dove has two broods each year. The earliest date upon which I have observed eggs is April 11, 1887. This species breeds either on the ground, or in low bushes or on the branches of high trees. The nest is very loosely constructed, and is composed of a few sticks, or small twigs. Two eggs comprise a full set, and these are white, and measure 1.05×.80. Both sexes incubate.

Although this species is supposed to feed upon the ground, this is by no means always the case as the birds resort to the pine woods for weeks at a time to feed upon the seeds of these trees, which they obtain by walking out on the limbs and extracting them from the cones. The flesh at this time is very strongly impregnated with a piney flavor.

129. **Chæmepelia passerina terrestris** (Chapm.). GROUND DOVE.

The Ground Dove is a permanent resident and used to be exceedingly abundant on the coast islands, as well as on the main-

land, until the intense cold wave of February 13 and 14, 1899, destroyed great numbers of them. During January, 1899, I observed many flocks which contained from ten to twenty-five individuals, but at the present time the birds have not recovered from the losses they sustained by that great blizzard.

This species breeds from April until November, and raises perhaps four broods. The nest, which is placed on the ground, or in low trees or bushes, is made of small twigs and weeds, and is large for the size of the bird. The eggs are two in number, pure white, and measure .85×.65. In the autumn, this species generally breeds on the ground in cotton fields, placing its nest at the foot of a stalk.

On October 19, 1886, I found on Sullivan's Island (which used to be a favorite breeding ground) a nest containing two eggs in an advanced stage of incubation. This late breeding is not exceptional, for on November 3, 1891, I saw a pair of young, just able to fly, which were accompanied by their parents.[1]

The Ground Dove is exceedingly gentle and is seldom molested by people.

Although Audubon states[2] that "a few of these birds remain all the year in the vicinity of Charleston, but the greater number retire either to the sea islands or to the Floridas," this statement is certainly an error as this species is non-migratory.

ORDER RAPTORES: BIRDS OF PREY.

FAMILY CATHARTIDÆ: AMERICAN VULTURES.

130. **Cathartes aura septentrionalis** (Wied). TURKEY VULTURE.

This species is a permanent resident. It is not as numerous as the Black Vulture (*Catharista urubu*), but both are often seen on the same carcass. If a cow or a horse happens to bog in the salt marshes and cannot extricate itself, the Turkey Buzzard (as it is locally called) frequently picks the eyes out of the unfortunate animal while it is in this helpless condition. I have never seen the Black Vulture attack living animals.

The flight of the Turkey Buzzard is altogether different from that of the Black Vulture. The former is very graceful in flight and sails against the wind with marvellous ease, rarely flapping its

[1] See *Auk*, IX, 1892, 72. [2] Birds of America, V, 21.

wings to gain headway, but invariably beating to windward like a sailing boat.

I have found but two nests of this bird in South Carolina. The first was merely a slight depression on the ground under a fallen log in a dense thicket of primeval forest, and contained one egg on April 15, 1898. The vulture was incubating, but would not leave the nest. I therefore secured a stout stick and raised the bird from the egg, when almost immediately the egg was covered with blow-flies. I repeated this operation several times and just as soon as the stick was removed the bird settled itself on the egg to incubate. Upon visiting the nest for four consecutive days to see if another egg would be laid, I could not examine the contents without using a stick to raise the bird from the nest, and at each removal of the stick the bird resumed incubation. Only one egg was laid and that contained a small embryo. On April 25, 1906, a set of two eggs, on the point of hatching, was found in the hollow of a cypress tree in a dense swamp. The eggs are white or creamy white, spotted and blotched with chocolate and purplish markings, and measure 2.75×1.85. One or two eggs are laid.

131. **Catharista urubu** Vieill. BLACK VULTURE.

The Black Vulture, also a permanent resident, outnumbers the former species by at least forty to one. Anyone who visits the market in Charleston can see that the birds are half domesticated there. As soon as the butchers throw a piece of meat into the street, several vultures at once engage in a fight for it. If the morsel happens to be of some length and two birds have a hold upon it, each tugs away at his end and swallows as fast as the other relaxes its hold. The meat is constantly guarded by the butchers, for if they did not remain at their stalls, the vultures would very soon rob them of the smaller pieces.

This species generally runs a short distance before flying, in order to get a start, but when on wing its flight is powerful.

The birds mate in February, and when engaged in this pleasure utter a hissing sound which can be heard at a distance of several hundred yards. No nest is formed, but the eggs, which are always two in number, are laid on the ground in a secluded part of the woods, either under or in the hollow of a fallen tree; and again I have found eggs and young in Spanish bayonet thickets and in supple-jack swamps. The eggs are, however, always laid in a dry place.

It is a peculiar habit of this bird, which I have found to be almost constant, to have pearl, bone, and china buttons, as well as pieces of glass and figured china, around and under the eggs. I have never seen this peculiarity mentioned in any ornithological work. The eggs are generally laid during the third week in March, but on March 26, 1900, I found a nest which contained two eggs that were on the point of hatching. The birds have but one brood, and return to the same place year after year to breed. The eggs are greenish white, spotted and blotched with dark brown, and measure 3.00×2.00.

FAMILY BUTEONIDÆ: KITES, HAWKS, AND EAGLES.

132. **Elanoides forficatus** (Linn.). SWALLOW-TAILED KITE.

The Swallow-tailed Kite is a very abundant summer resident along the heavily-timbered river swamps, as well as in the forests that border the reservoirs of rice plantations. This species is by far the most beautiful of all the kites, and its powers of flight are unsurpassed, even by the Mississippi Kite (*Ictinia mississippiensis*), which freely associates with it. It feeds and drinks while on the wing. I have seen these birds turn completely over and over while flying, and it seemed to me that each individual was trying its best to excel the other in graceful evolutions.

This species is very gregarious. I have seen flocks of hundreds of individuals on the Suwanee River in Florida. The birds feed upon grasshoppers, beetles, lizards, and small snakes, which they catch while on the wing with the greatest dexterity.

On the lower Savannah River the birds arrive the last of March, but in the region about Charleston they do not appear before the first week in April.[1] If the season is open the birds are mated by April 15, and they may be seen flying together, uttering their plaintive notes, which can be heard at a long distance. I have never found a nest of this beautiful bird in this state, although it breeds abundantly. The eggs are, however, well known, and number from two to four, being "white or buffy white, boldly spotted or blotched, chiefly round the larger end, with hazel brown, chestnut, or rich madder brown, 1.87×1.49" (Ridgway). The nest of this kite is placed in the top of the tallest trees.

Towards the last of August this species migrates southward, to winter in Central and South America.

[1] Since the above was written, I took a superb adult male of this species, March 19, 1910, at Mount Pleaasnt.

133. **Elanus leucurus** (Vieill.). WHITE-TAILED KITE.

In Audubon's Birds of America,[1] he says:

I have traced the migration of this beautiful Hawk from the Texas as far east as the mouth of the Santee River in South Carolina. On the 8th of February, 1834, I received one of these birds alive from Dr. Ravenel, of Charleston, who had kept it in his yard for eight days previously, without being able to induce it to take any food. The beauty of its large eyes struck me at once, and I immediately made a drawing of the bird, which was the first I had ever seen alive. It proved to be a male, and was in beautiful plumage. On the 23rd of the same month I received another fine specimen, a female, from Francis Lee, Esq., who had procured it on his plantation, forty miles west of Charleston. * * * *

Mr. H. Ward, who accompanied me on my expedition to the Floridas, found this species breeding on the plantation of Alexander Mayzck, [Mazyck] Esq., on the Santee River, early in the month of March, and shot three, two of which, a male and a female, are now in my possession. Their nests were placed on low trees near the margins of the river, and resembled those of the American Crow, but had none of the substantial lining of that bird's nest. Mr. Ward states that at this time they were seen flying over the cane brakes in pursuit of large insects, somewhat in the manner of the Mississippi Kite, and that they were very shy.

My friend John Bachman has seen this species flying in groups, at a very great height, in the beginning of March, and thinks that it is only of late years that they have located themselves in South Carolina, where, however, five of them have been procured in one year.

If the birds recorded by Audubon were really White-tailed Kites, it is the first and only instance of their occurrence in the State. Although I have diligently searched for this species along practically the entire coast region during the past twenty-three years, I have failed to find any trace of it. As this kite bears a strong resemblance to the adult male Marsh Hawk (*Circus hudsonius*), Audubon may have made an error in his identification, for the White-tailed Kite is a rare bird anywhere east of the Mississippi.

The nests, which Mr. Ward found on the Santee River "early in the month of March," could not have belonged to this species, as the White-tailed Kite breeds in April and May in Texas and central California; and, since Mr. Ward does not refer to the nests as containing eggs, which would almost certainly have been described by Audubon if they really had been in the nests, this breeding record cannot be accepted with certainty.

134. **Ictinia mississippiensis** (Wils.). MISSISSIPPI KITE.

This fine species is a summer resident and arrives in the spring with great regularity. I mention three dates upon which the first birds were observed, namely—April 22, 1895; April 23, 1897; and April 26, 1901.

[1] I, 70-71.

The Mississippi Kite breeds regularly in considerable numbers near Charleston, but in the region about Yemassee and the lower Savannah River it breeds more abundantly. A pair of these kites have bred, for ten consecutive years, within a mile of my house, and have used the same nest for five years. On May 28, 1898, I succeeded in finding a man who had the courage to climb the gigantic pine in which the kites had a nest. This nest was 111 feet and 7 inches from the ground and contained one egg. The egg, which was the first one ever taken in this state, was sent to Dr. William L. Ralph, and is now in the Smithsonian Institution. On May 29, 1902, a single egg, which contained a good sized embryo, was taken from the same nest. In 1903 and 1904, the birds were found breeding within a hundred yards of their former nest, but the tree was so immense that I could not secure a climber. On May 27, 1905, I found that the kites had occupied the nest they had built and used in the years of 1903 and 1904, and I engaged a man who ascended the tree and lowered the single egg which it contained. This nest was in the top of a gigantic short-leaf pine, 135 feet from the ground, and the egg contained a large embryo.

The eggs are of a dull bluish white, generally nest-stained, and measure 1.60×1.31. In the region about Yemassee, and to the southward, this species certainly lays from two to three eggs. The young are able to fly short distances by July 29, and by October 4, the birds have left the country for the south, where they winter in Mexico and Central America.

The food of this species consists almost entirely of insects and lizards, and it is therefore beneficial to the agriculturist.

The Mississippi Kite is often seen in company with the Black Vulture, soaring at a great elevation, and it can always be identified when on the wing by the squareness of its wings and tail.

135. **Circus hudsonius** (Linn.). MARSH HAWK.

The Marsh Hawk is an exceedingly abundant winter visitant on and near the coast, where it frequents the salt and freshwater marshes, as well as fields of broom grass. This species destroys numbers of Wayne's Clapper Rails (*Rallus crepitans waynei*), which it catches with ease, as well as Bob-white and smaller birds. The females and young males outnumber the adult males in the proportion of about fifty to one.

The Marsh Hawk does not breed on the coast, but arrives with great regularity in late summer and I give three dates on which I have observed it, namely—August 21, 1895, August 26, 1899, and August 30, 1904. The birds remain in small numbers until about April 21, but a few linger until the early part of May. Audubon mentions in Birds of America,[1] the following:

> Wilson must have been misinformed by some one acquainted with the arrival and departure of this species, as well as of the Rice Bird, in South Carolina, when he was induced to say that the Marsh Hawk "is particularly serviceable to the rice fields of the Southern States, by the havoc it makes among the clouds of Rice Buntings that spread such devastation among the grain, in its early stages. As it sails low, and swiftly, over the surface of the field, it keeps the flocks in perpetual fluctuation, and greatly interrupts their depredations. The planters consider one Marsh Hawk to be equal to several negroes for alarming the Rice Birds."
>
> Now, good reader, my friend John Bachman, who has resided more than twenty years in South Carolina, and who is a constant student of nature, and perhaps more especially attentive to the habits of birds, informs me that the Marsh Hawk is proportionally rare in that State, and that it only makes its appearance there *after* the Rice Birds have left the country for the south, and retires at the approach of spring, *before* they have arrived.

In justice to Wilson, who is now recognized to have been a great ornithologist, I will state that he was eminently correct in what he wrote concerning the Marsh Hawk, and that Dr. John Bachman was entirely incorrect, for this species makes its appearance at or about the same time that the Rice Bird arrives in the fall (August 17), while it is also here when the Rice Bird comes in the spring (April 16). Any rice planter who is observant knows full well that the Marsh Hawk is one of his best friends; not only as a "bird minder," but also as a destroyer of mice and other noxious mammals.

This species winters as far south as Panama and breeds locally throughout its North American range. To the best of my knowledge the Marsh Hawk does not breed in any portion of this state.

136. **Accipiter velox** (Wils.). SHARP-SHINNED HAWK.

In autumn large flights of this winter visitant sometimes occur along the coast in company with Cooper's and Pigeon Hawks. On October 10, 1903, I observed large numbers migrating in a southerly direction, and this great flight lasted throughout the day. I obtained a specimen near Mount Pleasant, August 18, 1896, and I believe, from its youth, that it was bred not far away. The Sharp-shinned Hawk is most abundant during the winter, and a few remain until the last of April. It preys upon small

[1] I, 109-110.

birds, and is well known to destroy innumerable young chickens, showing the utmost fearlessness in their pursuit. At all times this little hawk seems to have a predilection for the outskirts of woods and hedges. The local name of this species is "Little Blue Darter."

In winter, the Sharp-shinned Hawk is found as far south as Panama. The breeding range is chiefly in the northern states, but it breeds sparingly in North Carolina.

137. **Accipiter cooperii** (Bonap.). COOPER'S HAWK.

Although Cooper's Hawk breeds some distance from the immediate vicinity of the coast, it is more abundant in autumn, winter, and early spring than in summer. The few pairs that breed resort to heavily-timbered swamps, and the eggs, which are generally deposited in deserted nests of crows or squirrels, are laid during the middle of April. The eggs are generally three in number, bluish white, sometimes spotted with pale brown, and measure 1.90×1.50.

On account of its large size this species is very destructive to poultry as well as to game birds, and a bounty should be put on the head of each individual shot.

The flight of this hawk is extremely rapid, and like the former species it prefers the outskirts of woods and hedges rather than the interior of forests. This species varies so greatly in size that large immature females have been mistaken for the American Goshawk (*Astur atricapillus*) in its immature plumage. The Goshawk has been recorded by Dr. Robert Wilson[1] as having been seen by him on November 3, 1905, near Bull's Bay. As Dr. Wilson did not secure the bird in order to place the identification beyond question, his record "will of necessity cause all careful compilers to reject it," as the Goshawk is a rare bird in winter even as far south as the Middle States.

138. **Buteo borealis** (Gmel.). RED-TAILED HAWK.

The Red-tailed Hawk is very abundant in early autumn, winter, and early spring, but I have never detected it in the breeding season anywhere near the coast and it is, therefore, a winter visitant. During the winter months one or two pairs of these birds inhabit restricted portions of the coast islands for their hunting

[1] *Bull. Chas. Mus.* I, 1905, 33.

grounds, and it is a curious fact that each bird has a certain territory in which it appears to hunt exclusively. A perfect albino of this hawk made its appearance every winter from 1901 to 1905, on Dewees Island, but despite all my exertions I was unable to capture it. It arrived each year in November or December and departed sometime in March. The food of the Red-tailed Hawk is chiefly mice and other larger mammals. It sometimes eats poultry and game birds, but is considered a beneficial species to the agriculturist.

The Red-tail Hawk breeds in the interior of the State.

139. **Buteo lineatus alleni** Ridgw. FLORIDA RED-SHOULDERED HAWK.

This form is a permanent resident and breeds locally along the coast from the vicinity of Charleston to the Savannah River. The birds mate in February and the nests are sometimes being built in the same month, but as a rule they are commenced early in March. The nests are usually built in large pine trees in swampy woods, and are composed of sticks, bark-strippings, weeds, and Spanish moss. The birds sometimes return to the same nest for a number of years to breed, and each year it is augmented until it attains a large size. This hawk lays from two to four eggs, generally two, rarely three, while four are exceptional. I have taken four eggs but once—on April 4, 1896. The earliest set taken was on March 14, 1899, and consisted of three slightly incubated eggs. The eggs are white or bluish white, spotted and sometimes very heavily blotched with reddish brown and lilac. Some specimens are entirely unmarked, and these are sometimes found in nests which contain heavily spotted eggs. The eggs measure 2.00×1.70.

During the breeding season this hawk frequently catches chickens and even grown fowls, but its principal food is mice, frogs, and snakes. It is very fond of water-snakes and will sit on a dead tree by a pond of water for hours waiting to prey upon them. This is the commonest of all the hawks found on this coast, and almost every plantation contains from one to four pairs, which return annually to the same locality to breed. On April 4, 1899, I obtained two eggs of this hawk from a nest 60 feet from the ground, in a dead pine. This is the first instance I know of this bird breeding in a dead tree.

140. **Buteo platypterus** (Vieill.). BROAD-WINGED HAWK.

The Broad-winged Hawk is so rare on the coast that during the past twenty-five years I have seen but two birds. The first was identified by Dr. A. K. Fisher, in whose company I was, on April 26, 1886, eighteen miles from Charleston. This specimen was flying at a distance but was readily identified by Dr. Fisher. I shot the second specimen, January 15, 1889, seven miles from Charleston. It is surprising that this species is not abundant in the forests along the coast, as the country is apparently well adapted to its wants. It is exceedingly abundant near Monticello, Florida, where in the spring and summer of 1894 I found it breeding commonly. I know of no hawk of the genus *Buteo* which soars as high in the air as this species. The Broad-winged hawk seems to prefer a hilly country and dense forests.

In winter this species is found as far south as northern South America. As far as my information goes the capture of this bird remains the only authentic record for the State. It probably occurs, however, along the upper Savannah River.

141. **Aquila chrysaëtos** (Linn.). GOLDEN EAGLE.

I have never positively identified this fine species alive, and it is a *rara avis* on or near the coast. There are two mounted specimens of this eagle in the Charleston Museum. One was taken by Thomas Porcher Ravenel, Esq. (a brother of Henry W. Ravenel, the botanist), at or near Pinopolis, and the other specimen[1] was taken by Mr. S. J. L. Matthewes, in St. Andrew's Parish, which is just across the Ashley River and near the city of Charleston. Both birds were taken in winter, and the one which was shot by Mr. Matthewes had killed a Wild Turkey (*Meleagris gallopavo silvestris*), and was shot while eating it.

The Golden Eagle is not infrequently seen and taken in the interior of the State and may breed in the mountainous parts. It is very abundant in Colorado and California, where it breeds freely, placing its nests on cliffs or rocky ledges, as well as on trees. This species breeds as far north (in North America) as the Arctic regions.

142. **Haliæetus leucocephalus** (Linn.). BALD EAGLE.

The Bald Eagle is a permanent resident and breeds locally along the coast in the wilder and less-settled portions. The birds breed on the mainland as well as on the coast islands, but

[1] Spec. No. 97.

seem to prefer the latter places because they are comparatively uninhabited and are nearer the sea.

Certain pairs breed much earlier than others as I will illustrate. A pair of these birds has been (and still is) breeding on the plantation of Mr. B. J. Whitesides, in Christ Church Parish, for more than fifty years. This particular pair of eagles must be very old as the eggs are always laid in November, while other pairs do not have eggs laid before December and January. On November 27, 1899, I secured two eggs which contained very large embryos. The nest was built in the top of a gigantic short-leaf pine 112 feet and 6 inches from the ground. I saw, in this nest on January 6, 1899, two young which were nearly ready to fly. Another set of two slightly incubated eggs was taken from this nest on November 20, 1905. When these eagles have been deprived of their first set of eggs, they generally, if not invariably, remove from Mr. Whitesides' plantation to lay again on Dewees Island, which is about seven miles away. Other dates upon which I have observed eggs of this pair are: November 29, 1901, two incubated eggs; and November 23, 1903, two incubated eggs. The length of time consumed in building a new nest and laying two eggs, after the birds have been deprived of their first pair and have established themselves on Dewees Island, is about thirty-five days.

Another pair of these eagles has bred on a lonely, uninhabited island in the Wando River for many years, and to show that they return to the same nest every season, I mention the number of sets of eggs taken from this nest, namely—January 12, 1901, two eggs nearly hatched; December 20, 1901, two fresh eggs; January 2, 1903, two eggs with small embryos; January 6, 1904, two fresh eggs; January 14, 1905, two eggs with small embryos; February 11, 1905, two fresh eggs (second laying); and January 15, 1906, two eggs with small embryos.

The nest is almost always placed in the top of the tallest and most inaccessible pine trees, either living or dead, and is composed of sticks, grass, bark, and Spanish moss, sometimes profusely lined with the last as well as with downy feathers from the breast of the birds. The largest nest I ever saw measured 8 feet across the top and was 7 feet in diameter. Only two eggs are laid. These are white and measure 2.80×2.15. I have never seen an

old bird mated and breeding with a young one as Audubon describes.[1]

The Bald Eagle feeds chiefly upon fish and ducks during the breeding season, and a visit to one of its nests will reveal the presence of the heads of many catfish on the ground at the foot of the tree. It is believed that the eagles do not capture these catfish alive, but merely seize the carcass, while it is floating upon the water, after it has been deprived of part of its body (behind the centre fin) by larger fish. This theory is based upon the fact that the catfish resorts to deep water during the winter months, and that the Fish Hawk, from which the eagle might secure these fish, is not present at that season. This species sometimes uses its deserted nests as store-houses for the game it catches.

FAMILY FALCONIDÆ: FALCONS.

143. **Falco peregrinus anatum** (Bonap.). DUCK HAWK.

This species is the celebrated Peregrine Falcon of falconry. During the past ten years it has steadily diminished in numbers and it is now rare to see more than three or four individuals in the course of a winter. I have shot but one in all these years and that one, which was a very fine adult female, was taken on December 24, 1885. It was shot from the top of a very tall dead pine, and it shrieked as I shot it, holding on to the tree by its talons until life was extinct. This specimen is now in the collection of my friend, Mr. William Brewster.

The Duck Hawk arrives the latter part of September, and, as the species is now very rare along the coast, I will mention a few dates upon which I have observed it, namely—January 16, 1891; December 26, 1893; February 18, 1896; March 7, 1896; October 10, 1896; October 8, 1897; October 11, 1898; and February 11, 1903. On the last date I observed a pair which flew over the ocean and apparently alighted on a sand bank about two miles out from a coast island. I know of no bird which flies as fast as the Duck Hawk when in pursuit of prey, but it does not often catch Wilson's Snipe (*Gallinago delicata*). I once saw a Duck Hawk chase one of these snipe for several minutes very high in the air, but, although the bird was pressed very closely, it eluded the falcon and escaped.

[1] Birds of America, I, 62.

The Duck Hawk used to breed in the mountainous parts of the State about fifteen years ago, and may still do so in the wilder and less settled portions.

144. **Falco columbarius** Linn. PIGEON HAWK.

The Pigeon Hawk is a regular transient visitant in autumn, arriving in September and departing in November. My earliest and latest dates for this species are September 13, 1894; September 11, 1899; September 12, 1909; and November 7, 1898. It is most frequently seen in October, when large flights sometimes occur, as on October 10, 1903, when I witnessed an enormous migration lasting through the whole day. Nearly all of these hawks were flying beyond gun shot and but one specimen was taken. Adult birds are very rarely seen or taken, and a male secured April 13, 1900 (which is my only spring record), and a female taken November 7, 1898, are the only adult birds I have ever seen.

Although this species is said to "winter in Massachusetts and to the southward"[1] it certainly does not occur at that season on the coast of South Carolina.

The Pigeon Hawk ranges in winter to northern South America, and breeds north of the United States.

145. **Falco columbarius richardsonii** (Ridgw.). RICHARDSON'S PIGEON HAWK.

This form closely resembles the Pigeon Hawk, from which it differs in having six tail-bands instead of four, and in having the outer webs of the primaries conspicuously spotted, as well as being of a generally lighter color. I shot a superb adult female of this Merlin near Mount Pleasant on October 15, 1895.[2] This is the first record for the State, in fact the first record anywhere east of the Mississippi River.

There can be but little doubt that *richardsonii* is a subspecies of *F. columbarius*. I have a young male from Colorado which has the tail crossed by five light and five dark bands. A young female in my collection, taken near Mount Pleasant October 7, 1896, has the middle tail-feathers crossed by five light and five dark bands. The outer webs of the primaries (except the first two) are conspicuously spotted with ochraceous, while the first

[1] Brewster, Land-Birds and Game-Birds of New England, 366.
[2] See *Auk*, XX, 1903, 67.

primary is faintly margined throughout its entire length, and the second has two faint spots.

Richardson's Pigeon Hawk ranges chiefly in the interior of North America, and breeds in Assiniboia, Alberta, and to the northward.

146. **Falco sparverius** Linn. SPARROW HAWK.

The Sparrow Hawk is a permanent resident, abundant during the winter but positively rare and very locally distributed in the breeding season. Certain pairs return to the same places to breed each year, and I have noticed that when a pair have been shot, their places are not filled by others for a long period. When the woods and fields are annually burnt over, the smoke attracts nearly all the Sparrow Hawks in a radius of many miles, who come to feed upon the grasshoppers, crickets, and other insects that are trying to escape from the flames. On these occasions it is not unusual to see, besides the Sparrow Hawks, numbers of Red-tailed and Florida Red-shouldered Hawks. These hawks are so intent upon catching the insects that they seem to be utterly oblivious of the smoke and sparks.

Some pairs breed much earlier than others. I have found birds incubating as early as April 16, while others had not finished laying by May 14. The eggs are laid in holes made by large woodpeckers, or in natural cavities of trees, and vary in number from three to six, buffy white or reddish, sometimes sprinkled and again spotted or even blotched with reddish. They measure 1.35×1.10.

FAMILY PANDIONIDÆ: OSPREYS.

147. **Pandion haliaëtus carolinensis** (Gmel.). OSPREY; FISH HAWK.

This well-known bird breeds abundantly on the coast islands, but not so commonly on the mainland. Mr. Chapman's statement[1] that the Fish Hawk winters in this state is certainly an error, for this species is absent from December until very late in February. If the season is a forward one the birds make their appearance with great regularity, and I mention three dates upon which the first birds have been observed, namely—February 24, 1897; February 25, 1904, and February 27, 1905. My earliest record is February 14, 1907. But when the season is backward

[1] Birds of Eastern North America, 212.

the birds do not appear in the vicinity of Charleston until March 7.

As soon as the Fish Hawk arrives it returns to the nest in which it bred the previous year—if the tree is standing, but if such is not the case it selects another in the immediate vicinity in which to build a new nest. The nest is generally placed in the top of a dead pine and almost always at a great height from the ground. I have seen but two nests which were built in living pine trees, and as the tops of these trees were blown off they were admirably suited to this bird's wants. The nests are composed of sticks, weeds, seaweed, and Spanish moss. Some nests, which have been occupied for a number of years, measure four or more feet across the top, and about the same in depth. This species has but one brood, and the eggs, which are laid in April, number two or three, and are of a yellowish white color, spotted and blotched with deep reddish brown. The average size is 2.40×1.75.

During the breeding season the birds are almost constantly on or very near the nest and sometimes both birds remain on it for hours at a time. While one is incubating, the other supplies it with fish, and it is not unusual to see fish on the ground at the foot of the tree. Before the Fish Hawks migrate in the autumn they repair their nests in order that they may withstand the blasts of the winter.

True to its name the Fish Hawk subsists entirely upon fish, which it catches by hovering over the water and then plunging into it.

The Fish Hawk is found from northern South America to Hudson Bay and Alaska, and breeds throughout its North American range.

FAMILY ALUCONIDÆ: BARN OWLS.

148. **Aluco pratincola** (Bonap.). BARN OWL.

This curious owl is a permanent resident and breeds in deserted buildings on plantations as well as in the steeples of churches in the heart of cities, but I have never taken its eggs. A pair of these owls bred annually in the ruins of the old Circular Church on Meeting Street in Charleston, about twenty-five years ago.

On the plantation of Mr. J. St. Clair White, which is known as Bossis, on the Cooper River, this owl breeds every year in a deserted building. Mrs. White, the wife of the owner of the plantation, in answering a communication relative to the eggs of this bird, wrote under date of January 3, 1906, as follows:

Knowing quite as much about the owls as he [Mr. White] does, through the children, who have always been interested in them, I will state that there were young owls there [in the old mill] a month ago.

A set comprising six eggs was taken September 19, 1907, at Bossis, by Master Thomas Porcher White, son of Mr. J. St. Clair White, to whom much credit is due, for he watched the old barn faithfully with the hope of finally ascertaining the month in which the first eggs are laid, as this species undoubtedly rears two broods each year. Of the set of six eggs sent to me, one contained a very large embryo, another one about half developed, while the others were in various stages of incubation, proving conclusively that they are deposited at irregular intervals. The eggs are said to number from five to eleven, and are pure white, measuring 1.75×1.30.

This species, sometimes known as the Monkey-faced Owl, seems to prefer sombre live oak groves, where I have seen it chiefly in the spring and early autumn.

FAMILY STRIGIDÆ: HORNED OWLS, ETC.

149. **Asio wilsonianus** (Less.). LONG-EARED OWL.

Audubon says of this species in Birds of America[1] that: "my friend Dr. Bachman has never observed it in South Carolina."

I have met with this species only on one occasion, March 16, 1896, when two specimens were secured near Mount Pleasant, while one taken in Edgefield county in the winter of 1905, and another shot near Mount Pleasant, January 16, 1906, are the only other specimens I have ever seen.

Although the Long-eared Owl is said to breed throughout its range, it certainly does not do so anywhere near the coast and I doubt if it breeds in any portion of the State, being simply a winter visitant.

150. **Asio flammeus** (Pont.). SHORT-EARED OWL.

The Short-eared Owl is found locally in late autumn, winter, and early spring. It seems to have a predilection for certain coast islands where there are miles of sandy wastes covered here and there with wild oats and other maritime grasses, but without trees or even bushes. As long as I can recall, one or two pairs of these owls have wintered on Bull's Island.

[1] I, 136.

When a Short-eared Owl is flushed it generally flies low over the grass to a great distance before alighting on the top of some high sand hill, where it cannot be approached again. I flushed one of these owls on Bull's Island on January 8, 1906, which flew in a direct line across the sandy wastes and far out into the salt marshes before alighting. This species is not inconvenienced by the sun, but sees as well by day as by night.

In North America, the Short-eared Owl is said to breed from Virginia to the Arctic regions.

151. **Strix varia alleni** (Ridgw.). FLORIDA BARRED OWL.

This form is exceedingly abundant in the great swamps as well as on the high land along the coast. Although it breeds abundantly, I have never taken its eggs, and have found but one nest during all these years. I copy from my note book, dated March 31, 1884, Hobcaw Point, near Mount Pleasant, the following:

Saw some young Barred Owls and caught one alive. It was on a small tree and did not fly when I approached it, but was snapping its bill all the time. The parent birds were fighting for their young with great spirit and followed me all about the woods when I had the young bird. The nest was in a tall pine tree and resembled a crow's. Upon the ground and under the tree was disgorged hair and bones of animals.

The eggs from which these owls had been hatched must have been laid sometime in January, as the owls were fully fledged and could fly a short distance.

This owl is not shy and can generally be approached with ease. Consequently many are shot every year. They are believed by most farmers to prey upon poultry, notwithstanding my remonstrances to the contrary. The notes of the Barred Owl suggest the words, "*You cook to-day, I cook to-morrow.*" The eggs of all owls are uniformly white, and in this form they measure 1.90×1.60.

152. **Cryptoglaux acadica** (Gmel.). SAW-WHET OWL.

In his Birds of America, Audubon says of this species:[1]

It is rare in the lower parts of South Carolina, where indeed my friend Bachman never observed it.

I saw and positively identified an adult of this species on December 24, 1885, on Hobcaw plantation, near Mount Pleasant. This bird was in a low tree in a very gloomy place, and after ob-

I, 123.

serving it for a few minutes I retreated some distance and fired at it, but could not find any trace of the bird except a few feathers. This is the only specimen I have ever seen.

A young bird in the first or "albifrons" plumage was taken by Mr. Alfred Cuthbert on St. Helena Island. The data are incomplete, but I sent the specimen to Mr. William Brewster, who wrote concerning it as follows:

> It is much redder and more richly colored than any of my New England specimens (I have but two in this plumage, however) and it also has more white on the forehead and wings. I should not be at all surprised if it should prove to belong to a form subspecifically distinct from *N.* [*yctala*] *acadica.*

The Saw-whet Owl breeds from the Middle States northward, and, in mountainous regions of the West, southward into Mexico.

153. **Otus asio floridanus** (Ridgw.). FLORIDA SCREECH OWL.

This form, which is restricted to the coast region, is moderately abundant near settlements on plantations. The red and the gray color phases are about equally abundant, for I have seen and taken as many of one as the other. In different parts of Florida, however, where I have spent much time in studying these birds, I have found that the red phase predominates.

The Screech Owl is nocturnal and is seldom, if ever, seen abroad during the day, but as soon as the sun has set and darkness comes on, its tremulous notes can be heard fully a quarter of a mile away.

The nest of this bird is placed in holes made by woodpeckers, or in natural cavities of trees, from four and a half to fifty feet from the ground. The eggs, generally two in number, are laid early in April, and measure 1.32×1.15. A nest which I found on April 9, 1895, was in a hollow of a live oak tree four and a half feet from the ground, and contained two eggs. This owl incubates very closely, and in order to examine the contents of a nest it has to be removed by the hand before the hole can be examined. Only one brood is raised, unless the eggs have been taken, when the birds will lay again.

The negroes are very superstitious in regard to this bird, and should one happen to alight on the roof of one of their houses and utter its doleful notes, they believe that trouble will befall them or even that death will visit one of the inmates. In order to make the owls leave the house the negroes turn their pockets inside out, or throw a piece of iron into the fire, and if the birds happen to leave, they believe it due to this act.

154. **Bubo virginianus** (Gmel.). GREAT HORNED OWL.

The Great Horned Owl is a permanent resident found only in original forest, and is by no means abundant anywhere. A pair of these birds is generally to be found in certain tracts of woods, where they remain for many years, and the places they frequent are not encroached upon by others of the same species.

This owl is much attached to the tree in which it roosts during the day and will return to it almost daily for weeks at a time. Although it hunts chiefly during the night, I have frequently seen it engaged in that occupation by day, especially when the young are hatched.

In this region, the Great Horned Owl does not return to the same nest year after year, as it is known to do in some of the northern states, and after breeding in a certain nest one year it does not return to it for from three to five years. It does not often build a nest, but uses the deserted nest of the Bald Eagle, Florida Red-shouldered Hawk, or Crow; and I have found the eggs deposited in a very slight depression in a giant pine formed by the junction of five huge limbs. In this instance no nest was made, the eggs being deposited on the bare wood. This species breeds very irregularly. I examined a nest on January 22, 1898, which contained two young birds; one about ten days old, the other younger. This nest, which was built by a hawk, was 100 feet from the ground, and also contained a very large rat, the head of which was eaten off. On January 19, 1902, I found a nest containing one egg, and left it until the 27th in order to get the other egg, but the set was not increased. A set of two eggs was taken, January 26, 1903, from a depression 59 feet from the ground in a gigantic pine. This owl lays one or two eggs, which are white and globular. They measure 2.25×1.80.

The notes of the two sexes are entirely different. Those of the male resemble "*hoo-hoo, hoo-hoo,*" while those of the female may be rendered "*toot-a-loot, toot-a-loot, toot.*"

Although the Great Horned Owl destroys poultry and birds, it is considered a beneficial species in some localities because it preys upon rabbits that injure certain crops.

155. **Nyctea nyctea** (Linn.). SNOWY OWL.

I have never seen any examples of this beautiful species taken in this state, and I quote the following from Audubon's Birds of America:[1]

[1] I, 115.

Several individuals have been procured in South Carolina, one on James Island, another, now in the Charleston Museum, on Clarkson's plantation, and a fine one was shot at Columbia, the seat of government, from the chimney of one of the largest houses in that town, and was beautifully preserved by Professor [Lewis R.] Gibbes of the Columbia College.

The Snowy Owl is circumpolar during the breeding season and in North America it has been found breeding, by Gen. A. W. Greely, at Fort Conger (Discovery Harbor), latitude 81° 44′ N., where eggs were taken on May 26, 1882, and the young on July 8. On the coast of the New England states, great flights of this owl sometimes occur in the autumn.

ORDER PSITTACI: PARROTS, MACAWS, PAROQUETS, ETC.

FAMILY PSITTACIDÆ: PARROTS AND PAROQUETS.

156. **Conuropsis carolinensis** (Linn.). CAROLINA PAROQUET.

As its name implies, the beautiful Carolina Paroquet was formerly exceedingly abundant in this state, but it has become extinct within the past fifty years on or near the coast, as well as in the State at large. Burnett, writing in 1851,[1] states that it was resident in the pine barrens. Coues in his Synopsis says:[2]

This species is given in Prof. Gibbes' list, and appears to have been in former times a common bird; but its occurrence has not been noted of late years.

There were many mounted specimens of this bird in the Charleston Museum that were taken near the city, but as they were dust-stained and moth-eaten they were thrown away many years ago.

I obtained a fine series of this bird during the months of October and November, 1892, in the region southeast of Kissimmee, Florida. The birds commence to moult about October 5, and require at least six weeks to acquire their perfect plumage.

The Carolina Paroquets are to-day very nearly, if not absolutely, extinct—even in Florida, which was their last stronghold. This beautiful species formerly ranged as far north as the Great Lakes, Iowa, Nebraska, and west to Colorado, the Indian Territory and Texas, and it was observed near Albany, New York, in January, 1790.

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[1] *Proc. Bost. Soc. Nat. Hist.*, IV, 1851, 116. [2] Ibid, XII, 1868, 119.

ORDER COCCYGES: CUCKOOS, KINGFISHERS, ETC.

FAMILY CUCULIDÆ: CUCKOOS, ANIS, ETC.

157. **Coccyzus americanus** (Linn.). YELLOW-BILLED CUCKOO.

The Yellow-billed Cuckoo, locally known as the "Rain Crow," is a summer resident, generally arriving between April 15 and 17,[1] and remaining until November, the 7th of that month being my latest record. This species breeds on the Battery as well as on the Mall in the city of Charleston, placing its nest, which is composed of sticks and leaves arranged in a slovenly manner, on horizontal branches of live oak trees. Full complements of eggs of the first brood, which are almost always three, are laid by May 15. My earliest record is May 2, 1908, when I took four eggs. The birds begin to incubate as soon as the first egg is deposited, and, as the eggs are usually laid at irregular intervals, it is not unusual to find an incubated egg in a nest with young birds. A second set is laid in August, and I have seen young birds nearly ready to leave the nest, as well as young just hatched, and three eggs in different stages of incubation, all in the nest at the same time. The eggs are pale greenish blue and measure 1.25×.90.

This species destroys the eggs of other birds, but compensates by devouring innumerable caterpillars which are injurious to pecan groves as well as to forest trees.

The Yellow-billed Cuckoo winters in Central and South America.

FAMILY ALCEDINIDÆ: KINGFISHERS.

158. **Ceryle alcyon** (Linn.). BELTED KINGFISHER.

This well-known species is a permanent resident on the coast, but during the breeding season the birds are restricted to certain places where there are bluffs bordering rivers, or high sand hills fronting the ocean, and where these features are wanting the birds are entirely absent. The nesting place is a hole excavated in a bank by the birds, and extending inward to a depth of five to ten feet. Although I have explored many holes of the Kingfisher, I have never taken the eggs, being invariably too early or too late.

[1] The earliest record of the Charleston Museum for this species is April 10, 1908, when one was seen on the College of Charleston campus by Mr. J. H. Taylor. On the following day one was reported by Mr. H. R. Sass.—Ed.

The eggs are undoubtedly laid early in April as I have seen young birds catching fish for themselves by May 31. The eggs are glossy white, and are said to number from five to eight, and to measure 1.35×1.05.

The Kingfisher catches fish by hovering in the air after the manner of the Fish Hawk, or by perching on a limb or snag over the water, and plunging beneath the surface. On Capers' Island there are innumerable live oak trees and snags out in the surf (as I have already mentioned in previous pages) upon which the Kingfishers perch and plunge into the sea for small fish.

The Belted Kingfisher is found from Arctic America to the West Indies.

ORDER PICI: WOODPECKERS, WRYNECKS, ETC.

FAMILY PICIDÆ: WOODPECKERS.

159. **Campephilus principalis** (Linn.). IVORY-BILLED WOODPECKER.

I have never seen this magnificent bird alive in this state, although I have thoroughly explored, during the past twenty-five years, nearly all the great swamps from Charleston to the Savannah River with the hope of finding it. The former occurrence of this species in the vicinity of Charleston, as well as in the interior of the State, is attested by the works of Wilson, Audubon, and others. As late as 1879, these woodpeckers were observed by the late Mr. J. H. Happoldt (who was a good observer of birds as well as a thorough sportsman) within nine miles of Charleston. The late Dr. Cornelius Kollock of Cheraw, observed three specimens of this species on a dead oak tree in April, 1889, on the banks of the Pee Dee River, near Cheraw. I quote an extract from a letter to me by Dr. Kollock, dated July 27, 1891, referring to the specimens he saw:

> The last I saw near Cheraw, of which I wrote you, announced their presence by this note, which resembles the false note of a clarionet, and is thus—*pait, pait, pait,* so very loud and clear that it can be heard several hundred yards. I was not thinking of them till I heard from a large dead oak tree near the road—*pait, pait, pait.* Looking up I saw three digging into the tree, for worms I presume. I presented two specimens of the Ivory-billed Woodpecker (*Picus principalis*) to the Charleston Museum in 1860.

Mr. T. M. Ashe observed several specimens of these rare birds

in the Savannah River swamp, near Beldoc, Barnwell County, as late as 1898, but although he made a special trip for me, he was unable to secure a specimen.

There can be little doubt that this woodpecker still exists in portions of the great swamps that border the Pee Dee, Santee, and Savannah Rivers, as well as in some of the inland swamps.

In Florida, I encountered more than two hundred of these rare birds during the years 1892, 1893, and 1894. A set of three eggs was taken in that state on April 19, 1893, from a hole, excavated by the birds, in a large bay tree, 30 feet from the ground. The eggs of this species are glossy white, and measure 1.43×1.07 (Hoyt).

160. **Dryobates villosus audubonii** (Swains.). SOUTHERN HAIRY WOODPECKER.

This small race of *villosus* is a permanent resident, common during the autumn and winter, but very locally distributed in the breeding season. In fact, not more than two or three pairs can be observed in a forest of more than two hundred acres. The birds mate early in February and I have seen young in the nest as early as March 24.

The nest is very hard to find; indeed I have found but six nests, two which contained eggs, and four which contained young. I have known this species to excavate a hole and raise a brood in a limb of a living live oak tree, but it generally excavates its hole in a dead tree and at a great height. A set of three fresh eggs was taken April 7, 1898, from a hole 40 feet from the ground in a dead pine. This hole was 14 inches deep. The young remain in the hole for more than a month after they are hatched, and when fledged the crown is marked with either red or yellow.

A set of three eggs measure respectively: .83×.75, .85×.74, and .84×.75. The eggs of this form are glossy white.

161. **Dryobates pubescens** (Linn.). SOUTHERN DOWNY WOODPECKER.

Although the Downy Woodpecker is very abundant in autumn and winter, few are to be seen during the breeding season as the birds are widely scattered over a large territory and are consequently hard to detect in any numbers. It breeds very irregularly, for I have found birds incubating as early as April 7, while others

had not completed their full complements of eggs by May 20. The nest of this species is always excavated in dead trees and generally within twelve feet of the ground. The eggs, which usually number five, are glossy white and measure .80×.60.

Audubon says in Birds of America:[1]

> I have observed that during their stay in the Floridas, Georgia, and the Carolinas, their breast and belly are so soiled by the carbonaceous matter adhering to the trees, in consequence of the burning of the grass at that season, that one might be apt to take a specimen in that state, as belonging to a different species.

This peculiarity of the plumage of the under parts (as noted by Audubon) is not due to contact with trees that have been burned, but is natural in this species, which ranges from South Carolina to Florida and Texas. Audubon's plate of the male of this woodpecker plainly shows the characteristic brownish color of the under parts.

162. **Dryobates borealis** (Vieill.). RED-COCKADED WOODPECKER.

The Red-cockaded Woodpecker is to be met with only in open pine woods, and is usually absent where the forest is dark and heavily timbered. During the breeding season several pairs breed in close proximity, seeming to like each other's company; in fact this species almost always goes in small parties at all seasons of the year.

Many authors, including Audubon, have stated that this species breeds in dead pine trees. The latter, in his Birds of America,[2] says that the "nest is not unfrequently bored in a decayed stump about thirty feet high." I have seen perhaps a thousand holes in which this woodpecker had bred or was breeding, and every one was excavated in a living pine tree, ranging from eighteen to one hundred feet above the ground. This bird never lays its eggs until the pine gum pours freely from beneath and around the hole, and in order to accelerate the flow the birds puncture the bark to the "skin" of the tree, thereby causing the gum to exude freely. This species, unlike the Pileated Woodpecker, returns to the same hole year after year until it can no longer make the gum exude. But like the Pileated Woodpecker, it is much attached to the tree in which it has first made its nest, and as long as it can find a suitable spot it will continue to ex-

[1] IV, 250. [2] IV, 255.

cavate new holes until the tree is killed by this process of boring. I have frequently counted as many as four holes in one tree, and in two instances I have seen as many as eight. These birds seem to know by instinct when the centre of the tree is rotten, or has what lumbermen call "black-heart," and never make a mistake in selecting a tree. The hole is bored through the solid wood, generally a little upward, to the centre of the tree (which is always rotten), then downward to the depth of from nine inches to a foot or more.

This species lays from two to five very glossy white eggs; generally three, rarely four, while five are exceptional. I have taken five eggs but once—May 14, 1902. The earliest set taken was on April 27, 1884. The eggs average .95×.70 in size. Only one brood is raised, and these follow their parents during the months of July, August, and September.

This woodpecker is one of the most interesting birds we have. Its notes are harsh and discordant, and it is at all times very restless. The young males have the crown marked with a red patch.

163. **Sphyrapicus varius** (Linn.). YELLOW-BELLIED SAPSUCKER.

This is the only member of the family Picidæ which does not breed in the State, being merely an autumn, winter, and early spring visitant. It arrives with great regularity in October, and I give these dates upon which the first birds have been observed, namely—October 14, 1895; October 11, 1898, and October 9, 1899. Some birds remain until April 8, but the majority migrate in the latter half of March.

The Yellow-bellied Woodpecker inhabits primeval forests where the growth is deciduous. It bores very small holes through the bark of different species of trees in order to obtain the sap upon which it lives. I have seen countless thousands of these small holes girdled around a single tree, to which it repairs at regular hours during the morning and evening to drink the sap, preferring as a rule the live oak and sweet gum.

Fully forty per cent of the skins I have examined, as well as the birds seen at close range, have the nape marked with red, thus closely approaching the Red-naped Sapsucker (*S. v. nuchalis*) of the West.

The Yellow-bellied Sapsucker breeds from Massachusetts to Fort Simpson, and southward in the Alleghanies to North Carolina, where Mr. Brewster found it breeding.

164. **Phlœotomus pileatus** (Linn.). PILEATED WOODPECKER.

This fine species is abundant wherever the forest is of a primeval nature, but where the heavy growth has been cut away it is seldom met with. Two or three pairs generally inhabit a certain portion of a forest, where they remain to breed year after year in the same locality. This species uses a certain hole, which it excavates in a living black gum or a living sweet gum tree, in which to sleep, and it is so attached to it that I have known one of these birds to resort for years to the same hole to spend the night. This sleeping hole is almost always excavated in a tree which is hollow from the base to within a foot of the first limb. Sometimes two holes are bored in the same tree, and if an attempt is made to catch the bird, it can escape by going through either of the holes or else make its exit at the base.

If the season is a forward one the birds mate early in February and towards the latter part of the month they begin to excavate their hole, which requires exactly a month for completion. During the month of March, 1904, I made observations on a pair which excavated their hole in a dead pine. On March 21, the opening was commenced by the female, who drilled a small hole, and by degrees enlarged it to the size of a silver dollar. The male assisted in the excavation, but the female did by far the larger part of the work. The size of the aperture was not increased until necessary to admit the shoulders of the bird. I visited these birds every day in order to note the progress of their work, and, being so accustomed to seeing me, they were utterly fearless and I could, at any time, approach within twenty feet without hindering the work, although the hole was only about thirty feet from the ground. This hole was completed on April 21, and the first egg was laid the following morning. As incubation commences upon the advent of the first egg, and as the eggs are not laid consecutively, I did not again examine the contents of the nest until April 26, when three eggs were found. Upon investigating the cavity on April 28, and finding but three eggs, I concluded that the set was complete and abstracted it. In this case the excavation was made under a

dead limb, and was about eighteen inches deep, being hollowed out more on one side than the other. This woodpecker is so attached to the tree in which it has first made its nest that it continues to cling to it as long as it can find a suitable spot at which to excavate a new hole. It never uses the same hole a second time. I know of a pair of these birds which resorted to the same tree for four consecutive years, and each year they excavated a new hole.

Another pair of these woodpeckers bred in a gigantic dead pine for three years, and as an illustration that their large holes are in great demand by other birds, and even mammals, for breeding purposes, I will state that on April 16, 1903, there were three species breeding in the same tree, namely—Pileated Woodpecker, four eggs, at a height of 54 feet; Fox Squirrel, at 70 feet; and Sparrow Hawk, at approximately 90 feet from the ground—all living together in perfect harmony!

If this bird is deprived of its first set of eggs, it at once excavates a new hole, and the length of time consumed in its construction is about twenty-five days. A curious habit is that even when it is incubating or brooding its young, this bird frequently taps in its hole as if excavating. The eggs are glossy white and measure 1.35×1.00.

Although Dr. Bachman has stated in Audubon's Birds of America,[1] that this woodpecker lays from five to six eggs, the highest number I have ever found is four. During incubation one bird relieves the other at certain hours of the day, and if the one incubating wishes to leave, it will utter its call notes while in the hole, until the other comes to relieve it.

165. **Melanerpes erythrocephalus** (Linn.). RED-HEADED WOODPECKER.

The controlling influence upon the migration of this species in winter is the presence or absence of acorns of the live and water oaks. If the crop of acorns is large, this woodpecker is abundant during the winter months, but if there are no acorns, the bird is entirely absent, no matter whether the season is mild or severe.

The Red-headed Woodpecker feeds upon fruit as well as insects and worms. When mulberries and cherries are ripe it feeds exclusively upon them and also carries them to its young.

[1] IV, 227-228.

I have seen it fly repeatedly to a cherry tree a mile away from the nest and at each trip bring back a cherry in its bill for the young.

The nest of this woodpecker is always excavated in a dead tree, usually a pine, and ranges from 19 to 100 feet from the ground. It is hard to state just when incubation commences for the nesting place is generally inaccessible, as with most woodpeckers, but I have taken on May 24, a set of five eggs, which contained small embryos, and which must have been the first laying. Two broods are, however, raised each year.

The eggs are pure white and measure .95×.75.

166. **Centurus carolinus** (Linn.). RED-BELLIED WOODPECKER.

This species, which is locally known as the "Zebra Woodpecker," is very abundant in deciduous forests at all seasons of the year and is therefore a permanent resident. It is oftener seen in autumn and winter than in the breeding season as during the latter season the birds are scattered over a large territory and consequently are hard to detect. The food of this woodpecker consists chiefly of insects, but it also feeds upon acorns and tupelo berries. It is the only species of its family which has a peculiar smell, and this is due, I suppose, to the nature of its food. This peculiar odor remains in dried skins for years and I doubt if it ever disappears. The notes of this species resemble the words "*chow-chow-chow-chow*"; indeed they are entirely different from those of any other woodpecker found in eastern North America.

The hole of this species is always excavated in dead trees from 20 to 130 feet from the ground, but sometimes it takes possession of the deserted hole of the Red-cockaded Woodpecker (*Dryobates borealis*), which it enlarges at the entrance but not in depth. The eggs, which usually number four, are glossy white, and are laid the last of April or very early in May, and measure 1.00×.75.

167. **Colaptes auratus** (Linn.). SOUTHERN FLICKER.

This species is locally known as the Yellow-hammer and Woodpecker-lark, and is a permanent resident, although large migratory flights take place in October. It is my belief that these flights are composed solely of the birds which have bred to the northward of South Carolina and do not include those which have

bred here. If there has been a sudden drop in the temperature, accompanied by a northeast wind, a large migration of these birds may be expected as early as October 4, but I have never noted a spring migration.

The nests are excavated in dead pine trees and generally at a great height, but occasionally within twelve feet of the ground. The eggs are generally laid about the middle of April and vary in number from five to seven, the latter being rare. In some forward seasons I have taken full complements of eggs containing small embryos as early as April 7, while I have observed birds which had apparently had no mishap, incubating as late as May 18. Two broods are raised each year—a new hole being excavated for the second brood. The eggs are glossy white and vary greatly in size. I have taken a few which were almost as large as those of the Pileated Woodpecker, but the average size is about 1.10×.90.

Of all the woodpeckers, this species is the most beneficial to the agriculturists.

ORDER MACROCHIRES: GOATSUCKERS, SWIFTS, AND HUMMING-BIRDS.

FAMILY CAPRIMULGIDÆ: GOATSUCKERS, ETC.

168. **Antrostomus carolinensis** (Gmel.). CHUCK-WILL'S-WIDOW.

The Chuck-will's-widow is a summer resident arriving in the vicinity of Charleston during the third week in March. I mention four dates upon which the first birds were heard, namely—March 24, 1884; March 30, 1890; March 30, 1896, and March 22, 1897.

The males arrive first, and the females four or five days afterwards. During the pairing season it is very amusing to observe the antics of the male. He struts before the female with as much pomposity as a turkey gobbler. He tries to crow, and swells his throat out almost to bursting as he endeavors after his fashion to make himself appear as fascinating as possible. After mating is completed, the two birds remain side by side on the ground, or on a rotten log in the woods. Sometime after this the female may be seen looking for a suitable place in the woods to deposit her two eggs, and these are sometimes laid as early as the last week in April. The eggs are usually placed either on the ground

or on dead leaves without any depression being made to receive them. The first egg is laid from four to six days before the second and is incubated immediately, with the result that when the young are examined, one is generally found somewhat larger than the other, having been hatched a few days sooner. Both sexes incubate.

The eggs are creamy white with a rosy tint when fresh. The shell markings vary from pale blue to bluish gray surface markings, dark brown spots, and blotches. They measure 1.40×1.00.

The Chuck-will's-widow resembles so much in color the dead leaves on which it is generally seen that it may be approached within a few feet without being observed. When flushed it flies a short distance, and utters a queer cry which resembles the sound of "*quak.*" If the eggs are handled, or even merely touched, the birds, upon returning, remove them a short distance, each bird taking an egg in its mouth. Audubon also mentions having observed this habit. They then continue sitting on them until hatched, but if the eggs are taken away, they will lay again, and I have known a female to lay four sets of eggs and finally rear its brood from the last set, which I left undisturbed. If not molested the birds appear to raise only one brood in a season.

The young when hatched are covered with down. I examined the stomachs of two young which were two days old and each contained a beetle an inch in length. The male bird during the breeding season utters the notes which have given him his name during the entire night, commencing shortly before sunset. On moonlight nights the noise is almost continuous, lasting frequently until daylight. Occasionally, the note is heard during the day, and sometimes when it is raining. As soon as the young are hatched the note ceases entirely, and is only heard again at the time of the fall migration, which is towards the end of September, my latest date being September 28.

I recorded in *Science Record*[1] having observed a specimen of this species in January. This was an error, for the bird I saw was undoubtedly a Whip-poor-will (*A. vociferus*).

169. **Antrostomus vociferus** (Wils.). WHIP-POOR-WILL.

Since the capture of this species on February 7, 1892, and again on January 6, 1893, which I recorded in the *Auk*,[2] the

[1] II, No. 4, Feb. 15, 1884. [2] IX, 1892, 201; and X, 1893, 205.

records have multiplied, and the following will show that this species winters regularly, namely—November 27, 1891; December 6, 1893; March 16, 1896; February 22, 1901; March 29, 1901, heard about sixteen crying; and January 25, 1902. My earliest record is September 30, 1909, when Mr. Ferdinand Gregorie heard one. During the memorable blizzard of February 13 and 14, 1899, numbers of these birds were seen, although the thermometer registered as low as 6° above zero. This species is not in the least inconvenienced by very cold weather for it is always exceedingly obese, which enables it to withstand low temperatures. The food in winter consists of large beetles.

It is the general belief that neither this species nor the Chuck-will's-widow winters in this state, and I have heard of a wager of a case of champagne offered for either of these birds taken in this state during the winter months.

The Whip-poor-will breeds in the mountainous portions of the State.

170. **Chordeiles virginianus** (Gmel.). NIGHTHAWK.

The "Bull-bat," as this bird is locally known, is a summer resident, arriving with great regularity in spring, and I mention three dates upon which the first birds have been observed: April 13, 1884; April 16, 1895, and April 12, 1900. My latest autumn record is October 25, 1895. Mr. H. R. Hale, however, saw one near Mt. Pleasant on November 9, 1909.

This species is not abundant during the breeding season, but in autumn great flights sometimes occur. The greatest migration that I ever witnessed was of this species. On September 6, 1905, between 5.30 P. M. and sunset, these birds were migrating in dense flocks, which at times obscured the sky. As far as I have been able to ascertain, these flocks extended over an area of more than fifteen miles from east to west. The number of birds seen must have represented millions. Mr. Ferdinand Gregorie, who plants on Daniel's Island, tells me that in every direction the air was filled with these valuable insectivorous birds.

The eggs of the Nighthawk are two in number and are laid in some forward seasons as early as May 10, but it is not until the latter part of the month that most of the birds breed. The eggs are laid on the bare ground, and are grayish white, thickly spotted and blotched with brownish gray. They measure 1.24×.85.

The Nighthawk breeds as far north as southern Labrador, and winters south to the Argentine Republic.

FAMILY MICROPODIDÆ: SWIFTS.

171. **Chætura pelagica** (Linn.). CHIMNEY SWIFT.

Although the Chimney "Swallow," as it is locally called, almost always arrives by March 28, it is one of the latest to breed of all the birds on the coast. I have never detected this species later than October 28, which is possibly the limit of its sojourn here in autumn.

From the time it arrives until nearly the last of May no attempt is made to build a nest; the birds spend nearly two months on the wing enjoying themselves. I have often wondered how many miles these birds travel daily, for their powers of flight are certainly remarkable—they seem never to tire. When the weather is cloudy the birds invariably fly low, but when it is fair they fly at a great height. The reason is obvious, as the insect life which forms their food is near the earth on cloudy or murky days and the reverse when the weather is fair.

The nest is commenced the last of May, and is composed of dead twigs which the birds snap from trees while on wing. These twigs are firmly glued together with saliva. Some nests are very strongly built while others fall when it has rained for any length of time. The nest is almost always placed on the south side of a chimney, sometimes near the top and again near the bottom. In some places where there are no chimneys, as along the Savannah River swamp, this bird places its basket-like nest in the hollows of cypress trees, and birds which have been frequenting the cypress have the throat pure white in contrast with those that breed in chimneys, which invariably have the throat brownish. By June 15, full complements of eggs, which number five or six, are laid, and these are pure white and measure .75 × .50. I took a set of six eggs on May 25, 1908. The birds commence to incubate upon the advent of the first egg, and only one brood is raised.

The Chimney Swift ranges from Florida to Nova Scotia in summer, and winters in Mexico.

FAMILY TROCHILIDÆ: HUMMING-BIRDS.

172. **Archilochus colubris** (Linn.). RUBY-THROATED HUMMINGBIRD.

This, the only species of Hummingbird found east of the Mississippi River, is an exceedingly abundant summer resident throughout the entire state. In the neighborhood of Charleston the birds make their appearance between March 28 and 31. The males arrive first and the females a few days afterwards, when they commence to mate almost immediately. From two to four males start in pursuit of a female and continue until driven away by the successful suitor.

The nest is built by both sexes, and is placed on a horizontal branch of a tree, sometimes as low as ten feet and again as high as forty-five feet from the ground. Some nests are beautiful, being composed of plant-down of different colors, and ornamented externally with lichens which grow on live oaks and other trees. This species, as well as the Blue-gray Gnatcatcher (*Polioptila cærulea*), places the lichens all over the outside of the nest in the same manner as they grow on the trees, *i. e.* with the light bluish gray side outwards. Two eggs are laid, which are pure white, and measure .50×.35. I have taken fresh eggs as early as April 23, but the greater number of birds breed about May 4. Two broods are raised, and of the second, fresh eggs are to be found by June 25.

This species frequents tubular flowers in which it finds minute insects upon which it subsists. The adult males appear to leave this country entirely before the middle of September, while the females and young remain until about the middle of October.[1]

The Ruby-throated Hummingbird winters in Cuba and Mexico.

ORDER PASSERES: PERCHING BIRDS.

FAMILY TYRANNIDÆ: FLYCATCHERS.

173. **Tyrannus tyrannus** (Linn.). KINGBIRD; BEE-BIRD.

The Bee-bird, as this species is universally known on the coast, arrives with great regularity in spring, and I mention three dates upon which the first birds have been observed, namely—March

[1] A female Ruby-throated Hummingbird was taken in Charleston on December 18, 1909, and recorded in the *Bulletin* of the Charleston Museum (VI, 1910, 10). It has since been reported in January, February and early March.—Ed.

31, 1884; March 30, 1896; and March 25, 1899. It breeds abundantly, and raises two and sometimes even three broods each year. The spring migration is performed entirely by night, but the autumn migration takes place chiefly during the day. Towards the last of August and through September it is not unusual to see thousands of these birds migrating southward—all following the coast line of the mainland. Numbers of these autumnal migrants stop for many hours to feed upon the fruit of the magnolia (*Magnolia grandiflora*), and it is a curious fact that the birds seem to know exactly where these trees are to be found. When they have satisfied hunger and have rested they continue their migration. By October 3, few are to be seen in the vicinity of Charleston, and towards the middle of the month they have all left the State.[1]

The nest of this species is placed indiscriminately in low or high trees, ranging from ten to ninety feet above the ground, and is composed of small sticks, pieces of thorny vines, cotton, and moss, lined with horse hair and rootlets. The eggs, which are laid by May 10, are three or four in number, the maximum being rare. They are white, spotted with reddish brown and lilac, and measure .98×.74. The Kingbird breeds abundantly in the city of Charleston, and in the beautiful grounds of Mr. D. C. Ebaugh several pairs bred regularly every year.

This species winters as far south as South America.

174. **Tyrannus dominicensis** (Gmel.). GRAY KINGBIRD.

I quote from Audubon's Birds of America,[2] the following account of this rare tropical species:

After I had arrived at Charleston in South Carolina, on returning from my expedition to the Floridas, a son of Paul Lee, Esq., a friend of the Rev. John Bachman, called upon us, asserting that he had observed a pair of Flycatchers in the College yard, differing from all others with which he was acquainted. We listened, but paid little regard to the information, and deferred our visit to the trees in the College yard. A week after, young Lee returned to the charge, urging us to go to the place, and see both the birds and their nest. To please this amiable youth, Mr. Bachman and I soon reached the spot; but before we arrived the nest had been destroyed by some boys. The birds were not to be seen, but a common Kingbird happening to fly over us, we jeered our young observer, and returned home. Soon after the Flycatchers formed another nest, in which they reared a brood, when young Lee gave intimation to Mr. Bachman, who, on visiting the place, recognized them as of the species described in this article. Of this I was apprised by letter after I had left Charleston, for the purpose of visiting the north-

[1] The latest record of the Charleston Museum for this species is October 16, 1909, when it was reported by Messrs. Burnham and Rhett Chamberlain.

[2] I, 203.

ern parts of the Union. The circumstance enforced upon me the propriety of never suffering an opportunity of acquiring knowledge to pass, and of never imagining for a moment that another may not know something that has escaped your attention.

Since that time, three years have elapsed. The birds have regularly returned every spring to the College yard, and have there reared, in peace, two broods each season, having been admired and respected by the collegians, after they were apprised that the species had not previously been found in the State.

Since Audubon wrote, I have been the next observer who has seen and taken this rare species in the State, and herewith transcribe the account of the capture that I published in the *Auk:*[1]

In the early part of May, 1885, Mr. William Brewster and myself saw a pair of Gray Kingbirds at Fort Moultrie, Sullivan's Island, S. C. I determined to secure these birds with their nest and eggs, and after several visits to the Island I located their range, and on May 28, I found their nest which contained one egg and shot the female bird. The nest was built in a silver-leaf poplar, in a gentleman's yard (Major W. J. Gayer), only a few feet from his dwelling house. The nest, as I remember it, was very frail. Since that date of capture I have failed to notice the presence of this species on any of the coast islands of South Carolina, until this year, 1893.

On May 30 of this year, I determined to search Sullivan's Island carefully for this rare visitor, and accordingly I arrived there early in the morning of the above date. After walking the entire length of the Island near the front beach, and having failed to discover this species, I leisurely searched the back beach. At twelve o'clock—mid-day—a bird I saw flying about three hundred yards away I took to be this species. I followed the direction of its flight until it was lost to view—over half a mile away. I at once hastened to the spot, and to my delight found a veritable Gray Kingbird perched on the top of a flag pole about fifty feet high in a private yard. The law on the Island prohibits shooting, under penalty of $10.00 fine. My only chance was for the bird to light on the Government property—Fort Moultrie grounds—six yards away, where I could not be molested. I did not have long to wait before the male which was perched on the flag pole flew into the Government lands where I at once shot it. Upon my shooting the bird its mate flew directly over me, and I soon had it stored carefully away in my collecting basket. The nest which was found in the private yard, close to the flag pole, was built in the top of a small live oak tree about twenty feet high. It is a very frail structure, and is composed of sticks, jesamine vines, and lined apparently with oleander rootlets. One article in its composition which is quite curious is a long piece of fishing cord. The nest contained two eggs, and upon dissecting the female I found one more egg which would have been laid the following day. It will be seen that all the specimens of the Gray Kingbird which have been actually taken in South Carolina were from this famous Island—a favorite summer resort for the people of Charleston.

Since I recorded the capture of these birds in the *Auk* I have failed to observe additional specimens.

The eggs of this species are of a creamy or pinkish color, spotted and blotched with reddish brown and lilac, and are said to number three or four. They measure 1.00×.75.

The Gray Kingbird breeds along the coast from South Carolina (rarely) southward through Georgia (rarely), Florida (abundantly), and the Greater Antilles.

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[1] XI, 1894, 178-179.

175. **Myiarchus crinitus** (Linn.). CRESTED FLYCATCHER.

This species arrives between April 2 and 7, the former date being my earliest record. It is found commonly everywhere in the breeding season, on the coast islands as well as on the mainland, and is the most abundant of all the flycatchers found in the State. The nest of this bird is built in woodpecker holes, natural cavities of trees, bird-boxes, or dwelling houses, and is composed of pine needles, grass, feathers, hair of various mammals, and always pieces of snake skins. This last article seems to be indispensable, for in the many nests that I have examined this material was always present. Some birds breed much earlier than others. I have taken eggs containing large embryos as early as May 16, while I have watched birds which did not commence building until after the middle of May, so that full sets of eggs were not laid until the first week in June. The eggs number from four to six, generally five, but sets of six are not rare. They are deep buff or creamy, streaked and spotted with dark brown and purple, the streaks being longitudinal. They measure .90×.70. As far as I have been able to ascertain but one brood is raised.

This bird has many local names and among them "Freight" and "Race Bird." The former name is in imitation of its note, which is excellent.

The Crested Flycatcher winters from southern Florida to Central America. By the last of September it has departed from the State.[1]

176. **Sayornis phœbe** (Lath.). PHŒBE; PEWEE.

Audubon says of this species, in Birds of America:[2]

> None, however, to my knowledge, breed south of Charleston in South Carolina, and very few in the lower parts of that State.

This statement implies that this bird breeds at or near Charleston, which is an error, as the Pewee breeds only in the mountainous portions of the State.

In the vicinity of Charleston this species is merely an autumn, winter, and early spring visitant. The birds arrive with great regularity in autumn, and I append three dates upon which the

[1] The latest record of the Charleston Museum for this species is October 9, 1909, when it was reported by Messrs. Burnham and Rhett Chamberlain from the Porter Military Academy campus in Charleston.—Ed.

[2] I. 229.

first have been observed, namely—September 25, 1896; September 27, 1898, and September 25, 1899. They remain until March 27.

This is the only species of the Tyrannidæ that winters in this state, and, since all the birds of this family are highly insectivorous, it seems curious that this familiar bird should winter here, when insects are almost absent, yet it braves the severest winters.

The Pewee breeds abundantly at Cæsar's Head, Greenville county, and as far north as Newfoundland.

177. **Nuttallornis borealis** (Swains.). OLIVE-SIDED FLYCATCHER.

During the second week in September, 1904, I saw and positively identified a bird of this species. I had a record of the day of the month, but it has been misplaced. When first seen, the bird was on the top of a dead willow tree in an impenetrable ravine. I was within twenty feet of the tree upon which this flycatcher was perched, but I should have mutilated the specimen by shooting it from where I was standing, and I could not retreat as I was in a road flanked on both sides by the jungle. Since it could not be obtained without being mutilated I determined not to shoot it. There is no question whatever as to the correct determination of this species, for the specimen was positively identified. The bird was seen some days after the occurrence of a very severe storm on the coast of South Carolina, and this is the first record for the coast region. This species undoubtedly occurs at the proper seasons in the mountainous parts of the State, but it is a *rara avis* on the coast.

The Olive-sided Flycatcher breeds from Massachusetts northward to Hudson Bay and Alaska, and in the higher mountainous regions to the southward, as far as North Carolina.

178. **Myiochanes virens** (Linn.). WOOD PEWEE.

The Wood Pewee generally arrives in the vicinity of Charleston by April 14, and remains until the third week of October. It breeds abundantly in open pine woods, but is seldom met with in the swamps during the breeding season. Two broods are raised each season; the first brood is abroad early in June and numbers three, while the second set, which consists of two eggs, is laid between July 2 and 10. The nest is generally placed on a horizontal branch of a pine tree, ranging from forty to ninety feet from the ground, and is composed of pine needles and a little

moss, covered externally with lichens. The eggs are of a creamy buff color, with a wreath of reddish brown, lilac, and umber markings near the larger end. They measure .70×.54.

This species frequents certain spots in the woods, where it perches upon dead limbs to make sallies after passing insects. I have never known it to feed upon berries as other members of the family do, and its food appears to be exclusively insects.

The Wood Pewee breeds from Florida to Prince Edward Island and winters as far south as Ecuador and Peru.

179. **Empidonax virescens** (Vieill.). GREEN-CRESTED FLYCATCHER; ACADIAN FLYCATCHER.

Although Audubon states in Birds of America,[1] that this species "is not abundant, even in South Carolina, in the maritime parts of which it occasionally breeds," he was certainly in error as the Acadian Flycatcher breeds abundantly in the great swamps which lie along the entire coast. My earliest spring record is April 7, and a few birds remain until September 22. This species is essentially a swamp-lover, where its notes, which resemble the words "*wicky-up*," are to be heard from early in April until August. Its nest is invariably built in the forks of a dogwood tree (*Cornus florida*), about fifteen feet from the ground, and is composed entirely of the black fibre of the Spanish moss (*Tillandsia usneoides*). When the birds are building nests or incubating their eggs they are always extremely shy, and leave the nest long before a person has approached within twenty-five yards of its location.

Some birds breed earlier than others, and the eggs, which number two or three, are laid between May 15 and 27. They are creamy buff, speckled and spotted with rusty brown around the larger end, and measure .75×.55.

The Green-crested Flycatcher winters in Central America, and breeds from Florida to Massachusetts.

180. **Empidonax traillii alnorum** Brewst. ALDER FLYCATCHER.

It is only in recent years that I have detected this form in South Carolina. I took my first specimen on September 6, 1900, in a dense jungle where innumerable alders grew. Since then I have found this subspecies to be a regular transient visitant in late

[1] I, 221.

summer and autumn, but I have not observed it in the spring. My earliest record is August 15, and my latest September 30.

This form inhabits dense jungles where there is more or less water and the nature of its haunts precludes even an attempt to enter such places in order to study its habits. The note, which is a soft "*pep, pep,*" is uttered during the hottest part of the day. The birds become exceedingly fat in September and for this reason are difficult to preserve as specimens.

This form of *E. traillii* breeds abundantly in the New England states and winters from Central America to Ecuador.

FAMILY ALAUDIDÆ: LARKS.

181. **Otocoris alpestris** (Linn.). HORNED LARK.

On January 18, 1893, there was a fall of snow—a remarkable occurrence for the coast region of South Carolina. The weather was bitterly cold during the following seven days; then it moderated. I was afield early every morning, and was well repaid on the 20th, when I discovered three Horned Larks soaring very high. Finally one alighted in a corn field, where it was promptly shot. The same day I discovered a flock of about fifteen, which were feeding in an old field. I secured two on the ground, and two flying, making five in all. I failed to find the birds after they flew away, although I searched every field carefully for miles in every direction. No more were seen on the following days. As far as I am aware this is the first record for the seaboard of South Carolina, and the most southerly record for the species. To make sure of the form I sent a specimen to Mr. William Brewster, and he has pronounced it true *alpestris*. I published this note in the *Auk* for April, 1893.

Audubon states in Birds of America,[1] that "my friend Bachman never saw one near Charleston."

Mr. Leverett M. Loomis originally recorded *alpestris* as the form which occurred at Chester, but later pointed out the error in the *Auk*[2] in the following words:

> The appearance of Mr. Ridgway's 'Manual,' with its broadened characterization of the latter form (*praticola*), further disclosed the fact that a series of measurements taken at intervals during the decade previous to 1886 were typical of *praticola*, and that *alpestris* had never been secured.

Mr. Walter Faxon, in his article on John Abbot's Drawings of

[1] III, 47. [2] VIII, 1891, 57.

the Birds of Georgia,[1] says:

> The Arctic race of the Horned Lark (*alpestris*), although noted by Catesby (Nat. Hist. Carolina, I, 1731, 32, Pl. XXXII) as frequenting the sand-hills along the shore of South Carolina in winter, has within a few years been recorded as a novelty from that coast. (A. T. Wayne, *Auk*, X, 1893, 205.)

As it is exceedingly difficult to determine the various forms of the Horned Larks when specimens are in the hand, it necessarily follows that it is impossible to identify most of the races by a colored drawing, and this is very difficult to accomplish positively in the forms, *Otocoris alpestris et praticola.* The capture of true *alpestris* by the writer remains the only well authenticated record for the State.

In North America, the Horned Lark breeds in Newfoundland, Labrador, and the Hudson Bay region.

FAMILY CORVIDÆ: CROWS, JAYS, ETC.

182. **Cyanocitta cristata** (Linn.). BLUE JAY.

Although this well-known bird is a permanent resident, it is most abundant in autumn and winter. It breeds regularly, but is, in my experience, very locally distributed during the breeding season. This may be due to the fact that the birds are silent at that season and hence easily overlooked, but I have noticed that where the live oak is absent this species is not found, and where this beautiful tree is abundant isolated pairs are to be found breeding. The nest, which is generally placed on a horizontal branch of a live oak from twenty to fifty feet from the ground, is composed of small sticks and is lined with rootlets and pine needles. Mud comprised a large part of the material used in the construction of all the nests that I have examined, taken on or near the coast. The eggs are generally four in number, and are laid between April 25 and May 4. They are olive or olive brown, spotted with a darker shade, and measure 1.10×.80. Two broods are raised each season.

The Blue Jay is omnivorous, but its principal food in autumn and winter appears to be acorns.

This familiar species is found from northern Florida to Nova Scotia, and southern Labrador.

183. **Corvus brachyrhynchos** C. L. Brehm. CROW.

Much has been written by numerous authors in regard to the

[1] *Auk*, XIII, 1896, 210.

economic relations of this well-known bird. Although the Crow undoubtedly destroys innumerable grubs and mammals which depredate upon the agriculturist and is a "beneficial" species at certain seasons, yet it is the most destructive of all birds to agricultural interests. On the coast it is unwise to plant corn unless tarred, as the birds will pull it up as soon as it sprouts.

If corn is not "turned down" in the autumn, little will be left to harvest. I know of a farmer who lost his entire corn crop of many acres by these marauders, who left nothing but the stalks. He was compelled to leave his farm for a couple of days, and as the corn was not ready to be "turned down," the Crows made short work of it, especially as they knew that the farm was uninhabited. Nearly all crops need to be constantly guarded to prevent these birds, as well as the Boat-tailed Grackle (*Megaquiscalus major*), from eating the seed when planted. The Crow destroys innumerable eggs of the Clapper Rail (*Rallus crepitans waynei*) as well as eggs of the salt and freshwater terrapins.

The birds mate early in February and nest-building is commenced about the middle of the same month. The nest is generally built in the tops of the tallest pines, though sometimes it is placed in the fork of a live oak and within twenty-five feet of the ground. It is constructed of sticks, which the birds carry in their bills for miles, and is lined with moss, pine needles, and bark strippings. The eggs are usually four in number, and are bluish green, thickly spotted and blotched with brown. They measure 1.65×1.15. I have taken eggs, containing very large embryos, as early as March 25, and two broods are raised each season.

184. **Corvus ossifragus** Wils. FISH CROW.

The Fish Crow is also a permanent resident, and breeds in small colonies as well as in isolated pairs along the entire coast. Although Audubon states[1] that "in East Florida, where they abound, I found them breeding in February, in South Carolina about the 20th of March, and in New Jersey a month later," he was certainly mistaken as far as South Carolina is concerned, for this species invariably breeds in May, as the following records will show: May 11, 1884, four eggs with small embryos; May 6, 1886, two fresh eggs (set incomplete); May 19, 1897, four slightly incubated eggs; May 23, 1898, four eggs far advanced towards hatching;

[1] Birds of America, IV, 95.

May 22, 1900, five fresh eggs; and May 9, 1901, five slightly incubated eggs. As this species has but one brood it is evident that it breeds in May and not in March. The nest of the Fish Crow closely resembles that of the former species except that it is smaller and is placed in the tops of pines and sycamores from forty to one hundred and fifty feet from the ground.

About twenty-five years ago this species used to breed regularly in St. Paul's churchyard, in the city of Charleston, where it placed its nest in the topmost branches of a gigantic sycamore tree fully one hundred and fifty feet from the ground, and it also bred in later years in private yards along East Battery.[1]

The eggs of this species number four or five and are similar to those of the previous species in coloration, but are smaller, measuring 1.50×1.05.

The food of the Fish Crow in spring, summer, and autumn consists chiefly of fiddlers and other larger crabs, whereas in winter it feeds upon shellfish and various berries. The notes of this bird are entirely different from those of the American Crow, being very hoarse, as if it were trying to clear its throat. No distinction is made between these birds by farmers and others who have not studied ornithology.

The Fish Crow breeds from Florida to southern Connecticut.

FAMILY ICTERIDÆ: BLACKBIRDS, ORIOLES, ETC.

185. **Dolichonyx oryzivorus** (Linn.). BOBOLINK; RICEBIRD.

This well-known species is scarcely recognized here by the name Bobolink: "Ricebird" and "May Bird" are the local names bestowed upon it.

The Ricebird is a transient visitant arriving in spring about April 10, is abundant by the 16th, and remains in comparative abundance until May 26, while a few belated individuals are to be observed until June 5. The spring migration is performed chiefly by night; whereas the autumnal flight, which takes place as early as August 11, occurs during the day as well as at night. During the month of September the migration is performed almost entirely by day. My latest autumn record is November 26, 1891, when I observed a single individual.

This species is very destructive to the rice crop, not only when

[1] Messrs. Burnham and Rhett Chamberlain report the Fish Crow as breeding on Broad St., Charleston, in May, 1909.—Ed.

it is "in the milk," but when the seed has sprouted. The rice fields require watching from morning till night by men called "bird minders." A great many planters now plant the "late" rice in June to avoid the birds.

In the spring the Ricebirds resort to the oat fields when they are "in the milk" and upon this food they become exceedingly fat. Although the birds frequent the potato fields when they are in bloom in May, they do not eat the potato beetle. In fact, I have never seen any species of bird which eats the potato beetle. This may be due to the fact that the fields are always poisoned with Paris green, yet multitudes of the beetles annually escape and are not destroyed by the birds.

The Bobolink breeds from Pennsylvania to Quebec, and winters to the southward of the United States, as far as Paraguay and southern Brazil.

186. **Molothrus ater** (Bodd.). COWBIRD.

Although the Cowbird, a winter visitant, arrives as early as July 25, it is not really abundant until January and February, when thousands frequent the rice plantations in company with Red-winged Blackbirds, Boat-tailed, and Florida Grackles. It finds an abundance of food left in the straw from which the rice has been threshed. Sometimes large numbers of these birds resort to fields which have been planted in oats and cause great damage. They also frequent burnt ground.

The Cowbird does not breed anywhere near the coast and I doubt if it breeds in the State. Prof. Ridgway states[1] that it breeds in Wayne and McIntosh counties, Georgia, but he does not mention the authority in the citations. From my experience in these counties I consider this breeding record probably erroneous, for I failed to find any birds of this species there during a part of May, 1891.

The Cowbird ranges in winter as far south as Mexico.

187. **Agelaius phœniceus** (Linn.). RED-WINGED BLACKBIRD.

This well-known species is a permanent resident and is exceedingly abundant during the autumn and winter months, when hundreds of thousands congregate on the rice plantations. It is also abundant in the breeding season along the coast where the country is suitable to its wants.

[1] Birds of North and Middle America, Part II, 1902, 208.

During the winter and early spring the males separate from the females, the latter apparently going together until late in March.

The breeding season is in May and June, and, as far as my experience goes, only one brood is raised unless the eggs have been taken, when the birds will lay again until a brood is raised. My earliest breeding record is April 25, 1908, when I took three eggs.

The nest of the Red-winged Blackbird is composed of weeds and grasses and is generally placed in low bushes and marshes, but I have observed nests of this species in the grounds of Mr. D. C. Ebaugh, in the city of Charleston, which were built in a huge water oak tree from forty to sixty feet above the ground.

The eggs, which number four or five, are of a pale blue color, streaked, marbled, and blotched with purple and black. They measure 1.00×.73.

188. **Sturnella magna** (Linn.). MEADOWLARK.

The Lark, as it is called in this state, is a permanent resident, exceedingly numerous in autumn and winter. During the first cool weather, which ordinarily occurs about the 10th of October, great numbers arrive from the north, and in the winter and early spring months every field is frequented by hundreds of larks.

As every farmer well knows, this species is very destructive to grain, as well as to truck. The birds which winter in the vicinity of the coast generally spend the night in the salt marshes.

During the breeding season this species is confined to certain restricted fields, where it returns annually to breed. It is one of our latest breeders. I procured fresh eggs on May 28, 1890, at Yemassee, and slightly incubated ones on June 10, 1903, near Mount Pleasant, which were, of course, the first laying. The nest is placed upon the ground in a tuft of grass, and is constructed of fine grass, generally arched in the manner of the Bob-white's (*Colinus virginianus*) nest. The eggs are four in number, white, speckled and spotted with reddish brown and lilac. They measure 1.10×.80.

The birds which breed on the coast I refer to *magna* and not to the form *S. m. argutula.*

189. **Icterus icterus** (Linn.). TROUPIAL.

Audubon gives the following account of this fine species in his

Birds of America:[1]

This handsome bird was first observed at Charleston, South Carolina, by my son John Woodhouse, who shot and figured a male the size of nature; the bird when first seen was perched on the point of a lightning-rod close by the house of my friend the Reverend John Bachman, D. D. A few days afterwards others were seen, but although a female was shot, it fell in the river and was lost. I am informed that since that period, small groups of four or half a dozen make their appearance in the same city, and on the neighbouring islands.

This record of the occurrence of the Troupial at Charleston still remains unique for North America—no additional specimens having been taken. The Troupial is a South American species.

190. **Icterus spurius** (Linn.). ORCHARD ORIOLE.

This oriole is a summer resident known on the coast as the "Sanguillah." Dr. Ramsay, in his History of South Carolina, published more than a hundred years ago, gives the above name to this species.

My earliest records for the arrival of this bird are April 7, 1895, and April 6, 1908. A few remain until the beginning of September (one was seen in my yard September 8, 1909), but the great majority migrate about the middle of August.

This familiar species breeds abundantly, but generally near settlements, and is rarely found in the interior of large tracts of woodland. It continues to breed regularly in the heart of the city of Charleston. The nest is constructed of a peculiar species of long, green grass, and is woven with infinite care. It is lined with feathers in some instances, but, as a rule, with the down from willow trees. Some nests are built in bushes but the great majority are built on the ends of drooping limbs of trees, from ten to seventy feet above the ground. This species also builds its nests in large festoons of the Spanish moss (*Tillandsia usneoides*). I have taken full complements of fresh eggs as early as May 9, and as late as May 31 I have taken eggs which contained large embryos. Only one brood is raised. The eggs, which are four or five in number, are bluish white, spotted and streaked with dark brown and pale lavender shell markings. They measure .80×.57. Young males of the second year breed in a plumage which resembles the female except that the lores, chin, and throat are black.

The Orchard Oriole breeds as far north as North Dakota, and winters in Colombia.

[1] VII, 357.

191. **Euphagus carolinus** (Müll.). RUSTY BLACKBIRD.

The Rusty Blackbird is an abundant autumn, winter, and early spring visitant, frequenting large swamps and living for the most part on the ground, where it procures its food. My earliest autumn record is October 22, 1905; it is, however, common by November 5, and remains until March 7, which is my latest date.

The birds begin to moult about the middle of February, and a specimen taken by the writer on February 27, 1905, had almost acquired the full summer plumage. The song period is of short duration, lasting about three weeks. Great numbers of Rusty Blackbirds frequent the rice plantations in winter, associating with Florida Grackles (*Quiscalus quiscula aglæus*) and Boat-tailed Grackles (*Megaquiscalus major*), where stacks of rice have been left in the fields.

This species breeds from northern New York to Labrador and northwestward to Behring Sea.

192. **Quiscalus quiscula** (Linn.). PURPLE GRACKLE.

A specimen of this species that I took on November 30, 1889, at Moorfield plantation, near Pinopolis, South Carolina, is the sole record I have for the coast. This specimen was sent for positive determination to my friend Mr. William Brewster, who recorded it in the *Auk*,[1] as true *Q. quiscula*. It is a female in high plumage, No. 2237 of my register, and is still in my collection.

This grackle breeds in the interior of the State and northward to the Middle States.

193. **Quiscalus quiscula aglæus** (Baird). FLORIDA GRACKLE.

This form of the Purple Grackle is a permanent resident in the coast region, being found at all seasons in great numbers. It is, however, a freshwater bird, rarely, if ever, visiting the salt marshes. In winter I have seen countless thousands of these beautiful birds on the rice plantations in company with the Boat-tailed Grackle, feeding upon rice which was left in the fields.

The Florida Grackle is a very destructive bird as it eats the eggs of all birds which breed in swamps, making a systematic search for nests which contain eggs, Swainson's Warbler (*Heli-*

[1] VII, 1890, 208.

naia swainsonii) being generally the victim. It also eats the eggs of the freshwater terrapin.

The birds breed in large colonies in swamps or in bushes over water, and not infrequently the nest is built in bunches of Spanish moss. It is composed of coarse grass and pieces of flag, and is lined with fine grass. The eggs, which vary in number from three to five, are bluish white or greenish white, spotted, blotched, and scrawled with dark brown and grayish. The breeding season is usually in May and but one brood is raised as far as my experience goes. My earliest breeding record is April 25, 1908, when I took four eggs. I have seen the old birds carrying food to their young more than a mile from where the food was obtained.

On the Atlantic coast this form breeds from Florida to South Carolina, and westward along the Gulf coast to Louisiana.

194. **Megaquiscalus major** (Vieill.). BOAT-TAILED GRACKLE.

This fine species is locally known along the entire coast as the "Jackdaw." It is a permanent resident and breeds abundantly on the coast islands as well as on the mainland, but always near salt water. Twenty-five years ago this bird used to breed regularly every year in a large water oak in the beautiful grounds of Mr. D. C. Ebaugh, in the city of Charleston, and, in company with my friend Mr. B. F. Evans, I used to make observations on its breeding habits. This tree sometimes contained as many as thirty nests, the majority being fully eighty feet from the ground.

The Boat-tailed Grackle is at all times gregarious, but the sexes do not mingle until late in February or the beginning of March; in fact, the females are seldom seen in winter. The breeding season is in April, May, and June, and but one brood is raised. The nest is composed of marsh grass plastered together and lined with fine grass. It is placed in low bushes and palmettos, but as already stated, it is sometimes built eighty feet above the ground. I have observed nests in the tops of pine trees fully seventy feet from the ground. Three or four eggs are laid and these are bluish white, spotted, blotched, and scrawled with chocolate and purplish shell markings. The average size is about $1.25 \times .80$. In some backward seasons the eggs are not laid until late in April.

A peculiar habit of the males of this species is to perch upon

a limb of some tree and with their wings make a loud rolling sound. This peculiar noise is also frequently made while the birds are flying.

The food of the Boat-tailed Grackle in spring and early summer consists of fiddlers and shrimp as well as small fish. But as soon as the corn begins to ripen the birds resort to the corn fields, where they commit great depredations. Fields which are planted with oats in February must be constantly guarded by boys called "bird minders." The eggs of the saltwater terrapin are destroyed by this grackle, which is also a carnivorous species.

FAMILY FRINGILLIDÆ: FINCHES, SPARROWS, ETC.

195. **Carpodacus purpureus** (Gmel.). PURPLE FINCH.

The Purple Finch is a regular winter and early spring visitant from the north. A few birds sometimes arrive by the middle of November, but they are never really abundant until the 30th of the month. They inhabit only forests which are of a deciduous growth and feed upon the seed of the sweet gum (*Liquidamber styraciflua*), and sycamore (*Platanus occidentalis*) during November, December, and a portion of January. The birds evidently migrate to points to the southward of South Carolina during midwinter for few are to be seen until the ash (sp. ?) and red maple (*Acer rubrum*) begin to flower about the middle of February, when there is a distinct migration. On mild days in February and March the males sing sweetly for many minutes.

The Purple Finch feeds upon the stamens of the ash and red maple in preference to any other deciduous trees. A few birds remain until the middle of April, but the great majority migrate in March.

This species breeds from the Middle States northward to Hudson Bay.

196. **Passer domesticus** (Linn.). HOUSE SPARROW; ENGLISH SPARROW.

The English Sparrow made its appearance in Charleston either in 1874 or 1875. About that time I noticed huge nests in the elm trees on St. Philip street by the Orphan House. Whether the birds were introduced or migrated into the city I am unable to say. The next place where I observed nests was in Spring street, just east of King, bordering the premises of Mr. Francis J. Pelzer.

These nests were built in sycamore trees. Although the birds increased rapidly the majority apparently continued to construct nests in trees, and it was at least four or five years before the Orphan House, Westminster Church, and the Shirras Dispensary were resorted to for the purpose of rearing the young.

That the House Sparrow drives away the native birds which breed in the city, such as the Orchard Oriole, Nonpareil, and Purple Martin is undeniably true. In rural districts, however, it is restricted to the immediate vicinity of settlements, and the only species which suffers by its competition is the Purple Martin, which is able to retain partial possession of its partitioned box only by continuous fighting.

Much has been written about the economic relation of this species to agriculture. I have seen hordes of these sparrows eat the cotton caterpillar. The birds are therefore beneficial to the cotton planter in a small degree. While the birds destroy the caterpillars only in close proximity to settlements it saves the planter, nevertheless, many pounds of Paris green, which he uses to destroy the army of worms.

The breeding season is a long one, beginning in March and ending in September, the 21st of the latter month being my latest date. From four to five broods are reared each season, and the number of eggs varies from four to six, five eggs being the rule, while six are rare.

The nests are constructed of grass, straw, and weed tops, with almost any material for lining that is readily accessible, such as feathers, cotton, wool, hair, and fur. They are placed in bird-boxes, buildings, and holes in trees, as well as on the branches. The eggs are dull white, profusely speckled, and sometimes blotched, with various shades of gray and purplish shell-markings. They measnre .86×.72.

197. **Loxia curvirostra minor** (Brehm). CROSSBILL.

In Audubon's Birds of America,[1] he says:

> The latter [Common Crossbill] has been shot in winter by my son John Woodhouse, within a few miles of Charleston in South Carolina, where several were seen, and the specimen he procured there is now in the collection of my friend the Reverend John Bachman.

Since Audubon wrote, no additional specimens of this species had been taken until I found it in great numbers in the winter of

[1] III, 191.

1886 and 1887, near Yemassee, where a few remained until May 22. An account of the capture and habits of the birds was published by the writer in the *Auk*.[1]

Since the original capture of these birds in numbers at Yemassee, I have found the species to be an irregular winter and very late spring visitant, as the following records will show: On March 31, 1888, I shot four specimens from a flock of seven, within seven miles of Charleston; December 8, 1899, I observed a small flock near Mount Pleasant; and on May 10 and 26, 1900, I saw small numbers of the birds near Mount Pleasant.

This species lives in coniferous woods, and feeds upon the seed of the long-leaf and short-leaf pines as well as the sweet gum. It breeds from the mountains of Georgia and North Carolina northward to Nova Scotia, and west to Alaska.

198. **Astragalinus tristis** (Linn.). GOLDFINCH.

The Goldfinch is an abundant autumn, winter, and late spring visitant, frequenting clearings as well as the interior of great swamps of deciduous trees. It arrives by October 25 (my earliest record is October 16, 1906), and is common until the middle of May in backward seasons. On July 8, 1903, I observed a specimen near Mount Pleasant, which, judging from its actions, must have been breeding in the near vicinity. I could not find the nest, however, nor did I shoot the bird to examine the sexual organs. Near the same spot I saw another specimen on July 1, 1907. An adult male taken January 28, 1899, near Mount Pleasant, is in almost perfect summer plumage. The moult begins late in March, but the birds rarely acquire their perfect summer plumage while they sojourn here.

In winter, the food consists of seed, but in spring the Goldfinch feeds upon the stamens of various forest trees. When food is scarce the birds frequently resort to the sandy wastes along the coast islands to feed upon the seed of the wild oats (*Zizania miliacea*).

The Goldfinch breeds from the mountainous parts of South Carolina to Anticosti Island.

199. **Spinus pinus** (Wils.). PINE SISKIN.

The winter of 1896 and 1897 brought large numbers of these erratic birds. The first were observed on December 12, 1896,

[1] IV, 1887, 287-289.

and many remained until the middle of March, 1897. Between these dates, many of the birds taken seemed to be in a state of perpetual moult. These birds were feeding upon the seed of the sweet gum (*Liquidamber styraciflua*), and short-leaf pine (*Pinus echimata*). Audubon says:[1]

> In December 1833, I shot several near Charleston in South Carolina. Those which I saw while in South Carolina, in company with my esteemed friend John Bachman, fed entirely on the seeds of the *sweet gum*, each bird hanging to a bur for awhile, and passing from one to another with great celerity.

That this species is very rare near the coast, or else erratic in its movements, is shown by the fact that during the past twenty-five years I have only seen it in the numbers mentioned above.[2]

The Pine Siskin breeds in the mountains of North Carolina, and northward into British America, also in the Rocky Mountains and the Sierra Nevadas.

200. **Pocecetes gramineus** (Gmel.). VESPER SPARROW.

The Vesper Sparrow is a winter visitant, exceedingly abundant from the middle of October until the middle of March, in old fields where there is a growth of grass or weeds. It also commonly inhabits cotton and corn fields, but is rarely, if ever, found in the interior of forests. While in many respects essentially a field species, it commonly resorts to trees along the margins of fields during the morning and afternoon.

My earliest autumn record is October 9, 1895, and my latest spring record April 20, 1907. I have never detected many of these birds on any of the coast islands from Charleston to Bull's Bay, the character of the soil not being adapted to their wants.

Mr. W. B. Porcher secured a beautiful albino of this bird on December 14, 1900.

The Vesper Sparrow breeds from Virginia to Prince Edward Island.

201. **Passerculus princeps** Mayn. IPSWICH SPARROW.

This interesting species was discovered by Mr. C. J. Maynard at Ipswich, Massachusetts, on December 4, 1868, and was for

[1] Birds of America, III, 125-126.

[2] The following additional records have been made for this species: January 18, 1908, by Mr. Arthur T. Wayne; February 28, 1909, by Mr. Francis M. Weston, Jr.; April 18 and 19, 1909, a flock of eight or ten observed by Mr. Herbert R. Sass, in his garden in Charleston, and recorded in the *Bulletin* of the Charleston Museum, V, 1909, 37. In the vicinity of Camden, Mr. Nathan C. Brown (*Auk*, XXVI, 1909, 432) found this species abundant from December 12, 1908, to January 4, 1909, when he went to Aiken and observed it in decreasing numbers until he left late in February, when it was uncommon.—Ed.

many years considered rare. It is now known, however, to occur along the Atlantic coast from Nova Scotia to Cumberland Island, Georgia, where Mr. A. H. Helme secured a specimen on April 14, 1903. This is the most southerly record. The first record for Georgia was made by Mr. W. W. Worthington, who secured a specimen on January 8, 1890, on "Jack's Bank," Glynn county.

The first records for South Carolina were published by the writer in the *Auk*,[1] from three specimens taken for me at Cape Romain, by Mr. Daniel Legare Taylor, on February 5, 1902, as well as a specimen which I took March 4, 1902, on the mainland. On February 3, 1903, Mr. Taylor sent me four specimens, and on the 6th of the month one more, all taken at Cape Romain. From December 26, 1905, to March 21, 1906, I secured nine specimens on Long and Bull's Islands, and saw at least seven more which I was unable to obtain. Desiring to ascertain the date upon which the birds make their appearance in autumn, I visited Long Island on November 3, 1906, and am satisfied that I flushed one, but was unable to secure it. On November 6, I again visited the island and succeeded in obtaining a female. This specimen was moulting the feathers about the throat.

The Ipswich Sparrow frequents the coast islands during the winter and early spring, where it is found among the low sand hills upon which the wild oats (*Zizania miliacea*) grow, which appear to be its chief food. This is an insular species, and there are but three records of its occurrence out of sight and sound of the surf, including the specimens I took on March 4, 1902, near Mount Pleasant.

It is indeed strange that this species should have escaped the notice of such keen field naturalists as Wilson, Audubon, and Bachman, who undoubtedly visited its haunts during the winter months.

Specimens taken on [March 21 were moulting the feathers about the head and throat. A female taken on February 3, 1903, has the superciliary stripe very strongly marked with canary yellow.

As far as is known, the Ipswich Sparrow breeds only on Sable Island, off Nova Scotia.

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[1] XIX, 1902, 203.

202. **Passerculus sandwichensis savanna** (Wils.). SAVANNAH SPARROW.

The Savannah Sparrow is one of the most abundant of all the sparrows that winter on the coast. It is found in old fields, as well as in low, wet places where there are fields of broom grass. On the coast islands it is not unusual to see thousands in a day among the sand dunes where there are wild oats. My earliest autumn record is September 22, and many of the birds remain until the middle of May.

This species is very destructive to rice by pulling the seed which is about to sprout or has sprouted. In this respect it is as destructive as the Bobolink. While the birds sojourn here in the autumn, winter, and spring months, they feed almost entirely upon seed.

The moult begins in March and is not completed until late in April. I have taken and also seen several albinos of this species. An albinistic specimen taken February 14, 1901, closely resembles a very pale Ipswich Sparrow.

The Savannah Sparrow breeds from Pennsylvania to Hudson Bay, and is one of the commonest sparrows which breed in Labrador.

203. **Ammodramus savannarum australis** Maynard. GRASSHOPPER SPARROW.

This elusive species is an autumn, winter, and late spring visitant. My earliest autumn record is September 20, 1895. On April 28, 1884, I observed several specimens near Charleston which I then supposed were about to breed, but later observation revealed the fact that the birds remain until May 8, and do not breed. Mr. Leverett M. Loomis has stated in the *Auk*,[1] that it is resident in Chester county, and hence breeds.

The Grasshopper or Yellow-winged Sparrow frequents sandy fields where there is a growth of grass and weeds, and is never met with in wooded land. Although many individuals regularly winter, it is most abundant in October, November, and December.

204. **Passerherbulus henslowii** (Aud.). HENSLOW'S SPARROW.

Henslow's Sparrow is locally abundant from October 31 until March 28, and is, therefore, a winter visitant. It may arrive

[1] VIII, 1891, 167.

earlier in the month of October and remain later in the spring, but the first comers are hard to detect. This species is erratic in its movements, for during some winters it is positively rare, and again it is exceedingly abundant. During the months of January, February, and March, 1888, I found enormous numbers of these beautiful little sparrows near Yemassee. They arrive while in full autumn plumage, but towards the last of November they begin to moult the feathers about the head and throat. A specimen taken November 12, 1894, near Mount Pleasant, has the under part very heavily suffused with ochraceous buff, while the head, nape, and auricular region is yellowish olive green. This specimen is exceptionally richly marked and is very rufescent.

The species inhabits only low, wet lands where there is a growth of broom grass. It is a hard bird to flush from the ground, where it spends its time while here, rarely resorting to trees unless persistently hunted.

Henslow's Sparrow breeds from Virginia to southern New England, and northwestward to Minnesota.

205. **Passerherbulus leconteii** (Aud.). LECONTE'S SPARROW.

This secretive little sparrow was discovered by Audubon on the prairies of the Upper Missouri River in 1843. The first record of its occurrence in South Carolina was reported in 1882, by Mr. Leverett M. Loomis,[1] who obtained specimens in Chester county from November 11, to December 10, 1881. On January 26, 1886, I secured my first specimen within seven miles of Charleston. This specimen was recorded by my friend Mr. William Brewster in the *Auk*.[2] Its capture was the first record for the coast region. From December 6, 1893, to January 24, 1894, I observed this species in great numbers near Mount Pleasant and preserved thirty-two specimens. An account of the habits and abundance of the birds was published by the writer in the *Auk*.[3]

Leconte's Sparrow inhabits low lands which have grown up in broom grass, and is exceedingly difficult to flush. When flushed, it generally flies in a straight line and drops suddenly into the grass, and consequently must be shot while on the wing. It is very erratic in its migrations from the northwest, and from four

[1] *Bull. Nutt. Orn. Club*, VII, 1882, 54. [2] III, 1886, 410. [3] XI, 1894, 256.

to six winters may pass without a single specimen being seen. My earliest autumn records are November 9, 1905, and November 10, 1897. It is not possible to determine when the birds depart in the spring as the tracts of broom grass are burned towards the end of February for pasturage, but I have taken specimens on February 27, and am satisfied that many individuals remain until April.

The birds arrive in full autumnal plumage, but towards the end of November the moult of the feathers of the head and throat is begun, and is not complete in some individuals until January 15. I have observed this late autumnal moult in all species of the genera *Spinus*, *Poœcetes*, *Passerculus*, *Passerherbulus*, *Ammodramus*, *Zonotrichia*, and *Melospiza*.

Leconte's Sparrow breeds from Minnesota and Dakota to Manitoba and Assiniboia.

206. **Passerherbulus caudacutus** (Gmel.). SHARP-TAILED SPARROW.

Among the sparrows that inhabit the salt marshes exclusively during the autumn, winter, and spring, this species is the commonest. My earliest autumn record is September 23, and my latest May 16; none, however, breed. This bird inhabits only the salt marshes and feeds upon seeds during the autumn and winter. It arrives in great numbers just as soon as the seeds of the salt marsh ripen. In spring, however, it feeds upon a species of maritime moth which frequents the salt marshes. To a great extent it is a tide bird, like the other forms that inhabit the salt marshes. Upon the advent of the spring tides these birds are driven from the marshes and seek shelter among the grass and bushes that border the shore, but as soon as the tide recedes, they at once return to the marshes.

Although Mr. Frank M. Chapman states in his Birds of Eastern North America, that the Sharp-tailed Sparrow breeds in South Carolina, this statement is an error. It may breed in North Carolina, as it is known to breed from Virginia to New Hampshire.

207. **Passerherbulus nelsoni** (Allen). NELSON'S SPARROW.

The first record of the occurrence of this species on the Atlantic coast was based on specimens taken by the writer on October

8, 1884, at Mount Pleasant and recorded by Mr. William Brewster in the *Auk*.[1] It generally arrives about September 30, my earliest record being the 25th of that month, and it remains until June 1 in some backward seasons. This sparrow frequents only the salt marshes while it sojourns here, and is found in company with the Sharp-tailed, Acadian Sharp-tailed, Seaside, and Macgillivray's Sparrows. It migrates late in the spring, and I have noticed that birds which breed far north generally migrate much later than those which breed at points much farther south, and this is the case with all birds that are late breeders.

The breeding range of Nelson's Sparrow is the Mississippi Valley, from northern Illinois, Minnesota, and Dakota to Manitoba.

208. **Passerherbulus nelsoni subvirgatus** (Dwight). ACADIAN SHARP-TAILED SPARROW.

This form of the Sharp-tailed Sparrow was described by Dr. Jonathan Dwight, Jr., in July, 1887, from specimens taken in New Brunswick. Audubon was, however, well acquainted with this subspecies. In his Birds of America[2] he says:

> Some shot on the 11th of December, in the neighbourhood of Charleston in South Carolina, were so pale as almost to tempt one to pronounce them of a different species.

A subspecies was unknown in those days!

The Acadian Sparrow inhabits the salt marshes, and is only absent on the coast from June 5 until October 10. It is a common bird, and in relative abundance ranks next to the Sharp-tailed Sparrow.

This subspecies breeds from New Brunswick to southern Maine.

209. **Passerherbulus maritimus** (Wils.). SEASIDE SPARROW.

Although I have found this species on the coast from September until late in June, I have never found it breeding, and am of the opinion that the birds which remain through May and June are barren.

As its name implies, the Seaside Sparrow frequents only the the saltwater marshes, and, being strictly a tide bird, is found on the shores only when the tide is high. It is impossible to form even an estimate of the number of birds of this species that occur here in autumn, winter, and spring, for every marsh literally

[1] II, 1885, 216. [2] III, 109.

swarms with them. On May 6, 1899, I observed them near Mount Pleasant in enormous numbers, the marshes being literally alive with them. These birds were without doubt migrants from points to the southward and were on the way to their breeding grounds, for, upon visiting the place on May 8 and 9, I found the marshes deserted.

This species varies greatly in size. An adult male taken October 28, 1901, at Mount Pleasant, measured in the flesh 6.75 inches.

The Seaside Sparrow breeds from North Carolina (?) to southern Massachusetts.

210. **Passerherbulus maritimus macgillivraii** (Aud.). MACGILLIVRAY'S SEASIDE SPARROW.

Macgillivray's Finch was described by Audubon from a young bird taken by Dr. Bachman near Charleston, and was for many years considered by ornithologists to be the young of the Seaside Sparrow (*P. maritimus*), until Mr. Ridgway pointed out that it was subspecifically distinct and entitled to recognition by a character mentioned in Audubon's description, namely—the blackish mesial streak on the middle tail-feathers.

Audubon states in Birds of America:[1]

> My friend Dr. Bachman informs me that none of these Finches remain in South Carolina during winter, and that they generally disappear early in November, when the weather is still very pleasant in the maritime portions of that state.

My experience with this bird is exactly contrary to that of Dr. Bachman, as it is most abundant (if such a word can be used) during the autumn and winter months. Dr. Bachman must have referred to the young, which, however, have acquired the plumage of the adult before the middle of November.

I have been unable to find this form breeding on our coast, yet it is possible that it does, since the young in first plumage occur during the second week in July, and the adults in worn breeding plumage are to be seen during the third week in July. A distinct northward migration takes place about April 16, and continues until April 27, when all the birds have gone north, and of course to their breeding grounds.

The habits of this form are identical with those of the Seaside Sparrow.

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[1] III, 107.

Macgillivray's Sparrow breeds locally from Matanzas Inlet, Florida, to North Carolina.

211. **Passerherbulus maritimus fisheri** (Chapman). FISHER'S SEASIDE SPARROW.

This supposed race very closely resembles *P. m. macgillivraii*, from which it differs in having the chest, sides, and flanks buffy or ochraceous. Audubon found it in Texas and Louisiana and referred it to *macgillivraii*. I have taken near Mount Pleasant numerous typical specimens in the autumn and spring months. A "typical" specimen was taken on October 27, 1893, and another on April 16, 1901, thus indicating the southward, as well as the northward migration. It is my belief that *fisheri* is a synonym of *macgillivraii* Audubon, as it occurs in South Carolina in company with *macgillivraii* and must breed to the northward of this state, perhaps in southern North Carolina. If the birds I have taken on this coast are not migrants from Louisiana and the Gulf coast of Florida, then they must breed somewhere on the Atlantic coast.

This form of the Seaside Sparrow breeds along the coast of Louisiana.

212. **Zonotrichia leucophrys** (Forst.). WHITE-CROWNED SPARROW.

Audubon says of this species in Birds of America:[1]

> In the winter of 1833, I procured at Charleston in South Carolina, one in its brown livery.

Audubon must have been mistaken in his identification and have failed to recognize the White-throated Sparrow in its immature plumage, since the White-crowned Sparrow is a very rare bird in the South Atlantic states and does not winter.

On October 26, 1897, I secured a young male of this beautiful species near Mount Pleasant. It was in a corn field and I was attracted by its peculiar notes. This is the only specimen I have ever seen or taken, and as yet remains the only valid record for the State.

In eastern North America the White-crowned Sparrow ranges in the breeding season from Vermont (Rutland), Quebec, and Labrador, to southern Greenland.

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[1] III, 158.

213. **Zonotrichia albicollis** (Gmel.). WHITE-THROATED SPARROW.

The White-throated Sparrow is exceedingly abundant in autumn, winter, and spring. It arrives with great regularity in autumn, and I give two dates upon which the first birds have been observed, namely—October 9, 1895, and October 9, 1897. I have observed a few birds as late as May 16, but the great majority migrate towards the end of April. Audubon's statement[1] that "it arrives from the north in South Carolina about the first of November, and departs in the end of March" is, therefore, inaccurate.

This species inhabits thickets and is seldom seen in open woods where there is no cover. While it obtains its food on the ground during the winter months, its habits are changed with the approach of spring, for at that season it resorts to the tops of the tallest oaks and maples to feed upon their buds.

All through the winter the birds sing in a subdued manner, but the full volume of their song is not heard until March and April. The feathers of the head and throat are moulted in March and April, and I have also observed an autumn moult after the birds arrive here. I secured a beautiful albino of this species at Pinopolis on December 3, 1889.

This species breeds from Massachusetts, northern New York, etc., northward to Great Bear Lake.

214. **Spizella passerina** (Bechst.). CHIPPING SPARROW.

Since a few individuals of this species regularly breed on and near the coast, it is a permanent resident. My first record of the breeding of this bird was made at Ridgeville on June 3, 1886, when a female was taken with an egg in the oviduct, ready to be laid. This egg was plain blue in color, without marking. On May 29, 1896, I discovered in the interior of a large pine forest near Mount Pleasant, a brood of young just able to fly and being fed by their parents. I have since observed this pair or their descendants breeding annually in the same forest, which is within a mile of the salt marshes. I have not, as yet, taken a nest with eggs.

The Chipping Sparrow is most abundant in autumn, winter, and early spring, when it is found in thousands. The birds fre-

[1] Birds of America, III, 154.

quent hedges as well as the interior of large forests, and flocks of hundreds of birds are commonly to be seen in March. The song of the birds that breed near the coast very closely resembles that of Bachman's Warbler (*Vermivora bachmani*), and that of the Worm-eating Warbler (*Helmitheros vermivorus*), being wiry, or like the "song" of certain insects. This familiar species breeds from the Gulf States to Great Slave Lake.

215. **Spizella pusilla** (Wils.). FIELD SPARROW.

During the autumn, winter, and early spring months every hedgerow is full of these valuable and interesting little birds. They breed abundantly, yet locally, on and near the coast. At Yemassee, Ridgeville, and places not far from Charleston and Mount Pleasant, it is really abundant in the breeding season in open pasture lands that are here and there grown up with low bushes.

On the rice plantation of Mr. B. B. Furman, which is known as Fair Lawn, on the Wando River, it breeds on lands which are subjected to overflow from spring tides. The song period is of long duration, lasting from April until late in August.

Although I have never found the nest and eggs I am satisfied that three broods are raised each year. The first is on the wing late in May, and I have taken young birds at Yemassee as late as August 16. It appears that neither Bachman nor Audubon knew that either this species or the Chipping Sparrow ever bred in the low coast region of this state.

This species is subject to albinism. I have taken more than fifteen specimens during the past twenty-five years that showed albinism in a greater or less degree, and have seen perhaps as many more that I was unable to secure.

The breeding range of this species extends from northwestern Florida (Wacissa River), to Maine.

216. **Junco hyemalis** (Linn.). SLATE-COLORED JUNCO; SNOWBIRD.

This species is known by the name of Snowbird, the word Junco as applied to it being a book-name unknown to most persons in the State. My earliest records of the arrival of these birds are November 11, 1885, and November 4, 1897, and by the 20th of the month they are common. The Snowbird inhabits hedgerows which border woods and fields, but it by no means

always confines itself to such places, for I have seen it in the interior of large forests where there were no clearings. It is unable to withstand severe cold weather, especially when the temperature falls suddenly, for the great cold wave of February 13-14, 1899, killed enormous numbers. Early in March the Snowbird begins to migrate, and by the 21st of the month only a few stragglers remain. My latest record is March 22, 1910.[1]

Before the birds migrate in March, they moult the feathers of the head and throat, but I have not observed an autumnal moult.

I shot a perfect albino of this species at McPhersonville, on January 28, 1887. Although I have taken some examples which closely resemble the form *J. h. carolinensis*, which breeds and is apparently resident in the higher mountains of North Carolina, they are not typical of that race.

The Snowbird breeds from the mountains of Pennsylvania to the Arctic coast.

217. **Peucæa æstivalis** (Licht.). PINE-WOODS SPARROW.

A specimen of this species that I shot while it was singing on April 1, 1895, near Mount Pleasant, must be referred to *P. æstivalis*, rather than to *P. a. bachmanii* although it is not typical of the former. It is an adult male and agrees in many respects with some breeding birds of *æstivalis* from St. Mary's, Georgia. As this species is known to breed at Savannah, Georgia, there can be little doubt that it also breeds in the lower part of Beaufort county, South Carolina.

In 1891, I collected about Hardeeville and the Savannah River swamps, from April 28 to May 15, but as the season was advanced I refrained from shooting birds of this species because they were breeding and were consequently in worn plumage. The status of the typical form of this species is, therefore, still in doubt.

The Pine-woods Sparrow is known to breed from Savannah, Georgia, coastwise to southern Florida.

218. **Peucæa æstivalis bachmanii** (Aud.). BACHMAN'S SPARROW.

Neither Bachman, who discovered this bird in April, 1832,

[1]The latest records of the Charleston Museum for this species are: March 25, Navy Yard, Mr. F. M. Weston, Jr.; March 27, Isle of Palms, Mr. Henry Dotterer; and March 29, Mt. Pleasant, Mr. Weston. All of these records were made in 1909.—Ed.

near Parker's Ferry on the Edisto River, nor Audubon, who described it, was able to find its nest.

Bachman's Sparrow is a permanent resident and breeds abundantly in open pine woods, placing its nest on the ground in tufts of grass, or under jessamine vines and scrubby oak sprouts. The nest is cylindrical in shape and is constructed of grass tops, but if that material is wanting various weeds are used. All the nests that I have found were completely arched over. While the birds generally breed near a road or footpath, I have occasionally found nests in the interior of the forest away from such situations. They are exceedingly difficult to find, and can only be discovered by watching the female while building or upon her return to the nest after feeding. The male takes no part in the construction of the nest, neither does he assist in incubating the eggs, but simply stays near the place where his mate is and pours forth his exquisite song.

The date of breeding varies greatly in different seasons. I have found eggs almost hatched as early as April 7, and have seen young birds nearly fledged on May 2, while I have watched other birds which did not begin to build until late in April. As a rule, however, the eggs are laid between April 28 and May 4. Three broods are raised, the last being hatched in August, as I have taken eggs as late as July 23. Of a set of four eggs taken in 1887 at McPhersonville, one measures .79 × .63, the other three, .75 × .63. The eggs number four or five and are pure white, generally without gloss, but I have taken specimens as glossy as most woodpecker's eggs.

This bird is the finest songster of the sparrow family. The song period is of long duration, beginning in February and lasting until the middle of August. I quote from my notebook dated February 26, 1901, the following: "Heard a Bachman's Finch sing beautifully at night. He sang as sweetly as if it were May, although the night was very cold and the ground partly covered with snow and ice." Bachman's Finch spends the winter months in broom-grass fields which are adjacent to pine woods, and at this season utters only a few chirping call-notes. It lies close to a dog and in this respect resembles the Bob-white.

219. **Melospiza melodia** (Wils.). SONG SPARROW.

My earliest record for the arrival of this winter visitant is September 22, and by October 5 it is common. As soon as the males

arrive from the north in the autumn they herald their presence with song, and the song period lasts all through the winter when the temperature is not below the freezing point.

The Song Sparrow is commonly found almost everywhere while it sojourns here, but it seems to prefer low bushes and thickets which are near fields rather than the interior of the forest. At all times it appears to have a predilection for low, wet lands, and its date of arrival in autumn is governed by the presence or absence of water on the land. I have noticed that if there is a drought the birds do not arrive until about October 9. This is a hardy species. It migrates during the second week in March and I have never observed it later than March 30 except on April 22, 1907, when I saw one near Mount Pleasant.[1]

The Song Sparrow breeds from Virginia to the Gulf of St. Lawrence.

220. **Melospiza georgiana** (Lath.). SWAMP SPARROW.

The Swamp Sparrow arrives in the autumn by October 5, and if the conditions of the weather are favorable, that is, if there is water upon the land, the birds are abundant by the 16th of the month. I have detected this species as late as May 16, yet it does not breed. It inhabits low, swampy lands where there are bushes or thickets of briars as well as fields of broom grass, and I have found it commonly in the interior of large swamps.

There is an autumnal moult after the birds arrive, which is confined to the head and throat, as well as a regular spring moult before they depart for the north. Prof. Robert Ridgway states:[2]

> That the chestnut crown-patch is not a seasonal character is proven by specimens, of both sexes, thus marked, which were obtained in autumn and winter.

I dislike very much to question this statement of so eminent an authority, but the fact remains that I have yet to see a specimen in the autumn and winter months which has a chestnut crown-patch. The spring moult begins about the middle of March and the chestnut crown-patch is perfected by April 9.

This species breeds from the Northern States northward to Labrador.

221. **Passerella iliaca** (Merr.). FOX SPARROW.

This species is a very late autumn, winter, and early spring

[1] The Charleston Museum has a number of April records of this species, e. g.—April 13, 1906, and April 14 and 21, 1907, by Mr. F. M. Weston, Jr.—Ed.

[2] Birds of North and Middle America, I, 382.

visitant. My earliest date of arrival is November 24, 1885,[1] and it remains until the middle of March. If the spring is forward, however, the birds are absent at the beginning of March. The Fox Sparrow frequents woods which are covered with an undergrowth of thickets and bushes, and where this feature is absent the birds are not to be met with. When the weather is mild in the winter months they can be heard singing their beautiful song at all hours of the day, and even after sunset.

The great cold wave of February 13 and 14, 1899, destroyed millions of these birds. There was a tremendous migration of Fox Sparrows on Monday, the 13th, following the coast line of the mainland. They apparently came from the northeast, migrating in a southwesterly direction. Thousands tarried in my yard all day long and swarmed in the piazza, fowl-yard, and every place that would afford protection. They would scratch away the snow in order to find a bare place, singing—that is the stronger birds—the whole time, while their companions were freezing by the hundreds. When they were benumbed by the intense cold, Boat-tailed Grackles (*Megaquiscalus major*) and Red-winged Blackbirds (*Agelaius phœniceus*) would peck them at the base of the skull, killing them and eating them. The stronger Fox Sparrows would also eat their dead companions. It was a most pathetic sight.

The Fox Sparrow breeds from the Magdalen Islands in the Gulf of St. Lawrence to the Arctic coast.

222. **Pipilo erythrophthalmus** (Linn.). TOWHEE; CHEWINK.

This well known winter visitant is locally known as the "Bull Finch." It arrives by October 7, and remains until late in April; none, however, breed. It is exceedingly abundant where there is an undergrowth of bushes and tangled thickets, and associates freely with White-throated, Song, Swamp, and Fox Sparrows. During the winter months this bird spends all its time on the ground searching for food, but as soon as spring arrives and the deciduous trees put forth their tender leaves the birds resort to the tallest trees to feed upon the buds. The song period is of short duration. Although many authors have stated that this species migrates by day, this is an error for the birds always migrate at night.

[1] The earliest record of the Charleston Museum for this species is November 21, 1908, when it was reported from St. Andrews Parish, by Mr. F. M. Weston, Jr.—Ed.

This form breeds in the interior and mountainous parts of the State and as far north as Maine, Ontario, and Manitoba.

223. **Pipilo erythrophthalmus alleni** Coues. WHITE-EYED TOWHEE.

This bird is also known as the "Bull Finch" on the coast of South Carolina, and is not commonly distinguished from the preceding species. The White-eyed Towhee is a permanent resident, and breeds in the same woods year after year, placing its nest, which is composed of weeds, grass, and occasionally a few dead leaves, almost invariably in low bushes from two to four feet above the ground. In two instances, however, I have found the nest actually upon the ground. Full complements of eggs can usually be obtained between May 10 and 12, but on April 14, 1903, I discovered young birds nearly fledged and being fed by their parents. The season of 1903, however, was remarkably early and many birds bred that year from two to three weeks earlier than I have ever known before. Two or three broods are raised each year and the number of eggs is three or four. The last brood is on the wing late in August and almost invariably numbers three, while the first brood usually numbers four. The eggs are white, very thickly speckled with pinkish red, and measure .90×.70.

This towhee is very much shyer than *P. erythrophthalmus*, and its notes are in a higher key, while the song is shorter. It never leaves the forest in which it breeds and when *erythrophthalmus* is here during the winter and early spring months, *alleni*, instead of being on friendly terms with it, usually drives it away. It does not require a microscope to identify this towhee when it is in one's hand, or in the field, as the yellowish white eye is a conspicuous character, and always holds good. I have seen the iris pure white, and have yet to see a specimen in adult plumage that I cannot distinguish on sight.

Mr. Benj. T. Gault, of Glen Ellyn, Illinois, while paying me a visit in March, 1903, secured a female *erythrophthalmus* which has nearly three times as much white on the lateral rectrices as several individual females of *alleni*. A female *alleni* that I took on March 3, 1904, lacks all traces of the white spot at the base of the primaries, which is a constant character of *erythrophthalmus*. Mr. Ridgway in his great work, Birds of North and Mid-

dle America,[1] says the range of *alleni* is "Florida (grading into *P. erythrophthalmus* in Georgia, lower South Carolina, etc.)." I have always been of the opinion that *alleni* is a distinct species and not a subspecies, which, in the majority of cases requires a magnifying glass to bring out the distinguishing characters. I think that *alleni* should be accorded full specific rank.

This form breeds on all the coast islands where there are thickets or clumps of low bushes.

224. **Cardinalis cardinalis** (Linn.). CARDINAL; REDBIRD.

The Redbird, as this species is universally known throughout the whole state, is a permanent resident and breeds everywhere—in the densest swamps as well as on the high land, and also in the city of Charleston. Three broods are raised each year. I have found eggs containing large embryos as early as April 15, but the great majority of the birds begin to incubate towards the latter part of the month. The nest is bulky and is constructed of dead leaves, twigs, Spanish moss, and grass, being lined with fine grass and weeds. From two to four eggs are laid, generally three and rarely four. They vary endlessly in color, being white, bluish white, or even greenish white, speckled, spotted, or even very heavily blotched with brownish gray, reddish brown and chocolate, and measure 1.00×.73. The nest is generally built in bushes or low trees and ranges from four to twelve feet from the ground, but it is sometimes placed as high as thirty feet. In the family Fringillidæ, the female alone constructs the nest as well as incubates the eggs; the male merely stays near at hand and sings; he assists, however, in feeding the young until they are fully fledged.

The Cardinal sings all through the winter months when the weather is clear and mild. In spring and summer these birds are insect eaters, but in autumn and winter they feed upon seed and grain. They are very destructive to crops of rice and millet.

This fine bird breeds regularly as far north as New York City.

225. **Zamelodia ludoviciana** (Linn.). ROSE-BREASTED GROSBEAK.

Audubon says of this species in Birds of America:[2]

It is never seen in the maritime parts of Georgia, or those of the Carolinas, but some have been procured in the mountainous portions of those States. This species is never seen in South Carolina.

[1] I, 426. [2] III, 210-212.

On May 9, 1890, Mr. W. F. Colcock brought me an adult male of this beautiful species. It was shot in Saltkehatchie Swamp, near Yemassee, which is only a few miles from the tide-water. A few days later another male was seen. This is the first record for lower South Carolina, and the capture of the bird was recorded by the writer in the *Auk*.[1] Mr. Leverett M. Loomis found this species to be a regular spring and autumn migrant in Chester county.

The Rose-breasted Grosbeak breeds in the higher mountains of North Carolina and northward to the Saskatchewan River.

226. **Guiraca cærulea** (Linn.). BLUE GROSBEAK.

Fifteen years ago the Blue Grosbeak was comparatively abundant within a few miles of Charleston, as well as along the line of the Charleston and Savannah Railway from Ravenel's to Hardeeville, but it is now so rare a bird that I have not observed one since September 26, 1901, when an adult male in very worn plumage was secured.[2]

My earliest spring arrival is April 18, 1891, and the latest autumn record is October 15, 1888. The birds are thus in the State a little more than six months.

The Blue Grosbeak inhabits open lands which are low and swampy and partially covered with a second growth of bushes and trees. It seems to prefer the rice plantations, where it obtains an abundance of food. It frequents the fields of oats in May and June, but as soon as the rice begins to mature in the autumn, members of a family resort to the fields. As the birds were never really abundant, but little if any damage was done to those crops. The song of the male is very fine and somewhat like that of the Orchard Oriole or the Ricebird, but the call note is nasal and resembles the word *chink*.

During all the years that I have spent in the woods and fields, but one nest of this bird has come under my observation. It was found in June, 1884, within a few miles of Charleston, and contained two young birds and one addled egg. The nest was situated in a low bush and was constructed of weeds, dry leaves, and grass, lined with rootlets, while a large portion of a snake skin was twined around the outside. The eggs are three or four

[1] VII, 1890, 410.

[2] This species was reported near Charleston on May 31, 1907, by Mr. F. M. Weston, Jr.—Ed.

in number, pale blue, and measure .84×.66. Two broods are raised; the first is on the wing late in June, while the second brood is abroad in August.

I have an adult female which closely resembles the immature male of the third year, and I believe that it requires at least four years before the males acquire their full adult plumage.

The Blue Grosbeak ranges in the breeding season from Florida to Pennsylvania, while stragglers have been taken in Massachusetts, New Brunswick, and Quebec.

227. **Passerina cyanea** (Linn.). INDIGO BUNTING.

The Indigo Bird is very locally distributed in the breeding season, being tolerably abundant in some localities while absent in others. It seems to prefer clearings which border swamps of willow or cane. This species is a summer resident, generally arriving by April 22 and remaining until November 3. In autumn, especially in the month of October, large flights take place. On some cold days hundreds can be seen in a radius of a quarter of a mile.

The Indigo Bird is a persistent singer and the song period of the male is of long duration, lasting from April until the middle of August. The birds resort to oat fields in May and June to feed upon the grain, but they are chiefly insectivorous from April to September and graminivorous in the autumn months. Of the thousands of individuals that I have observed in the autumn months, I have never seen one in the plumage of the adult male in spring, and believe that the latter assume the plumage of the females and young males in the autumn.

A nest of this species that I found near Charleston on May 28, 1889, was built in a cane, four feet from the ground in a large swamp, and contained four slightly incubated eggs. The eggs are pale bluish white, and measure .73×.57.

This species breeds as far north as Nova Scotia and winters in Central America.

228. **Passerina ciris** (Linn.). NONPAREIL; PAINTED BUNTING.

This gorgeous bird is a summer resident. The adult males arrive irregularly in April, my earliest record being April 9, 1888, while in other years I have not observed them until the 18th or 23rd. The females appear from five to nine days after the males.

As soon as the females arrive mating begins and battles take place daily between the males, which are always extremely pugnacious. In an adult male taken June 24, 1891, nearly every feather on the top of the head was missing, undoubtedly lost in these encounters. This particular specimen is abnormal or represents a rare plumage, for the throat, jugulum, and eye ring are bright yellow instead of red. On many occasions I have seen males engaged in combat which did not cease until one was killed. I have repeatedly caught them while fighting, and a male which I examined shortly after a fight had both eyes completely closed.

This species is easily caught in trap-cages in the months of April and May. A decoy bird is placed in a cage and the latter is then placed near some hedge where Nonpareils are present. As soon as a male perceives a bird of his species in the cage, he at once makes for it and is caught. Large numbers used to be taken in this manner. They become tame almost at once, and seem to prefer hemp seed as an article of food when in captivity.

This species is very abundant along the coast, frequenting open country where there are hedgerows and scattered trees. Hundreds can be seen in a single day during April, May, June, and a portion of July. In autumn, especially October, however, the adult males are rarely seen, being very shy and seldom showing themselves for more than a few seconds at a time. At this season the birds resort to places where a species of grass grows in low, wet lands and bears innumerable seed, upon which they feed. The adult male in autumn is much darker than in spring and the head is marked with purplish bronze. This species sheds the tarsal scales as well as the surface of the bill in autumn. It remains until November 4.

The nest is composed of weeds, skeletonized leaves, and grasses, lined with fine grass or horse hair, and is placed in low bushes, in the branches of tall trees, and often in bunches of Spanish moss, where it is completely concealed. This beautiful bird breeds in numbers in the city of Charleston. The eggs are three or four in number, white or bluish white, speckled, spotted or even blotched with reddish brown. They measure $.75 \times .55$. I have taken eggs on May 18, June 11, and as late as July 15. Three broods are raised each year and sometimes even four as I have seen very young birds as late as September 16.

The Nonpareil winters in Mexico, Central America and Cuba.

229. **Spiza americana** (Gmel.). DICKCISSEL; BLACK-THROATED BUNTING.

Although this species is now considered by almost all ornithologists to be extinct within the past thirty years, throughout the whole extent of the Atlantic coastal plain, this impression is not well-founded, at least as far as the states of Georgia and South Carolina are concerned, for the Black-throated Bunting or "Judas-bird" breeds at Augusta, Georgia, as well as in Aiken and Fairfield counties, South Carolina. For the Georgia record I am indebted to Dr. Eugene Edmund Murphey, and for the Fairfield record to Mr. R. Henry Phillips, who wrote me under date of May 20, 1906, as follows:

The Dickcissel or 'Judas-bird,' as we call the Black-throated Bunting here [Winnsboro], nests in natural meadows on our creeks.

During the past twenty-five years that I have devoted to ornithology, I have seen but one of these birds, and that one was observed in April, 1883, on Hobcaw plantation, which is within sight of the city of Charleston.

This species winters in Central and South America.

230. **Calamospiza melanocorys** Stejn. LARK BUNTING.

The Lark Bunting inhabits the Great Plains between the Missouri River and the Rocky Mountains, and is a very rare bird east of the Missouri River. I took one adult female on April 19, 1895, near Mount Pleasant, which is the first record for South Carolina. It was recorded in the *Auk*,[1] and I herewith transcribe the account of the capture which I wrote for that journal:

One afternoon in the early part of April, [1895,] I noticed a very plump looking sparrow while I was walking down a road which had a very thick hedge on one side. This bird was in the top of a bush when I noticed it and it bore a strong resemblance to the Grass Finch (*Poœcetes gramineus*), only it was larger. I fired at it with a small collecting pistol and slightly wounded it. Day after day I visited the spot hoping to see the bird again. Eight days afterwards, April 19, early one morning I saw the same bird within a few yards of the place where I had wounded it. It was perched on a low bush and upon seeing me flew down into a field where a lot of White-throated Sparrows were feeding. This time I secured it. Upon examination I was completely puzzled for it was a new bird to me. I had in mind the Lark Bunting (*Calamospiza melanocorys*), and specimens of this bird, kindly sent me by Messrs. Brewster and Chapman, confirmed my suspicions. The bird is an adult female and evidently wintered, as it was moulting about the throat. It seems strange that this bird was taken within 200 yards of the place where I shot the Missouri Skylark, and Little Brown Crane, recorded in recent numbers of the *Auk*.

In the Atlantic states this species has also been taken at Lynn,

[1] XII, 1895, 305-306.

Massachusetts, December 5, 1877, by Mr. N. Vickary[1] and at Montauk Point, Long Island, New York, September 4.[2]

FAMILY TANGARIDÆ: TANAGERS.

231. **Piranga erythromelas** Vieillot. SCARLET TANAGER.

Audubon says of this species in Birds of America:[3]

My friend Dr. Bachman informs me that they are seldom met with in the maritime districts of South Carolina; and that there they follow the mountain range as it were for a guide.

That this exquisite species is excessively rare in the maritime districts is proven by the fact that during the past twenty-five years I have seen but two birds, one of which, an adult male, I secured on April 30, 1889, on Oakland plantation near Mount Pleasant, and the other, also an adult male, I observed on the plantation of Mr. F. W. Heyward, near Oakley, on April 29, 1884. My friend Mr. Herbert Ravenel Sass informs me that he observed two males in his garden in Charleston; the first on May 3, 1905 and the second on April 29, 1908.

The Scarlet Tanager breeds in the mountains of South Carolina, northward to Ontario and Manitoba, and winters in northern South America.

232. **Piranga rubra** (Linn.). SUMMER TANAGER; SUMMER REDBIRD.

The Summer Redbird is an abundant spring, summer and autumn resident. The birds arrive with great regularity in the spring and I herewith give three dates upon which the first ones have been observed, namely—March 31, 1896, April 5, 1897, and April 4, 1902. My latest autumn record is September 23, 1884, and this date represents the limit of their sojourn in the fall.[4]

This species prefers open pine woods with an undergrowth of scrubby oaks and small hickory trees in which to breed. The birds breed much earlier now than they did twenty years ago as the following record will show: May 22, 1884, eggs fresh; May 22, 1886, four eggs, small embryos; May 28, 1886, three eggs, slightly incubated; May 30, 1886, three eggs, slightly incubated; May 21, 1890, Yemassee, four fresh eggs—saw both male and

[1] Allen, *Bull. Nutt. Orn. Club.* III, 1878, 48. [2] Evans, *Auk*, VI, 1889, 192. [3] III, 227.

[4] The Charleston Museum has the following records for this species later than those given in the text: September 24 and 25, 1908, Mr. H. R. Sass; September 27, 1907, Mr. F. M. Weston, Jr.—Ed.

female on nest at the same time; June 1, 1891, three eggs, small embryos; May 14, 1896, four fresh eggs; May 21, 1897, four slightly incubated eggs; May 16, 1898, four fresh eggs; May 11, 1900, four fresh eggs; and May 12, 1900, four fresh eggs.

The nest is placed upon a horizontal branch of a tree or small sapling, from four to thirty-five feet above the ground. It is constructed of weeds and fine grass, lined with a peculiar species of grass which is plucked when green, and which soon bleaches to a yellowish color. Some nests are so frail that the eggs can be seen from the ground. Three or four eggs are laid and these are bluish green, speckled, spotted and blotched with lilac, cinnamon, and dark brown. They measure .95×.65. Only one brood is raised unless the eggs have been taken, when the birds will lay again and again until a brood is brought forth. The length of time consumed in constructing a new nest as well as laying the full complement of eggs is eleven days. The young males breed the following spring and are as persistent in singing as the adult males. This species used to breed in the grounds of Mr. D. C. Ebaugh, but at the present time it does not breed nearer the city of Charleston than Magnolia and St. Lawrence cemeteries.

This tanager is an expert flycatcher and in this respect equals many species of the Tyrannidæ.

It breeds from Florida to southern New Jersey, and winters in Central and South America.

FAMILY HIRUNDINIDÆ: SWALLOWS.

233. **Progne subis** (Linn.). PURPLE MARTIN.

The Purple Martin, a summer resident, arrives with great regularity in February and I herewith mention a few dates upon which the first birds have been observed, namely—February 28, 1891; 26, 1898; 26, 1899; 18, 1901; 28, 1902; 29, 1904; 21, 1906; 16, 1907. The males generally arrive first, but on February 26, 1899, the female was noted first, and by March 7, they are abundant. It sometimes happens that very severe weather ensues after the birds arrive, and they are obliged to remain in their boxes, but I have but once known them to die from the effects of the cold. On Tuesday morning, February 14, 1899, the temperature registered 6° above zero at Charleston, and although the weather moderated greatly during the following four or five

days, it was followed again by a very severe cold wave accompanied with snow. Although the Purple Martin had arrived before the advent of the second blizzard, I did not observe any dead birds, despite the fact that insect life was absent for at least three or four days. On April 14 and 15, 1907, however, large numbers died from cold and starvation during the prevalence of gales and cold weather.

The Martins breed in boxes and gourds which are erected for them, but I have also observed them breeding in woodpecker holes in dead pine trees near settlements. The nests, which are composed of a few leaves and grasses, are built towards the last of April, and the eggs are laid in some forward seasons during the first week in May, but as a rule the birds begin to lay about the middle of the month. The eggs are four or five in number and are pure white, measuring .98 × .73.

Although Audubon says that this very familiar species "frequently rears three broods whilst with us," it certainly does not raise more than one in the vicinity of Charleston, unless the eggs have been taken or destroyed, when the birds will lay again.

The young are able to fly by the last of June and the whole colony resorts to pine woods during the day, returning late every afternoon to the boxes in which they were raised, for at least two weeks or more, when they migrate southward. During the autumn migrations I have frequently observed countless thousands of these birds which resorted to the grounds of Mr. D. C. Ebaugh in Charleston, to spend the nights among the tall trees in his beautiful garden. The numbers of the birds were so great that limbs were actually broken from the trees and the noise produced by such a multitude resembled the sound of escaping steam. At irregular intervals the birds resorted to the live oak trees in White Point Garden in the city of Charleston to spend the nights, but they had become such a nuisance that the authorities resorted to the "water cure," which was thrown upon them by a hose attached to a hydrant. This severe treatment of these valuable insectivorous birds seriously reduced their ranks, but it was considered necessary to exterminate them on account of the pleasure-seekers who nightly visited the Battery! These birds were without doubt migrants from points far to the northward of South Carolina as the resident breeding birds migrate late in July.

The Purple Martin breeds from Florida to New Brunswick, and westward to the Saskatchewan; in winter it ranges from southern Florida to South America.

234. **Petrochelidon lunifrons** (Say). CLIFF SWALLOW.

It appears that neither Bachman nor Audubon ever met with this species in the vicinity of Charleston or on the coast of this state. I first detected its occurrence on April 28, 1898, when two specimens were secured near Mount Pleasant, and on May 8 of the same year two more were obtained. These birds were in company with Barn Swallows, and were easily identified by the pale rufous upper tail-coverts and comparatively square tail. On August 30, 1904, I saw an individual in company with many Barn Swallows. My impression is that Mr. William Brewster has seen this swallow near Charleston, but did not take a specimen. The specimens procured by me are the only records for the State.

Although the range of this species includes nearly the whole of North America—even to the Arctic Ocean in the breeding season—it does not breed in South Carolina, where it is only a rare transient visitant. It winters in Central America.

235. **Hirundo erythrogaster** Bodd. BARN SWALLOW.

Although the Barn Swallow is said to breed in this state by Audubon, [1] and also by Prof. Ridgway, [2] these statements are certainly erroneous as far as the coast region is concerned, and I also doubt if it breeds in any portion of the State, for Mr. Leverett M. Loomis does not report it from Chester as breeding, and he does not record it for Mount Pinnacle or Cæsar's Head.

The Barn Swallow arrives late in March and sporadic examples are occasionally seen as late as June 21-22. The return migration takes place by July 12—my earliest record—and continues until the middle of October. In autumn great flights take place which number thousands of birds. On such occasions the birds appear to follow the coast line, migrating in a southwestwardly direction. A belated specimen was observed on October 29, 1906.

The Barn Swallow winters from Florida to South America.

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[1] Birds of America, I, 182. [2] Birds of North and Middle America, Part III, 81.

236. **Iridoprocne bicolor** (Vieill.). TREE SWALLOW; WHITE-BELLIED SWALLOW.

This species is a winter visitant but is absent on the coast only from the middle of May until July 12, when the southward migration begins. I have detected it all through the winter months and even when the thermometer registered as low as 8° to 10° above zero, but it is erratic in its movements, for during some winters it is positively rare, or even absent. This absence is not due to a rigorous season or an open winter, but to the scarcity of the food supply, which consists of berries of the wax myrtle (*Myrica cerifera*). During the autumn migration, and especially in the month of October, I have seen multitudes of these birds flying over large tracts of myrtle bushes. Dr. Bachman observed a similar occurrence on October 16, 1833, and doubtless near Charleston.

This species has a predilection for large rice-field reservoirs during the winter months as insect life is abundant in such localities. The White-bellied Swallows are of a pugnacious disposition, and attack each other without the slightest provocation.

The breeding range of this species extends from Virginia to the Fur Countries.

237. **Riparia riparia** (Linn.). BANK SWALLOW.

As far as my observations extend, this species does not breed on our coast, being merely a transient visitant, arriving late in March and departing the last of April. Although it is said to breed on St. Simon's Island, Georgia,[1] this statement is doubtless an error as the species I found breeding at Darien (which is only a few miles from St. Simon's Island) in May, 1891, was the Rough-winged Swallow (*Stelgidopteryx serripennis*). As far as my information goes there is no breeding record for the State.

The Bank Swallow cannot with certainty be distinguished from the Rough-winged Swallow when both forms are together and at large, and it is necessary to shoot them in order to make the identification absolute.

The Bank Swallow inhabits the northern hemisphere. In America it breeds as far north as the Arctic Ocean and winters southward to Brazil.

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[1] Bailey, H. B., *Bull. Nutt. Orn. Club*, VIII, 1883, 39.

238. **Stelgidopteryx serripennis** (Aud.). ROUGH-WINGED SWALLOW.

The type specimen of this swallow was taken near Charleston by Audubon.[1] The bird is a permanent resident on the coast and breeds abundantly along rivers which are flanked by bluffs as well as in the sand hills on the coast islands. It also breeds in crevices of buildings, and this is the case on Sullivan's Island, where there are no sand hills suitable for excavations. On January 26, 1884, I observed large numbers of these swallows on Sullivan's Island, and on December 22, 1894, I shot a specimen near Mount Pleasant, which had been in the neighborhood for over a month, and which had roosted in a barn since November. This specimen was worthy of a permanent record and it was made by the writer in the *Auk*.[2]

The nest is composed of grass and a few feathers and is placed in a bank near the surface. The tunnel excavated by the birds extends inward from three to six feet. During the prevalence of spring tides the water frequently submerges the holes and the eggs and young are destroyed. In some forward seasons the birds have completed their tunnels and commenced to build nests as early as April 9. The eggs, which vary from four to six in number, are pure white,and measure .75×.53. In my experience but one brood is raised. The young birds do not appear to moult the outer two primaries until they are more than a year old, and hence lack the barbs on the outer primary.

The birds of this species which winter along the coast, generally, if not invariably, confine themselves to large bodies of water adjacent to wooded lands.

On the Atlantic coast this species breeds northward to Massachusetts.

FAMILY BOMBYCILLIDÆ: WAXWINGS.

239. **Bombycilla cedrorum** Vieill. WAXWING; CEDAR BIRD.

The Cedar Bird is a late autumn, winter, and late spring visitant. A few birds arrive by the middle of November,[3] but they are erratic in their movements and their presence or absence depends upon the crop of berries of the wild orange (*Prunus caroliniana*), black gum (*Nyssa multiflora*), and swamp tupelo (*Ny-*

[1] Birds of America, I, 194. [2] XII, 1895, 184.

[3] The earliest record of the Charleston Museum for this species is October 12, 1908, when it was observed by Mr. H. R. Sass in his garden in Charleston.—Ed.

ssa aquatica). If these berries are plentiful the birds remain during the months of January and February, but if the fruit of the latter two trees is scarce the birds migrate and do not return until the middle of February. Since the birds have voracious appetites it does not take long for them to strip the trees of their berries, especially as the Hermit Thrush and American Robin also eat the fruit of these trees. The swamps are of course first denuded of their fruit, as the black gum and tupelo flourish only in such situations. On the return migration in February the Waxwings resort to settlements where the wild orange is found and quickly denude the trees of the berries. As soon as these berries are exhausted the birds migrate and there is a hiatus until the last few days in March, when they again appear and feed upon cedar berries and insects. I have noted large flocks as late as April 22, but by May 1, few, if any remain. My friend Mr. Herbert Ravenel Sass observed small flocks of these birds in his garden in Charleston as late as May 21, 1907. It must be borne in mind, however, that the spring of 1907 was exceptionally late. The winter of 1886 was noted for a great crop of berries and although the weather was exceptionally severe in January, the Waxwings were observed in tremendous numbers, their ranks comprising thousands of individuals.

Although Mr. Leverett M. Loomis procured examples of this species on Mount Pinnacle on June 22 and 26,[1] and also at Cæsar's Head, June 22 and 26,[2] there is no evidence that these birds were breeding or even about to breed in these mountains since Mr. Loomis does not speak of finding any nests.

The Cedar Waxwing breeds from the mountains of North Carolina northward to Hudson Bay, and winters southward to Jamaica and Central America.

FAMILY LANIIDÆ: SHRIKES.

240. **Lanius ludovicianus** Linn. LOGGERHEAD SHRIKE.

This well-known species is a permanent resident and breeds abundantly near settlements as well as in the interior of large forests. The birds begin to mate by the middle of February and nest building commences towards the latter part of the month. During cold and blustering weather, however, which is always prevalent in March, the birds do little work on their nests, in fact

[1] *Auk*, VII, 1890, 125. [2] Ibid, VIII, 1891, 329.

they often abandon them and start new ones. Hence it is rare to find nests which contain full complements of eggs before March 30. The nest is large and compact and is constructed of small sticks, vines, rags, cotton, and weeds, lined with palmetto fiber, hair, and occasionally a few feathers. It is generally placed in very thick live oak trees or in bushes, and the height ranges from seven to sixty feet above the ground. The number of eggs of the first brood is generally six, of the second five and of the third four, or sometimes five. They are white or greenish white, speckled and spotted with olive brown and lavender, and measure 1.00×.78.

Although Audubon[1] quotes Dr. Bachman as saying that "this species breeds twice in a season, lays four and sometimes five white eggs," this statement is erroneous as the eggs are distinctly spotted and the number laid is generally six, as I have pointed out.

This species feeds upon grasshoppers, crickets, small birds, and mammals, and has the habit of impaling them on thorny trees and barbed wire fences. One of these birds caught a Savannah Sparrow and impaled it on a plum tree in my yard, but instead of returning to eat it, left it to decay. The Loggerhead defends its nest and young with great vigor and fearlessness and I have often had the birds come within a few feet of me while I was examining the contents of their nests. Although the song of this species is considered by most ornithologists to be harsh and unmusical, I have heard a few individuals which sang very sweetly.

The Loggerhead still breeds in the city of Charleston.

FAMILY VIREONIDÆ: VIREOS.

241. **Vireosylva olivacea** (Linn.). RED-EYED VIREO.

Although Audubon[2] says of this species, that "in South Carolina, in the neighborhood of Charleston, I have heard and seen it early in the month of February, when scarce a leaf was yet expanded," this statement is certainly an error, as during the past twenty-five years that I have spent constantly observing the arrival, departure, and habits of our local *avifauna* I have never noted this species before the 31st of March, and this is an exceptionally early date, for even in advanced seasons like 1890, the first bird was not observed until April 8. If the bird Audubon

[1] Birds of America, IV, 137. [2] Ibid, IV, 156.

saw and heard was a vireo, it was undoubtedly the Blue-headed (*Lanivireo solitarius*) or the Mountain Solitary Vireo (*Lanivireo alticola*).

The Red-eyed Vireo is not as abundant in the breeding season as the White-eyed Vireo, but at least a dozen pairs may be found breeding in a forest of a hundred acres. This species is a persistent songster and even during the hottest part of the day, when most of the other denizens of the forest are silent, the Red-eyed Vireo sings for hours at a time.

The nest is built in some forest tree and is pendant, being suspended from a forked limb about eighteen feet above the ground. It is constructed of bark strippings, pieces of rotten wood, firmly wound with dead threads of Spanish moss, and lined with pine needles and fine grass. The eggs are three in number, pure white, with a few specks or spots of dark reddish brown at the larger end. They measure .85×.50. I have occasionally taken eggs that were unmarked. Two broods are raised, for I have seen young birds in May and July. The eggs are laid early in May in some forward seasons, but I have watched birds that did not commence to build nests until the middle of May.

The controlling influence upon the migration of this species in autumn is the presence or absence of the fruit of the magnolia (*Magnolia fœtida*), which begins to ripen during the first week in September, and continues through October, many seeds remaining in the cones until November. The color is coral red, and some specimens are about three-fourths of an inch in length, but the great majority average about half an inch. These seeds contain a large amount of oil, and when this vireo has been feeding upon them for any length of time, it becomes very fat. There are many beautiful trees on this plantation, and I have often sat on the steps of the old Colonial house and watched these birds feeding. The tree with the most fruit attracts nearly all the vireos in a radius of perhaps a quarter of a mile, and I have often counted as many as fifty in one tree. As long as the fruit is to be had in abundance, the vireos remain, but as soon as the supply becomes scarce or exhausted, they depart. These birds are all migrants from points far to the northward of South Carolina, and I have never detected this species later than October 20.

The Red-eyed Vireo breeds from Florida northward to the Fur Countries, and winters from southern Florida southward to Brazil.

242. **Lanivireo flavifrons** (Vieill.). YELLOW-THROATED VIREO.

Although Audubon[1] says, "My friend Bachman has never observed [this species] in South Carolina," I have found the Yellow-throated Vireo to be a regular, though rare summer resident in certain restricted forests where there is a heavy growth of deciduous oaks—especially the red oak (*Quercus rubra*).

This bird arrives towards the latter part of March, my earliest record being March 21, 1903, and I herewith mention a few dates upon which the first individuals have been observed, namely—April 10, 1885, female; March 25 and 31, 1890, males; and March 27, 1901, male. Upon their arrival the birds make known their presence by their rich and exceedingly sweet song, which continues until June 25.

This species inhabits the higher branches of the tallest forest trees and rarely descends much lower than forty or fifty feet. The nests are built near the extremity of a forked limb, from forty to ninety feet above the ground, and are on this account almost impossible to obtain. They differ from the nests of other vireos by having the exterior beautifully ornamented with lichens which grow on live oak and other trees. The eggs are three or four in number, pure white, with a few spots of black or reddish brown near the larger end, and measure .80×.60. Two broods are raised. The Yellow-throated Vireo is a persistent singer during the breeding season and I have observed it singing while on the nest.

Since the birds are always rare and very locally distributed I have been unable to find how long they remain in autumn, but I have September records and some birds may linger until the middle of October.

This handsome species breeds from northern Florida (Wacissa River, Suwanee River)[2] to Maine, and winters from southern Florida to Colombia.

243. **Lanivireo solitarius** (Wils.). BLUE-HEADED VIREO.

The Blue-headed Vireo is an abundant autumn, winter, and early spring visitant. I have detected it in autumn as early as October 25, but it is not numerous until the first week in November. Although this species is said by Prof. Ridgway[3] and also

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[1] Birds of America, IV, 141. [2] Wayne, *Auk*, XII, 1895, 365, and X, 1893, 338.
[3] Birds of North and Middle America, Part III, 168.

by Mr. Chapman[1] to winter from Florida southward, these statements are misleading, since this vireo winters abundantly in the great swamps which are in close proximity to our coast. That it is a common bird in the months of December, January, and February there is no question, for I have often seen and counted as many as ten individuals in the course of a few hours. On mild days in winter the birds sing with some vigor, but it is not until March that the full volume of song is heard. The birds that winter here begin to moult about the middle of March and usually finish by the 30th of the month. A few remain until the middle of April, but most of them migrate during the latter part of March.

The Blue-headed Vireo breeds from Pennsylvania to the Fur Countries, and winters from the maritime districts of South Carolina to Guatemala.

244. **Lanivireo solitarius alticola** (Brewst.). MOUNTAIN SOLITARY VIREO.

The type specimen of this form was taken by Mr. William Brewster at Highlands, Macon County, North Carolina, on May 29, 1885, and was described in the *Auk*.[2] I took a typical specimen near Charleston, on February 23, 1885, which antedates Mr. Brewster's type specimen by three months. This specimen is now in the collection of Dr. Arthur P. Chadbourne, Boston, Mass. On February 20, 1886, I secured another specimen near Charleston, which was recorded by Mr. Brewster in the *Auk*.[3]

This form is larger than *L. solitarius*, has a larger bill, and the back is usually dark plumbeous instead of olive green. It generally arrives by December 1, but is apparently absent from the last of the month until about February 20, when the birds which have wintered to the southward of South Carolina arrive and remain until March 22, which is my latest record. The song of this form is much richer in tone and volume than that of its near relative, the Blue-headed Vireo. Typical specimens of this large race are very rare, and intermediates are by no means plentiful.

This vireo breeds in the mountains of South Carolina (Mt. Pinnacle and Cæsar's Head), and northward in the Alleghanies to Maryland.

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[1] Birds of Eastern North America, 331. [2] III, 1886, 111. [3] III, 1886, 410.

245. **Vireo griseus** (Bodd.) WHITE-EYED VIREO.

This species is the most abundant of all the vireos that inhabit the coast districts, and as it winters in small numbers it is a permanent resident. The birds which winter are not, I think, the ones that breed, but migrants which have bred to the northward, for they are always silent in the winter months. The White-eyed Vireo inhabits high land where there are thickets of bushes and vines, as well as the interior of the densest swamps; in fact it is common everywhere in wooded land. It subsists upon the berries of the tallow tree (*Stillingia sebifera* L.) as long as they are to be obtained in the winter. The song period commences about March 4, and continues until late in July.

The nest is built in the fork of a low bush or small tree, generally from two to eight feet from the ground, and is constructed of bits of decayed wood, grasses, caterpillar silk, and a few lichens. It is firmly attached to the limb by caterpillar silk and I have known nests to remain where they were built for more than a year. Although I have found nests containing eggs as early as April 11, the majority do not have full complements of eggs before the 24th of the month. The eggs, which are generally four in number, are white, finely speckled with brown, and measure .75×.55. Two and perhaps three broods are raised, both sexes assisting in building the nests, and in incubating.

The White-eyed Vireo winters from South Carolina to Central America.

FAMILY MNIOTILTIDÆ: WOOD WARBLERS.

246. **Mniotilta varia** (Linn.). BLACK AND WHITE WARBLER.

Audubon[1] quotes Dr. Bachman as saying that this bird "arrives in South Carolina early in April, remains until about the 10th of May, and has been seen on its return as early as the 1st of September."

I have seen this species near Charleston as early as the middle of March; the exact date I cannot state as the record has been misplaced. It generally arrives, however, towards the last of March, the 27th and 28th being about the normal dates, and it remains until the 15th of May. On its return migration the bird has been observed in numbers as early as July 8, and it remains

[1] Birds of America, II, 106.

until the 1st of November.[1] These early migrants which come in July, I take to be the birds that have bred in the mountains of this state and not the ones that have bred far north.

This species seems to prefer large, heavily timbered swamps rather than high land. It climbs around the trunks and branches of trees with as much dexterity as the nuthatches, and like those birds does not use its tail as a support.

The Black and White Warbler breeds from the mountains of South Carolina to Fort Simpson on the Mackenzie River, and winters from northern Florida southward to South America.

247. **Protonotaria citrea** (Bodd.). PROTHONOTARY WARBLER.

I have observed this beautiful summer resident from March 27 to September. The birds generally arrive, however, in April. This lovely creature inhabits dense swamps which are more or less covered with water, and it is rare to shoot one of these birds in the breeding season that does not fall into water. It breeds in abundance in all the swamps along the coast which are subject to overflow in long periods of rainy weather. During the migration in April the birds are frequently found on high land in avenues of live oak trees, where they remain only for the day. On April 23, 1885, I saw numbers of them in a live oak avenue on Hobcaw plantation near Charleston. Although this is a low-ranging bird it sometimes ascends to the tops of the tallest trees. The song lasts from April until July and somewhat resembles that of the Solitary Sandpiper (*Helodromas solitarius*) or the Water-Thrush. It may be rendered by the words *peet, tweet, tweet, tweet, tweet.* I have occasionally taken males in which the top of the head and the loral region were of a deep orange color.

The nest is constructed of lichens, green moss, and cypress leaves, and is placed in woodpecker holes or in natural cavities of trees over water. From three to five eggs are laid, and these are white, thickly spotted with chestnut, reddish brown, and pale lilac. They measure .70×.55. Two broods are raised in a season. I have taken eggs on May 2, and as late as June 23. The number of eggs laid in June rarely exceeds two or three, and I have observed that birds which have more than one brood in a season lay fewer eggs for the second or third broods. The

[1] The latest record of the Charleston Museum of this species is December 1, 1906, when it was observed by Mr. H. R. Sass, in his garden in Charleston.—Ed.

Prothonotary Warbler begins to migrate from the localities where it has bred by the middle of July.

This species breeds from Florida to Virginia and in the interior to Minnesota. In winter it has been found as far south as Venezuela.

248. **Helinaia swainsonii** Aud. SWAINSON'S WARBLER.

Swainson's Warbler was discovered by Dr. John Bachman in the spring of 1833 near the banks of the Edisto River, and was named by Audubon in honor of William Swainson, a celebrated English ornithologist.[1]

From the time of its discovery by Dr. Bachman, until April, 1884, it was practically a lost species. On April 22, 1884, I secured my first specimen within seven miles of Charleston during a driving rain-storm, and about one week later, my friend Mr. William Brewster of Cambridge, Mass., who had come to Charleston the previous year to search for this bird, as well as for Bachman's Warbler, shot a specimen on James Island. From April 22 to September 25, I secured and preserved forty-seven specimens, including the young in first plumage. An account of the habits and description of the young, based upon specimens which I collected, was published by Mr. Brewster in the *Auk*.[2]

Although I was unable to find the nest and eggs in 1884, I made every exertion to find them the next year, and on June 6, 1885, I secured the first nest and two eggs that were known to science, while on June 30, of the same year, I obtained another nest which contained three eggs. A description of the nest and two eggs taken on June 6, was published by Mr. Brewster in *Forest and Stream*.[3] These eggs are dull white with a bluish tinge, measuring .75 × .59 and .74 × .59. They are now in the Smithsonian Institution. The nest and three eggs taken June 30, were also described by Mr. Brewster in the *Auk*.[4]

The eggs are normally white with a faint bluish tinge, but are sometimes spotted with reddish brown and cinnamon. Spotted eggs are, however, very rare and I have found only four or five nests containing them, as follows: May 15 and 26, 1890, Yemassee; June 30, 1885, Charleston; May 6, 1891, Hardeeville; and May 7, 1894, Wacissa River, Florida. A set of four eggs meas-

[1] See Birds of America, II, 83-85.
[2] II, 1885, 65-80.
[3] XXIV, No. 24, July 9, 1885.
[4] II, 1885, 346-348.

ure .79×.62; .78×.59; .79×.59; .74×.59. I have taken eggs which contained small embryos as early as April 28, but this is an exceptionally early date, since the birds usually have full complements of eggs on May 7–8. Two broods are raised, for I have taken eggs as late as July 6.

The nest is composed of dead leaves, principally those of the sweet gum, water oak, maple, and cane, and is generally lined with pine needles or cypress leaves, but in some cases the black fiber of the Spanish moss is used. It is placed in low bushes, canes, palmettos, and occasionally in thorny vines, and varies from two to ten feet above the ground or water. I have taken young birds which were as large as the adults and which were acquiring their autumnal plumage as early as June 2, but it must be borne in mind that the season in which these young were taken (1906) was exceptionally advanced.

Swainson's Warbler inhabits only deep, dark, and gloomy swamps where there are extensive tracts of canes and impenetrable thickets with a growth of aquatic plants. If a swamp is densely covered with canes and there are no thickets, the birds are absent in the breeding season, for these thickets are indispensable to them because they afford protection to the young.

My earliest date of arrival is April 9, and I have taken specimens as late as September 25; the birds therefore remain for more than five months. The song period lasts from their arrival until September 15. There is no species of warbler with which I am acquainted that sings with such fervor as this one. Its notes are full of sweetness and at times it is really inspiring. This song, however, is not characteristic of all the males, for I have heard it only on a few occasions; but on September 15, 1887, one sang as sweetly as in the breeding season.

Swainson's Warbler breeds from northern Florida (Wayne) to the Dismal Swamp, Virginia (Fisher), and northward in the Mississippi Valley to southeastern Missouri (Widmann). It winters in the Bahamas, Cuba, and Jamaica. Although this species is supposed to breed only along the low coast region, it has been found breeding at Winnsboro, where, in 1905, a nest and three eggs were taken by Mr. R. Henry Phillips. It also breeds abundantly at Augusta, Georgia — Dr. Eugene Edmund Murphey having taken many birds as well as the eggs. A single

individual was taken at Chester on August 30, 1887, by Mr. Leverett M. Loomis and recorded by him in the *Auk*.[1]

249. **Helmitheros vermivorus** (Gmel.). WORM-EATING WARBLER.

This transient visitant has been noted from April 7 to May 3, and from July 3 to September 29. The specimen taken July 3, 1884, was evidently hatched not far from Charleston (it was shot near Ten Mile Hill), as it appeared to be a young bird. On August 1, 1902, I obtained an individual which was moulting and could scarcely fly. This bird must have bred near at hand, but I have not as yet proved that this species breeds here.

Audubon states in Birds of America:[2]

> My friend Dr. Bachman says that it breeds sparingly in the swamps of Carolina. He observed a pair followed by three or four young ones nearly fledged, all of which already exhibited the markings on the head.

While it is possible that this species bred in the swamps in Dr. Bachman's day, it does not do so at the present time; neither does it breed in Chester county, where Mr. Leverett M. Loomis spent many years observing birds, but it was found breeding by him at Cæsar's Head and Mt. Pinnacle.[3]

This warbler is rare in spring and seldom sings; in fact I have heard but one during all these years and that one, which was in full song, was taken on April 16, 1901. The song of this species very closely resembles that of Bachman's Warbler. During the autumn migration the birds are really common, especially from the middle of August to September 3. On some days it is by no means unusual to meet with a dozen in the course of a few hours.

The Worm-eating Warbler is a swamp lover and is seldom seen on the high land except during the migrations, and the few specimens which I have encountered in such situations always appeared to be very restless and out of their natural environment.

A generic character of the genus *Helmitheros* is the absence of white margins or spots from the rectrices. The specimen which was in song on April 16, 1901, referred to above, has two of the outer rectrices on each side very widely margined with pure white; the next rectrix, on each side, is also margined with white, but the area is less. This specimen, an adult male, closely

[1] IV, 1887, 347. [2] II, 87. [3] *Auk*, VIII, 1891, 331, and VII, 1890, 127.

resembles, in the tail markings, certain species in the genera *Vermivora* and *Dendroica.*

In winter the Worm-eating Warbler ranges from the Bahamas, Cuba, and Jamaica, to Mexico and Central America.

250. **Vermivora bachmani** (Aud.). BACHMAN'S WARBLER.

Bachman's Warbler was discovered by Dr. Bachman "a few miles from Charleston in July, 1833," and named in his honor by Audubon.[1] It was lost to science from the time of its discovery in 1833 until the spring of 1886, when a specimen was taken in Louisiana, near Lake Pontchartrain, by Mr. Charles S. Galbraith and recorded by Mr. George N. Lawrence in the *Auk.*[2]

Since the rediscovery of this warbler by Mr. Galbraith, the records have multiplied. Mr. William Brewster and Mr. Frank M. Chapman obtained forty-six specimens on the Suwanee River, Florida, in March, 1890. An account of the habits, variations of plumage, etc., was published by Mr. Brewster in the *Auk.*[3] In March, 1892, I collected about fifty specimens at Branford on the Suwanee River, Florida. The first birds were noted on March 14, and the last on April 2.[4] In 1894 I obtained eight specimens in the Wacissa and Aucilla River region of Florida. These records were both published in the *Auk.*[5] Although I recorded it as a migrant, I now believe that it breeds sparingly at one locality near the village of Waukeenah.

On May 15, 1901, I rediscovered this species in South Carolina, the specimen being taken near Mount Pleasant, and I quote the following account of the capture from the *Auk:*[6]

I am pleased to announce the capture of an adult male of this interesting warbler, by myself, near the village of Mount Pleasant, S. C., on the morning of May 15, 1901. I heard the song of what I was almost sure was a Parula Warbler singing lazily, and out of mere curiosity I went to locate the singer. I found the singer near the top of a sweet gum, but was unable to identify him positively as the morning was dark and cloudy. He flew from his perch to the low bushes, which formed the dense undergrowth, and was so restless and active that I could scarcely follow him except by the incessant song which he uttered at the rate of fifteen times a minute. At last I had a plain view of him as he sat upon a dead pine twig with his breast towards me, when I realized that it was the bird I had been looking for in this State for eighteen years. There was no mistake, as it was not the first Bachman's Warbler I had ever seen or shot. I watched the bird closely for thirteen minutes as I was sure his mate was setting or building a nest near at hand, as he kept singing in one locality and did not wander far off, but the temptation was too great to lose such a rare prize and I fired and killed the first Bachman's Warbler which has ever been taken in this State since Dr. Bachman took the type

[1] Birds of America, II, 93.
[2] IV, 1887, 35-37.
[3] VIII, 1891, 149-157.
[4] See *Auk.* X, 1893, 338.
[5] XII, 1895, 367.
[6] XVIII, 1901, 274-275.

specimen near Charleston in July, 1833. After I had killed the bird I hunted for the female and nest for several hours, but was unsuccessful. In the afternoon I again visited the place and with the help of a friend, Lieut. J. D. Cozby, we searched for the female and nest, but could find neither. No doubt whatever exists in my mind that this bird was breeding and that his mate was incubating or else building a nest, as the sexual organs of the male proved that procreation was going on. This bird was certainly not a migrant as the migration of *woodland* birds had passed. The *latest* migrant, the Gray-cheeked Thrush, was last noted May 13, when a single bird was seen. I am positive that I have heard this song nearly every summer in the same localities where the male was found, but I always keep out of such places after April 10 on account of the myriads of ticks and red bugs which infest them. Then, too, such places are simply impenetrable on account of the dense blackberry vines, matted with grape vines, fallen logs piled one upon another, and a dense growth of low bushes. In these jungles the rattlesnake is at home and the stoutest heart would quail.

Since the rediscovery of this bird on May 15, 1901, I have made every exertion to find others, but it was not until May 14, 1904, that I succeeded in securing another specimen, which was taken on the plantation of Mr. B. B. Furman, in Christ Church Parish, Charleston county. On May 13, 1905, I discovered three pairs of these birds, and succeeded in taking two young which were being fed by their parents. The young male was being fed by the adult male, and the young female by the adult female! The old birds were not molested. These young birds were the first ever taken, and were described by Mr. William Brewster in the *Auk*[1] and also recorded by the writer in the same volume.[2] These birds were observed in I'On Swamp, named for the late Col. Jacob Bond I'On (of the U. S. Army in the war of 1812), and now a part of Fair Lawn plantation, the property of Mr. B. B. Furman. That this swamp is the type locality where Dr. Bachman took the birds in July, 1833, there can be little doubt, as there is a strong supposition that Dr. Bachman often visited Col. I'On, and may have taken the birds in this swamp.

The first nest and eggs known to science were taken by Mr. Otto Widmann in the St. Francis River region of southeastern Missouri, on May 17, 1897, and were described by Mr. Ridgway.[3] This nest contained three pure white eggs.

During the spring of 1906, I made a special effort to find the nest and eggs of this rare warbler, and on April 17 I succeeded in obtaining two nests, each of them containing *four* eggs. The first nest was placed upon a dead palmetto leaf, supported by a small aquatic bush, and was completely hidden by a living palmetto leaf which overhung the nest, like an umbrella. It was

[1] XXII, 1905, 392-394. [2] Ibid. 399. [3] *Auk*, XIV, 1897, 309.

in a dense swamp, two feet above the ground, and contained four pure white eggs, almost ready to be hatched. The second nest, which was within one hundred yards of the first, was built in a bunch of canes (*Arundinaria tecta*), and was supported by a palmetto leaf. This nest was three feet above the ground, in a comparatively dry situation, and contained four pure white eggs in an advanced stage of incubation. The females were incubating when the nests were found, and I could scarcely realize that I had at last found the nest and eggs of Bachman's Warbler, for which I had looked in vain for nearly twenty-five years, in almost every swamp from the neighborhood of Charleston to the Savannah River. Having carefully marked the nests, I searched the swamp for others, but was unsuccessful that day.

The two nests are similar, being constructed of fine grass, cane, and other leaves, the latter skeletonized. The second nest, taken April 17, is 6½ inches high, 6 inches wide, 2 inches wide at rim, and 2 inches deep. It is composed almost entirely of dead cane leaves, a little Spanish moss, and a few skeletonized leaves. The eggs measure .60×.47, .61×.46, .62×.46, .61×.47. This nest and four eggs is now in the collection of my friend Col. John Eliot Thayer of Lancaster, Mass.

Knowing that the birds would at once commence to build new nests, I visited the place almost daily with the hope that I would be successful in finding them; but in this I was mistaken, for while it was comparatively easy to locate the singing males, it was next to impossible to observe the females. In fact, the females were not observed except when they were feeding young birds, and those were not the birds that I had deprived of their nests and eggs. As far as I was able to determine, there were but four or five pairs of these rare birds in the greater portion of the swamp which I explored most thoroughly.

On April 28, I found a nest containing one young bird, apparently five or six days old, which I secured on May 9 while it was being fed by its parents. This young bird could fly with ease, although the tail was not half developed. The nest which contained the young bird was built in a low bush about three feet from the ground, in the densest part of the swamp, and was within ten or twelve feet of the nest of a Swainson's Warbler containing three eggs. This nest is large and bulky. The foundation is composed of Spanish moss, with distinct layers of skele-

tonized leaves, interspersed with leaves of the cane and with pine needles, which appear at and around the rim. A deserted nest, which contained three eggs, was found on May 9, in a bunch of blackberry and canes (vertical shoots), within one foot of the ground, on the edge of the swamp and within twelve feet of a nest of Swainson's Warbler containing four eggs. The foundation of this nest is Spanish moss, while skeletonized leaves, a few small twigs, and dead cane leaves constitute the other materials. The interior of the nest is 2¼ inches in depth. On May 12 I found an exquisite nest, placed on a vine and within one foot of the ground, from which the young had evidently but recently flown, as I encountered them in the near vicinity. It is constructed chiefly of a species of moss (*Hypnum*), which grows on low bottom lands more or less covered with water. Interspersed among this moss are dead leaves, partially skeletonized, as well as a few dead cane leaves. This nest is almost a perfect circle. The sixth and last nest (from which the young had long since left) was found on June 2, in a low bush, within two feet of the ground, in a dense thicket in the swamp. It is composed of grasses, parts of skeletonized leaves, and pine needles.

All of the six nests which I have found are lined with a peculiar black fiber which may be the dead threads of the Spanish moss (*Dendropogon usneoides*) or a black rootlet. The lining of the nests taken on April 17, while very lustrous black, cannot be the Spanish moss, which is very distinctly jointed, for I cannot discover any joint whatever in this substance. The nest taken by Mr. Widmann on May 17, 1897, was apparently lined with the same material. In many respects the nest of Bachman's Warbler is very similar to that of Swainson's Warbler.

Although I practically lived in the swamp from April until June 19, in order to determine whether the birds raise two broods, I am convinced that only one brood is raised, for this species is a very early migrant after the breeding season, having been taken at Key West by Mr. J. W. Atkins as early as July 17.

During the month of March, 1907, I kept a sharp lookout in suitable localities near my home for the arrival of this rare warbler, but although I was in the woods almost daily no birds were observed until the breeding ground was visited, when six pairs were located in various parts of the swamp where the first nests

and eggs were taken in April, 1906.[1] Some of the birds must have certainly arrived not later than February 28 or March 2, since the first nest, found on March 27, contained one egg. This nest was left until the 30th, when it contained four fresh eggs and the female was incubating. On April 3, I found a nest which contained *five* eggs far advanced in incubation. This nest and eggs was found within fifty feet of the spot where the first nest was taken on April 17, 1906, and doubtless belonged to the same pair. This nest was evidently commenced on March 9, and as it requires fourteen days for completion, and five days in which to deposit five eggs, it will be seen that on March 27 or 28, incubation must have just begun, as the eggs were undoubtedly incubated for at least eight or nine days. These nesting dates are important, and prove that although this species does not winter it is one of the earliest migrants in the spring and breeds even earlier than the resident Yellow-throated (*Dendroica dominica*) and Pine Warblers (*D. vigorsii*). It also proves that the birds which breed in South Carolina reach their summer home much earlier than those which migrate along the Gulf Coast states and breed in the Mississippi Valley, for the Bachman's Warblers that breed in the low coast region of this state undoubtedly migrate along the Atlantic coast.

This species is eminently a swamp lover during the breeding season. The song is wiry or insect-like, and very closely resembles the song of the Worm-eating Warbler, while it also bears a strong resemblance to the song of the Blue Yellow-backed Warbler and the Chipping Sparrow. The song of the male is evidently of short duration, for I have not heard it sing later than May 26. The female has no song and its call note resembles the word *zeep*. On March 30, 1907, I shot a fine male of this warbler near Mount Pleasant from the top of a huge water oak tree some eighty feet above the ground. It was singing exactly like a Prothonotary Warbler (*Protonotaria citrea*), but when I went to locate the singer, I was surprised to see that it was not that warbler, but one with a black throat and breast patch. The bird sang constantly, and as the song was identical with that of the Prothonotary, I concluded that it must be either the Golden-winged (*V. chrysoptera*) or Lawrence's Warbler (*V. lawrencei*)—forms I have not seen in life—and determined to secure it. This

[1] *Auk.* XXIV, 1907, 43-48.

I did, after having heard it sing for more than twenty minutes. Upon securing the specimen I was amazed to find that it was, in reality, a Bachman's Warbler. This song must be very rare or else produced by a bachelor male.

A young male taken May 30, 1906, while partly in the first plumage, and first winter plumage on the back and sides, was, however, assuming the black markings of the adult male on the jugulum and fore breast, while the crown was ashy instead of black. In the *Auk*,[1] Mr. Brewster states:

> Our males, thirty-six in number, vary exceedingly in respect to the depth and extent of the black of the head and throat, but most of the black feathers are narrowly tipped with ashy or olive yellow which doubtless disappears later in the season.

My breeding males all show the olive yellow edging on the black feathers.

This interesting species winters in Cuba.

251. **Vermivora celata** (Say). ORANGE-CROWNED WARBLER.

On November 27, 1884, I shot my first specimen of this interesting winter visitant on Sullivan's Island among some myrtle bushes near the front beach. This specimen, as well as others taken in 1885, was recorded in the *Auk*.[2]

My earliest date for its arrival is October 30, 1897, but it is never abundant until the middle of November, remaining until the second week in April. It is capable of enduring intense cold. I have seen numbers of these highly interesting birds near Charleston when the thermometer ranged as low as 8° above zero and it is always more active and hence oftener seen when the weather is cold and cloudy.

The Orange-crowned Warbler inhabits thickets of lavender and myrtle bushes as well as oak scrub, and its center of abundance is on the coast islands, the greater part of which is veritable jungle, in which it particularly delights. Its only note while it sojourns here is a *chip* or *cheep* which very closely resembles the note of the Field Sparrow in winter.

This species breeds as far north as the Yukon and Mackenzie River regions, and southward through the Rocky Mountains.

Mr. Harry C. Oberholser[3] has described a new race of the Orange-crowned Warbler which he named *V. c. orestera*. I do

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[1] VIII, 1891, 156. [2] III, 1886, 138–139. [3] *Auk*, XXII, 1905, 243-244.

not know whether this supposed new race has been accepted by the committee of the American Ornithologists' Union, but if the characters ascribed to it prove constant, I may state that I have taken typical specimens at Mount Pleasant on the following dates: January 2, 1890, male; February 11, 1891, male; December 6, 1893, male—now in the collection of my friend, Mr. William Brewster; December 3, 1896, male; and November 13, 1905, female. These specimens are now in my collection with the exception of the one sent to Mr. Brewster.

This new form breeds in the mountains of New Mexico, Arizona, and southeastern California, to British Columbia.

252. **Vermivora peregrina** (Wils.). TENNESSEE WARBLER.

The only example of this species which I ever met with was seen (and fully identified) on October 10, 1900, near Mount Pleasant, but unfortunately was not secured. This bird was in a live oak tree, hanging on the end of a leaf in a titmouse-like manner. When first seen I took it to be an Orange-crowned Warbler, but upon approaching to within a few feet, I easily identified it as an adult male of the Tennessee Warbler. I retreated to a proper distance in order to secure it in perfect condition, but unfortunately missed it.

Mr. Leverett M. Loomis found this species to be a regular transient visitant in autumn in Chester county, but he did not detect it in the spring.[1] Mr. J. Rowland Nowell informs me that he has frequently taken it in Anderson county in autumn.

The Tennessee Warbler breeds from northeastern New York northward to the Hudson Bay region, and winters as far south as South America.

253. **Compsothlypis americana** (Linn.). PARULA WARBLER; BLUE YELLOW-BACKED WARBLER.

When I hear the song of this diminutive warbler in early spring, I always recall to mind Byron's lines: "And the Spring come forth her work of gladness to contrive, with all her reckless birds upon the wing." As soon as the sweet gum trees begin to bud, the song of this beautiful bird is heard. It heralds the approach of spring and is one of the first warblers to arrive which does not winter. The range of this species in the breeding season is en-

[1] See *Auk*, VIII, 1891, 170.

tirely governed by the presence or absence of the Spanish moss, and where the moss is growing in profusion the birds are common, but where the moss is absent the birds are absolutely not to be found. I observed numbers of these birds which were in full song on March 7, 1884, and Mr. Benjamin True Gault (in whose company I was), shot one on March 6, 1903, near Mt. Pleasant. The birds remain until October 21, which is my latest record.[1]

The nest is always built in the festoons of the Spanish moss, from eight to more than one hundred feet from the ground, and is constructed of the flower of the moss and a few pieces of fine, dry grass. The eggs range from three to seven, generally four, and are white, speckled, spotted, and blotched with reddish brown and lilac shell markings, measuring .65×.45. I have taken full complements of eggs as early as April 15. Two broods are raised.

I shot a female at Old Town, Florida, on March 23, 1893, which has nearly the whole of the top of the head bright blue. This specimen is now in the collection of my friend Mr. William Brewster.

The Parula Warbler winters from northern Florida southward.

254. **Compsothlypis americana usneæ** Brewst. NORTHERN PARULA WARBLER.

This race of the Parula Warbler arrives much later in spring than *C. americana*, my earliest record being March 17, 1902. Its habits while here are identical with those of the southern species, nor can I distinguish any difference in the song. Since adult males are very hard to procure in autumn I cannot state with certainty when this form arrives and departs.

The breeding range extends from Virginia northward to New Brunswick.

255. **Dendroica tigrina** (Gmel.). CAPE MAY WARBLER.

It appears that neither Bachman nor Audubon ever observed this beautiful species in this state; in fact Audubon never met with it in life. Although I have searched for it most diligently during the migrations ever since 1883, it was not until September 13, 1895, that I secured my first specimen, an adult male which was shot from the top of a live oak tree, near Mount

[1] The latest record of the Charleston Museum for this species is October 22, 1908, when it was reported at the Navy Yard by Mr. F. M. Weston, Jr.—Ed.

Pleasant. The next day I shot another specimen from the same tree. This record was published in the *Auk*,[1] and is the first occurrence for the coast region.

Since the birds are rare and erratic in their movements, I herewith give a list of all the specimens which I have secured or observed since the first were taken in 1895:

October 4, 1896. A female shot from a live oak.

October 12, 1897. I obtained two males and one female this morning, all of them being shot from an avenue of live oaks.

October 14, 1897. A male taken from an isolated live oak.

October 18, 1897. Two females taken from live oaks.

September 8, 1898. I shot an adult male this morning from the top of an isolated live oak. This is my earliest record.

September 30, 1899. An adult male in the highest possible plumage, shot from the top of an isolated live oak.

October 1, 1899. I obtained two males and two females this morning—all being shot from live oak trees. The males are in exceptionally high plumage.

October 7, 1899. A female taken from a low bush which was within ten feet of a live oak.

October 10, 1900. I shot one male and three females this morning before 11 a. m. Three specimens were taken from one live oak tree, and the other was also shot from a live oak. There was a tremendous migration of warblers this morning. I saw these Cape May Warblers flying high in the air at 9 a. m., directly over a few scattered live oak trees of great size. There were four birds together which alighted in the oaks, one at a time, and, as each one lit, it was readily identified.

October 12, 1900. Saw a lovely adult male Cape May Warbler this afternoon in a small live oak tree, but failed to obtain it.

September 20, 1901. I observed two female Cape May Warblers in live oak trees this morning, and after watching one closely for more than an hour it flew from the live oak into a pine tree (which was near at hand) when I shot it.

September 28, 1903. I shot an adult male from the top of a live oak tree this morning.

October 4, 1905. One male and three females taken by the writer, all of them being shot from live oak trees.

October 29, 1906. Saw a female among some lavender bushes in my yard, but failed to secure it.

October 31, 1906. I shot a young male in my yard this morning. It was feeding in some lavender bushes.

November 3, 1906. Saw a female in my yard, which was feeding among some lavender bushes, when I shot it. This is the same bird that was observed on October 29.

All of these warblers were taken on Oakland plantation, Christ Church Parish, and at two localities. The birds have been observed from September 8 to November 3, but I have not detected them in the spring, the paths of migration at that season being away from the coast. All of the specimens which I have handled in autumn were exceedingly fat, necessitating great care in preparation.

Mr. Leverett M. Loomis has taken this species in Chester county

[1] XIII, 1896, 84.

during both migrations, where he has observed it from April 15 to May 3, and from October 4 to 26.[1]

Mr. Ellison A. Smyth, Jr., secured an adult male at Summerton, Clarendon county, on September 20, 1885. Mr. Smyth writes me that it was shot in low oak scrub.

All the specimens which I have enumerated, with one or two exceptions, were taken after storms or severe winds accompanied by rain.

The Cape May Warbler breeds from Vermont to Hudson Bay. It is resident in Jamaica and is said to breed on the mountains of that island.

256. **Dendroica æstiva** (Gmel.). YELLOW WARBLER.

The Yellow Warbler is positively uncommon during the spring migrations, but exceedingly abundant in summer and autumn. My earliest record is April 19, and the birds remain as late as May 19. By July 4, the return migration takes place and a few young birds arrive, but it is not until the 10th or 15th that they are common.

In spring the birds confine themselves to open situations where there is a spare growth of low trees and bushes in swampy localities, and the males are persistent singers during the forenoon. The habits of the birds are entirely changed, however, in summer and autumn, for then they frequent the cotton fields, as well as lands which have been planted with peas for forage. It is also not unusual in autumn to see as many as twenty or more of these little birds far out in the salt marshes, where they find food in abundance. This species is so very abundant in late summer and autumn that it is not unusual to encounter hundreds of individuals in a few hours on plantations in close proximity to salt water. My latest record is October 29, and that date probably represents the limit of their sojourn in autumn.

Prof. Wells W. Cooke states:[2]

> If a map of the United States and Canada south of the Barren Grounds was colored to represent the breeding area of the Yellow Warbler, the uncolored portions would comprise Florida, southern Georgia, and numerous small "islands" representing the upper parts of the eastern mountains and such parts of the western mountains as are above 6,000-8,000 feet.

From this statement one would assume that the Yellow War-

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[1] See *Auk*, VIII, 1891, 170.

[2] U. S. Dept. of Agriculture, Biological Survey, *Bulletin* No. 18, 52.

bler breeds along the low coast region of this state which, however, is not a fact, and I doubt if it breeds anywhere within 125 or 150 miles of the coast. Mr. Leverett M. Loomis found the Yellow Warbler breeding in the "cultivated valleys of Pickens county,"[1] but he did not detect it on Cæsar's Head.

The Yellow Warbler winters in Central and South America.

257. **Dendroica cærulescens** (Gmel.). BLACK-THROATED BLUE WARBLER.

Audubon states[2] that "in South Carolina it arrives about the 25th of March, and becomes more abundant in April; but it has left that country by the 10th of May." The statement that it arrives about the 25th of March is erroneous as the earliest date I have is April 16, 1890, and it must be remembered that the winter of 1889-90 was exceptionally mild and the spring far advanced in March.

This species is very abundant during the spring and autumn migration, when it inhabits deep, swampy woods which have a dense undergrowth of low bushes. I have detected it in spring as late as May 16, but it is most abundant between April 27 and May 6. In autumn it arrives with great regularity, and I give two dates upon which the first birds have been observed, namely–September 15, 1884, and September 13, 1888.

On December 6, 1889, I shot an adult male on the plantation of Mr. Isaac de C. Porcher, near Pinopolis. This bird is still in my collection and was recorded in the *Auk*.[3]

The Black-throated Blue Warbler is more abundant in autumn than in spring and it is not unusual to see scores in the course of a few hours on almost any day between October 4 and 15. By the 17th of the month most of the birds have migrated southward.

This handsome bird breeds from Pennsylvania northward to Labrador (?) and Hudson Bay, and winters from Key West, Florida, to South America.

258. **Dendroica cærulescens cairnsi** Coues. CAIRNS' WARBLER.

This form of the Black-throated Blue Warbler is a regular transient visitant during both migrations. As it is not possible to identify the birds while at large and in company with *D. cærul-*

[1] *Auk*, VII, 1890, 127. [2] Birds of America, II, 63. [3] VII, 1890, 410.

escens, I am unable to state exactly when the first arrive in spring and autumn. But I took perfectly typical adult males on May 3, 1902, and October 10, 1900; intermediates are, however, more numerous in both spring and autumn. October 4, 1901, I secured three males which approach *cairnsi* more closely than *cœrulescens*.

An adult male taken October 10, 1900, has the outer webs (near the tip) of the first five primaries in each wing widely margined with white, while the first primary is margined with white throughout its entire length. I am unable to find this character mentioned in any work on this form, with the exception of a note by Mr. Leverett M. Loomis[1] on *D. cœrulescens* [*D. c. cairnsi*] in which he mentions that a specimen taken October 2, 1888, has "the exterior edges of several of the outer primaries, near their extremities, whitish, constituting a rather distinct area when the wing is closed."

This race breeds in the higher mountains of North Carolina and northward to Pennsylvania.

259. **Dendroica coronata** (Linn.). MYRTLE WARBLER; YELLOW-RUMPED WARBLER; YELLOWRUMP.

This winter visitant is the commonest of all the warblers which occur on or near the coast. I have often seen thousands in a day on the mainland as well as upon the coast islands, where they frequent myrtle bushes and feed upon the berries in late autumn and winter. At certain hours during the morning and afternoon in the winter months the birds, after feeding, fly in large flocks to pine woods to rest, returning again in large flocks to their favorite myrtle bushes and trees to feed upon the berries. On most of the coast islands the myrtle predominates in certain restricted areas, and it is upon these islands that the birds are most numerous.

My earliest record is October 6, and I have observed the Myrtle Warbler at Hardeeville, near the Savannah River, as late as May 2. It, therefore, remains on the coast for nearly seven months. The spring plumage is acquired between April 9 and 19, but most of the birds migrate before the change takes place, which is proved by the almost entire absence of the birds from places where they were abundant during the latter half of March.

[1] *Auk*, X, 1893, 154.

As a rule this species is absent from April 19th until the 28th of the month, when numbers arrive which unquestionably had wintered many hundreds of miles south of Charleston. These late flights occur regularly each year at or about April 28, and mark the departure of the birds until October.

The Yellow-rumped Warbler breeds from Massachusetts to Labrador. It is said to breed also in Jamaica! (March).

260. **Dendroica striata** (Forst.). BLACK-POLL WARBLER.

In Audubon's Birds of America,[1] he states the following concerning this species:

> Its migrations eastward follow the advance of the season, and I have not been able to comprehend why it is never seen in the maritime parts of South Carolina, while it is abundantly found in the State of New Jersey close to the seashore.

Audubon and Bachman evidently overlooked this bird, for it occurs abundantly on the coast during both migrations. I secured my first specimen within seven miles of Charleston on May 6, 1884, while in company with my friend, Mr. William Brewster, in whose collection the specimen now is.

My earliest record is April 25, 1891, and the latest May 15, 1891.[2] I observed a large number at Hardeeville on the latter date. The Black-poll Warbler migrates rapidly through the State in spring, but in autumn its passage is very slow. I have observed it as early as the middle of September and as late as November 14, 1906, when I shot a specimen near Mount Pleasant, the thermometer registering 28° in the morning. It is most abundant, however, between October 14 and 19. On October 14, 1885, I saw hundreds in "The Myrtles" on Sullivan's Island within a few hundred yards of the front beach, and on September 26, 1894, I observed great numbers during the prevalence of a storm which raged all day. The males sing in the spring while *en route* to their breeding grounds.

The Black-poll Warbler has the greatest migratory range of any of the North American warblers. It breeds from northern New England to Labrador, Hudson Bay, and northern Alaska, and winters as far south as Brazil, Ecuador, and Chile. A specimen was taken in Greenland (Godthaab) in 1853.

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[1] II, 29-30. [2] Mr. H. R. Sass has observed this species in his garden in Charleston as late as May 16, 1907.—Ed.

261. **Dendroica fusca** (P. L. S. Müller). BLACKBURNIAN WARBLER.

This beautiful warbler is another species which Dr. Bachman did not observe "in the maritime parts of South Carolina."[1] That it is excessively rare near the coast is evinced by the fact that in all these years of constant collecting I have taken but two specimens, as follows: September 14, 1901, male, Mount Pleasant; and September 29, 1902, female, Mount Pleasant. Both specimens were shot from live oak trees and were exceedingly fat.

Although Mr. Leverett M. Loomis[2] obtained three specimens (two males and one female) in the mountains of Pickens county between June 18 and 24, at elevations ranging from 2500 to 3000 feet, there is no evidence that these birds were actually breeding or had bred, for the organs of reproduction in the males "were not larger than a pin's head of ordinary size." Mr. Loomis has found this species to be a regular migrant through Chester county during the spring and autumn migrations. He observed it "at the end of April and during the early part of May, and from August 8 to October 22."[3]

This beautiful species breeds in the mountains of North Carolina (Brewster) northward to the southern parts of Hudson Bay, and winters chiefly in South America, from Colombia to Peru.

262. **Dendroica dominica** (Linn.). YELLOW-THROATED WARBLER.

The Yellow-throated Warbler is a permanent resident and I have taken or seen it during every month of the year. It is, however, rare from November until the last of February, and is by no means easy to discover in the winter months.

The birds that winter along the coast I take to be those that have bred to the northward of the State, since they are always silent. By February 27 or 28, the migration commences, and the song is invariably to be heard by the 28th of the month.

During the breeding season the birds confine themselves strictly to primeval woods or live oak avenues where the Spanish moss grows in profusion, and where there is an undergrowth of low bushes, small trees, and thickets. So partial is this handsome warbler—not only in the breeding season, but at all seasons—to

[1] See Audubon, Birds of America, II, 49.
[2] *Auk*, VII, 1890, 127.
[3] *Auk*, VIII, 1891, 170-171.

woods which contain the Spanish moss that one might search for it in a pine forest of five hundred acres without seeing a single individual, if the Spanish moss is absent.

The Yellow-throated Warbler is a very early breeder. The birds are mated by March 11, and nest building commences by the 16th or 18th of the month, unless the weather is cold and rainy, when it may be delayed until the first week in April. The spring of 1895 was very backward, and the first nest, which contained four fresh eggs, was not taken until April 20. In 1897, however, the season was far advanced and the first nest, which also contained four fresh eggs, was taken on April 2, while another, which contained five fresh eggs, was taken April 4.

The nest of this warbler is almost invariably built in festoons of Spanish moss. I have seen but two exceptions to this rule. One of these nests was built in a short-leaf pine, forty-five feet from the ground, and on the end of a limb fifteen feet from the body of the tree. It was entirely concealed in a mass of dead pine needles and contained four fresh eggs on April 21. It is now in the collection of Mr. William Brewster. The other nest was built in a short-leaf pine, fifty feet from the ground, and on the end of a limb twenty feet from the trunk. It was entirely concealed among pine burs and needles, and contained four heavily incubated eggs. It was taken on April 19, 1905, and is now in the collection of Col. John Eliot Thayer.

The nest, which is built by the female alone, is constructed of fine strips of bark and grasses, and is either lined profusely with feathers or with the flowers of the moss, and is indeed a beautiful structure. It is begun by weaving the moss together into a basket-like shape, to which the silk of caterpillars is fastened, in order to make the material adhere. The nest is always built at the extremity of a drooping limb, and ranges from ten to one hundred and twenty feet above the ground. This bird appears to prefer to nest in live oak trees. Four or five eggs are laid, and these are white or grayish white, speckled, spotted, and blotched with reddish brown, gray, and lavender markings. They measure .69×.53. Two broods are raised, and I saw the young fully fledged on April 22, 1884.

This species is a very early migrant. The young leave the woods in which they were bred and resort to scattered trees near dwelling houses on plantations by the middle of June, and migrate towards the latter part of the month.

Occasional specimens have the back spotted with black. An adult male, taken August 29, 1889, near Charleston, has the entire back very heavily spotted beneath the surface with black. This specimen was recorded by the writer in the *Auk*[1] and is still in my collection. Since this specimen was recorded I have taken four or five others which have the back spotted with black.

The Yellow-throated Warbler winters from the coast of South Carolina southward to Cuba, Jamaica, Hayti, and Porto Rico.

263. **Dendroica virens** (Gmel.). BLACK-THROATED GREEN WARBLER.

This is a regular transient visitant in spring but is not observed in the fall. It arrives with great regularity and I mention two dates upon which the first birds were secured, namely—March 26, 1890, Yemassee; and March 27, 1900, Mount Pleasant.[2] It is not common until the middle of April, and its passage through the coast region requires so long a time that one not acquainted with the migration of birds might readily believe that it bred here. I have heard numbers singing as late as May 26.

On May 21, 1904, these birds were common in a great deciduous swamp on the plantation of Mr. B. B. Furman in Christ Church Parish, where they were singing constantly from the tops of the tallest trees, some of them being scarcely visible from the ground at such a height. I have always found this species a very high-ranging bird; in fact it ranges higher than any Eastern North American warbler with which I am acquainted. A few birds remain on the coast until the first day of June, but these are females.

That this species should remain on the coast until June and not breed is very surprising, as it has been found breeding on the island of Grand Manan, New Brunswick, on the 17th of June.

Mr. Leverett M. Loomis[3] found this species breeding in the mountains of Pickens county and also at Cæsar's Head, Greenville county. It winters in the West Indies and Panama.

264. **Dendroica kirtlandii** Baird. KIRTLAND'S WARBLER.

Until recently (1903), all ornithologists considered this species the rarest of the warblers. There are three records for this

[1] VII, 1890, 97.

[2] Since the above was written Mr. Wayne found this species common on March 22, 1910—his earliest record.—Ed.

[3] See *Auk*, VII, 1890, 128, and VIII, 1891, 331.

state, namely—April 27, 1886, male, St. Helena Island, collected by a native lad, and recorded by Mr. Walter Hoxie in the *Auk*;[1] October 11, 1888, female, Chester, taken by Mr. Leverett M. Loomis, and recorded by him in the *Auk*;[2] October 29, 1903, male, near Mount Pleasant, taken by the writer and recorded in the *Auk*.[3]

I herewith quote the account of my capture of this rare warbler:

On October 29, 1903, I shot near Mount Pleasant, S. C., a superb specimen of Kirtland's Warbler from the top of a water oak tree about 40 feet from the ground. It was about 11 a. m., when I heard a chirp which I thought was that of a Prairie Warbler (*Dendroica discolor*) and as it was a very late date for a Prairie Warbler to be here I went in search of the bird. The sound ceased entirely, but I kept looking into the water oak tree and did not move far away. At last I saw a small bird near the top of the tree behind a cluster of leaves, and when it moved it wagged its tail in a most deliberate and studied manner. The tail seemed to be disproportionately long and the body altogether unsymmetrical in contour. I at once realized that it was a Kirtland's Warbler—a bird that I had looked for in vain for twenty years. The bird kept constantly *behind* a limb or a cluster of leaves or twigs and remained in this position nearly all the time I was watching it. At last it changed its position and with its breast towards me I fired and found that I had secured a superb specimen of this rare warbler.

The specimen is a young male, and had not entirely completed the moult, and was very fat. This bird makes the third specimen captured in South Carolina, and, if I have read the record correctly, makes the third specimen taken in the United States during the autumnal migration; while it is the latest fall record by eighteen days for the presence of the bird in the United States.

Previous to the capture of the bird heavy frosts were noted, and on the day of the capture there had been a heavy frost.

In the Atlantic states (in addition to the records from South Carolina) this species has been taken by Mr. William Palmer at Fort Myer, Virginia, on September 25, 1887, and a second specimen was seen, but not secured, a week later.[4] In Florida, a specimen was seen on April 19, 1897, at West Jupiter, and one was taken on April 27, at the same place by Mr. Charles B. Cory.[5] At Cumberland Island, Georgia, a specimen was taken on April 12, 1902, by Mr. A. H. Helme.[6]

Kirtland's Warbler breeds—as far as is known—only in the northern portion of the southern peninsula of Michigan (Oscoda, Crawford, and Roscommon counties), where, in July, 1903, Mr. Norman A. Wood[7] found the first nest, which contained one egg, besides several young birds. I have but little doubt that this species will be found breeding in Minnesota, Wisconsin, and northern Ontario.

A specimen was taken at Toronto, Canada, on May 16, 1900,

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[1] III, 1886, 412. [2] VI, 1889, 74. [3] XXI, 1904, 83-84.
[4] *Auk*, V, 1888, 148. [5] Ibid, XV, 1898, 331. [6] Ibid, XXI, 1904, 291.
[7] See Wood, *Bull. Mich. Orn. Club*, V, 1904, 3-13.

by Mr. J. Hughes Samuel and recorded by him in the *Auk*.[1] This bird is the only one which has been taken outside the United States during the migrations.

The migration of this species in spring is evidently to the westward of the Alleghanies, for I have never detected it here at that season, and St. Helena Island must be considered the most northerly limit of its range, whence it must migrate in a northwestwardly direction in order to avoid the higher mountains in North Carolina. In autumn it has been taken in Virginia, and in Chester and Charleston counties, South Carolina, which proves that its route of migration is different at that season.

Kirtland's Warbler winters in the Bahamas.

265. **Dendroica vigorsii** (Aud.). PINE WARBLER.

The Pine Warbler is a permanent resident and breeds very abundantly along the coast in pine woods. This species is, however, more abundant during late autumn and winter than in the breeding season, because of the addition of numbers of birds that breed far to the northward of this state and make it their winter home. True to its name, the Pine Warbler rarely leaves the pine forest except during brief intervals in the autumn months to feed upon the berries of the dogwood tree.

Audubon says in Birds of America:[2]

> The Pine-creeping Warbler constructs its nest of different materials, nay even makes it of a different form, in the southern and eastern States. In the Carolinas, for instance, it is usually placed among the dangling fibres of the Spanish moss, with less workmanship and less care than in the Jerseys, the State of New York, or that of Maine.

The statement that the nest is "usually placed among the dangling fibres of the Spanish moss" is certainly erroneous as it is invariably built in pine trees, at or very near the extremity of a limb, among the "needles."

The breeding season is from March to June. I have taken eggs containing small embryos as early as March 28, but the majority of the birds do not have full complements of eggs before April 4-10.

Much also depends upon the season. In 1895 the season was very backward and the first nest, which contained four fresh eggs, was not found until April 24, while another nest, with four eggs, was taken the following day.

The nest is always built on the horizontal branch of a pine

[1] XVII, 1900, 391. [2] II, 37-38.

tree, from fifteen to one hundred and thirty-five feet above the ground, and is constructed outwardly of strips of bark, slender twigs, and weeds, while the interior is lined with feathers, hair, and plant down. Although the nest is attached to the limb with caterpillar silk, which is very tenacious, it is sometimes blown away by the severe windstorms which frequently occur in March, thus forcing the birds to build again.

The first nest may contain four eggs, while the second usually numbers three. Sometimes three broods are raised, but this is unusual. The eggs are white or greenish white, spotted and blotched with umber, reddish brown, and lilac. They measure .70.×.52.

266. **Dendroica palmarum** (Gmel.). PALM WARBLER.

On September 7, 1896, I shot a typical specimen of this form near Mount Pleasant. This is my earliest record and the species is never common until September 22. Great numbers are regularly seen during October and November.

While this warbler is a regular winter visitant, it appears more frequently during severe winters than in milder ones. The winter of 1904 was very severe and Palm Warblers were especially abundant, many being killed by the cold weather. The following winter was also very cold and I observed numbers of birds almost daily. In the winter of 1906, however, I did not observe more than a dozen individuals in January and February, despite the fact that it was the mildest winter since 1890.

The birds migrate very early in the spring and long before they have acquired their summer plumage—my latest record being April 5. At Darien, Georgia, I took a belated example in full breeding plumage on May 16, 1891.

While migrating, the birds frequent fields as well as the sandy wastes on coast islands which are covered with wild oats and scattered bushes.

The Palm Warbler breeds in the interior of British America, Fort Simpson, Fort Resolution, and Fort Churchill.

267. **Dendroica palmarum hypochrysea** Ridgw. YELLOW PALM WARBLER; YELLOW REDPOLL WARBLER.

The Yellow Redpoll Warbler arrives from the north about October 10, and a few remain during some winters. It is never

really abundant, even as a migrant, but most of the birds usually appear from October 19 to the last of November. In spring, the birds migrate before they have attained their breeding plumage and I have yet to take a specimen in full plumage. The birds migrate even when they are moulting. I have not detected this form later than April 2.

The Yellow Palm Warbler breeds from Maine (Bangor) to New Brunswick and Nova Scotia. It has not yet been found breeding in Newfoundland and Labrador.

268. **Dendroica discolor** (Vieill.). PRAIRIE WARBLER.

My earliest dates for the arrival of this bird are March 21, 1897, and March 22, 1904. It is always common by March 31, and since I have seen it late in May and in the early part of June, within sixteen miles of Charleston, it must breed sparingly, although I have never found its nest. During the latter part of May, 1904, I saw a pair in a tract of scrubby oaks in a large clearing, but was unable to ascertain whether they were really breeding. As far back as June, 1885, I heard the song of two males in a growth of scrubby oaks within seven miles of Charleston, and on June 2, 1890, I heard a male singing near Yemassee. These birds must have had mates and were probably breeding, but I was unable to find any nests.[1] During the southward migration I have detected this species as early as July 4, and it remains until October 24, which is my latest record.

Although this species has been reported[2] at Frogmore, S. C., on March 5, 1888, March 12, 1889, and February 19, 1891, from records furnished by Mr. Walter Hoxie, I will state that these reports are unreliable, and that I distrust them because the Prairie Warbler is very susceptible to cold and could not possibly live in South Carolina at the time Mr. Hoxie records it. The winter of 1889-90 was unusually mild and the spring far advanced in March, yet I did not observe this warbler until March 27, although I was making observations in Beaufort and Hampton counties, which are sixty miles south of Charleston. On March 27, 1891, I observed my first Prairie Warbler, yet Mr. Hoxie states that he saw one on February 19 of the same year!

The Prairie Warbler breeds abundantly in the upper counties

[1] Mr. F. M. Weston, Jr., observed an adult feeding a fully fledged young bird June 18, 1909, at the Navy Yard.—Ed.

[2] U. S. Dept. Agriculture, Biol. Surv. *Bull.* No. 18.

of the State. It winters in southern Florida, and the West Indies.

269. **Seiurus aurocapillus** (Linn.). OVEN-BIRD; GOLDEN-CROWNED THRUSH.

I have observed the Oven-bird from April 9 to May 15 (when they were common at Yemassee), and from August 16 to late November. A few birds evidently winter regularly for I secured one on November 24, 1900, and another (which was very fat) on January 20, 1904. This latter specimen was recorded by the writer in the *Auk*.[1]

The birds arrive with great regularity in August and I herewith mention three dates upon which the first have been seen, namely—August 16, 1884; August 17, 1886; and August 18, 1900. In spring they are common by April 15, and the song, which is a loud chant, continues until the last bird has left. This species inhabits low, wet woods where most of its time is spent on the ground.

Mr. Leverett M. Loomis[2] found the Oven-bird breeding on Mt. Pinnacle, Pickens county, and also at Cæsar's Head, Greenville county.

This species winters from South Carolina (vicinity of Charleston) southward to the West Indies and Central America.

270. **Seiurus noveboracensis** (Gmel.). WATER-THRUSH.

This form is a transient visitant from March 24 to May 13, and from July 27 to November. A specimen taken near Charleston by the writer on January 20, 1887, is not typical of *noveboracensis*, but perhaps nearer *S. n. notabilis*. This specimen was recorded in the *Auk*.[3] The day upon which the bird was taken was very cold, and as insect life was absent the bird had eaten a few small minnows. It is now in the collection of my friend, Mr. William Brewster.

During the spring migration the Water-Thrush sings with much vigor, but in the autumn migration it rarely sings. Although it is eminently a swamp lover, it is commonly found in great numbers in autumn in cotton fields and wherever pea vines are growing, *i. e.* in dry situations.

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[1] XXII, 1905, 399.
[2] *Auk*. VII, 1890, 128, and VIII, 1891, 332.
[3] XXII, 1905, 399.

This species breeds in the mountains of West Virginia and northward to Hudson Bay.

271. **Seiurus noveboracensis notabilis** Ridgw. GRINNELL'S WATER-THRUSH.

This race of *noveboracensis* is apparently more abundant in late summer and autumn than the preceding species. I have observed it in spring from March 24 until May 20, and from July 18 until the middle of November. Of the specimen taken January 20, 1887, referred to under the name *noveboracensis*, Mr. Brewster writes as follows: "The Water-Thrush you mention I should call *notabilis* but it is hardly typical of that form." The habits of this race are identical with those of the preceding species.

The breeding range of this form extends from Minnesota and Nebraska northward to Alaska and East Cape, Siberia.

272. **Seiurus motacilla** (Vieill.). LOUISIANA WATER-THRUSH.

I have observed the Louisiana Water-Thrush from March 21 to April 26, and from July 13 to August 16. It is rare in spring, but during some years is exceedingly abundant in late summer. From August 1 to 16, 1902, I took no less than thirteen specimens—all shot in a very dense swamp near Mount Pleasant. A female taken August 11, 1902, has the entire pileum sooty black.

This species is almost always exceedingly shy and wary, and I know of no bird of its size so difficult to approach. I wore out an entire suit of clothes in attempting to shoot one of these birds which I pursued for more than a week in a very dense swamp, but without success! During the spring migration the exquisite song of the male is frequently heard. The birds are always exceedingly fat in July and August, but are lean in the spring.

Mr. Leverett M. Loomis[1] found this species breeding among the mountains of Pickens and Greenville counties. At Chester, Mr. Loomis found it to be a very rare autumn migrant, but he did not observe it in the spring.

This species winters in the West Indies, Mexico, Central America, and Colombia.

273. **Oporornis formosa** (Wils.). KENTUCKY WARBLER.

This lovely warbler inhabits only the deep, dark, gloomy swamps where there is a dense undergrowth with more or less

[1] *Auk*, VII, 1890, 128, and VIII, 1891, 332.

water. It is positively rare in spring and I have but few records. The first bird was noted in 1890 on April 19, and this is my earliest record. Other spring records are May 3, 1886; May 6, 1891, at Hardeeville, Savannah River; and April 30, 1901, near Mt. Pleasant, where a male was heard singing and captured.

During the autumn migration, however, it is abundant, and I have taken specimens from July 31 (my earliest record), to September 15. During the autumn migrations occasional birds are found in open pine woods or on the edges of fields where there is no water. On August 1, 1902, I shot a female in open pine woods where Bachman's Finch breeds, and on September 15 of the same year, I took a male on the edge of a cotton field among some low bushes. The birds are most numerous between August 13 and 25, which is generally the hottest part of the summer, and September 15 represents the limit of their sojourn.

Mr. Loomis[1] found the Kentucky Warbler breeding in the mountains of Pickens county and also on Cæsar's Head, Greenville county.

The Kentucky Warbler winters in Central America and Colombia.

274. **Geothlypis trichas** (Linn.). MARYLAND YELLOW-THROAT.

This form is a transient visitant and is exceedingly abundant during the autumn migration. On some days thousands can be seen along roads which are flanked with patches of weeds. The birds also resort to fields of pea vines and hay-grass. About the first of September great flights commence and these "bird waves" continue well into October. In the spring there are well-marked flights, but the number is insignificant in comparison with those in autumn. By May 1 this form has migrated from the coast region.

The Maryland Yellow-throat breeds in the Piedmont region of the State (as well as in the upper counties), and northward to southern Labrador, and winters in the Bahama Islands, Mexico, and Central America.

275. **Geothlypis trichas ignota Chapm.** SOUTHERN YELLOW-THROAT.

This species is a permanent resident and breeds sparingly in large swamps where the cane (*Arundinaria tecta*) grows in abun-

[1] *Auk*, VII, 1890, 129 and VIII, 1891, 332.

dance, as well as in low pasture lands and on the sides of rice-field reservoirs.

The song period begins as early as March 7 in some forward seasons and continues until the middle of July. During the breeding season the males frequently fly high in the air and sing. This performance is often repeated at intervals of from ten to twenty minutes each morning and afternoon.

The nest is generally built in a cluster of canes growing in water, but it is sometimes completely hidden among the leaves of the swamp palmetto. A nest with four fresh eggs was found on April 25, 1906. It was placed between two leaves of the swamp palmetto and was entirely concealed. Some nests are built entirely of cane leaves and lined with fine grass, while others are constructed of fine grass. They are placed from seven inches to three feet over water, or the ground. Two broods are raised each season. I found a set of four eggs on June 11, 1885, and a set of four, heavily incubated, on April 24, 1907, thus proving that two broods are raised. The eggs are four or five in number, and are white, spotted and sometimes scrawled with reddish brown and blackish. They measure .70×.50.

A specimen was taken near Camden on January 8, 1906, by Mr. Nathan Clifford Brown, and recorded by him in the *Auk*.[1] This record is not surprising, for the winter of 1906 was the mildest since 1889–90, and this species unquestionably breeds in the Wateree River swamp.

276. **Icteria virens** (Linn.). YELLOW-BREASTED CHAT.

The Chat is a summer resident, arriving with great regularity in the spring, and it may be confidently expected between April 11 and 18. The birds are always abundant by April 22 and remain through August; but since they are always silent when the breeding season is over, I am unable to state exactly how long they remain with us.

This peculiar as well as interesting species inhabits only dense thickets of briars, and its breeding ground is of such a character that it absolutely precludes exploration. On this account I have found but two nests. The first was found in May, 1879, within two miles of Charleston, and was built in a Cherokee rose bush; while the second nest was not obtained until May 12, 1906.

[1] XXIII, 1906, 227-228.

This latter nest was built five feet from the ground in an almost impenetrable thicket of sweet briars (*Rubus Rosa rubiginosa*) and blackberry brambles, which followed the edge of a road for at least a mile. The nest is a fac-simile of Audubon's plate of the nest of this species. It is constructed externally of cane leaves and coarse grasses, and is lined with fine grass. The nest contained five fresh eggs, spotted profusely with bright reddish brown and pale lilac shell markings. They measured .90×.65. As far as my experience goes, only one brood is raised, for this species apparently disappears entirely before the end of August.

During the breeding season the males commonly fly high into the air and sing. With wings doubled back, they drop repeatedly downward a few feet at a time into the jungle. This aerial song continues until the last few days in June, and, like the Mockingbird, the Chat commonly sings at night.

The Yellow-breasted Chat winters in Central America.

277. **Wilsonia citrina** (Bodd.). HOODED WARBLER.

Of all the warblers that breed on or near the coast this beautiful species is the most abundant. It arrives with the greatest regularity in the spring—March 27, 1884, and March 23, 1890 being my earliest records, and by the 30th of the month it is always common. Although Audubon says[1] that "it arrives in South Carolina in April," this statement is erroneous for it always arrives in March. On March 24, 1890, I observed numbers of these birds near Yemassee. The Hooded Warbler is eminently a swamp lover and inhabits the same character of swamp in the breeding season as Swainson's Warbler. It prefers well-watered swamps with large areas of cane and tangled thickets where the sunlight seldom penetrates to the ground, even at noon.

The nest is built in a cane or low bush and ranges from one to five feet above the ground or the surface of water. It is firmly attached to the canes or bushes with caterpillar silk, and is constructed of cane leaves and weeds, lined with fine grass, pine needles, and the dead threads of the Spanish moss. The eggs are three or four in number, and are white or pale creamy white, speckled, spotted, and blotched with reddish brown and pale lilac in the form of a wreath near the larger end. They measure .70×.53. I have found full complements of eggs containing

[1] Birds of America, II, 13.

small embryos, as early as April 25, and as late as June 26, which shows that two broods are raised.

The song period is protracted for more than five months. A few birds migrate during the first week in August and by October 1st all have departed.

This beautiful species winters in the West Indies, eastern Mexico, and Central America.

278. **Setophaga ruticilla** (Linn.). REDSTART.

The Redstart has been observed from April 15 to May 19, and from July 4 to November 4. It is not common during the spring migration and in some years it is rare or even entirely absent. In the autumn it is always exceedingly abundant, especially in September and the first two weeks in October, when hundreds can sometimes be seen in the course of a few hours. At this season the birds frequent high land rather than swamps,and numbers resort to the Pride of India trees which grow near settlements.

This species is an expert flycatcher and I have known numbers of them to remain for weeks near stables where insect life was abundant. It is difficult to realize what becomes of the enormous numbers of birds which pass this coast from July to November, since very few are to be observed in the spring.

Although the Redstart has not been detected in the month of June in South Carolina, it must breed within the State since it is only absent from the coast for forty-six days, and reproduction must be accomplished in that time. I have seen numbers of these birds here as early as July 8. It is known to breed from North Carolina northward to Hudson Bay and the Mackenzie River.

In winter it ranges from the West Indies to northern South america.

FAMILY MOTACILLIDÆ: WAGTAILS AND PIPITS.

279. **Anthus rubescens** (Tunst.). AMERICAN PIPIT; TITLARK.

I have known this familiar bird since my boyhood days when I used to catch it in traps. It is an abundant autumn, winter, and early spring visitant, occurring on the coast islands as well as on the mainland. A few birds arrive by October 5 if the weather is cold, but if it is warm they do not appear until the last of the month. My earliest records are October 5, 1895 and October 10, 1903.

Throughout the winter the birds are common in fields as well as among the sand hills on the coast islands. They have a predilection for land which is being plowed, and, as a furrow is turned, the birds at once fly or walk to the place in search of worms and insects which are exposed. They are, therefore, of great benefit to the agriculturist and are seldom, if ever, molested.

The Titlark is also fond of land which has been burned, and when the farmers burn the grass in winter the smoke attracts large numbers of these birds from places more than a mile away. During very cold weather the birds come into my yard and feed with the poultry. If the weather is warm the great majority of the birds that have wintered migrate early in March, but if the month is cold, flocks remain until the 16th. On March 30, 1910, I saw several of these birds—a very late date. By April 6, only a few belated migrants are left.

The Titlark breeds in the mountains of Colorado and the Sierra Nevadas among the snow fields above timber line. It also breeds in Newfoundland, Labrador, and Alaska.

280. **Anthus spragueii** (Aud.). SPRAGUE'S PIPIT; SPRAGUE'S MISSOURI LARK.

The type specimen of this fine species was taken by Mr. Isaac Sprague on June 19, 1843, near Fort Union, North Dakota.[1]

On November 24, 1893, I shot a specimen near Mount Pleasant, and on November 17, 1900, I shot another within a quarter of a mile of the spot where the first was taken. Again on November 1, 1904, I saw and heard one sing. These records were published by the writer in the *Auk*.[2] As they are inaccessible to most students who are interested in the ornithology of South Carolina I herewith transcribe them in full:

The capture of this far western species was the good fortune of the writer on the morning of November 24, 1893. I had taken advantage of the spring tide to secure some Scott's Sparrows (*Ammodramus maritimus peninsulæ*) [=*Passerherbulus maritimus macgillivraii*], and upon going over a cyclone-swept cotton field *en route* to the marshes, I noticed a bird that resembled the Titlark (*Anthus pensilvanicus*) but observed that it did not wag its tail. I knew at once what it was—a western prize, and I at once shot it. The bird is an adult male in very fine unworn plumage, and was very fat. The exact locality was nine miles from Mount Pleasant, and two miles from the ocean. As far as I am aware this is the first eastern record for this species.

It is with much pleasure that I am again able to record the capture of this

[1] Audubon, Birds of America, VII, 334.
[2] XI, 1894, 80; XVIII, 1901, 275, and XXII, 1905, 400.

interesting bird. The first specimen was recorded in 'The Auk,' Vol. XI, 1894, p. 80. I shot the specimen I now record on November 17, 1900. When first seen the bird was mistaken for the Grass Finch, but upon approaching it too closely it flew upward in circles until it was nearly out of vision when I realized that it was a veritable Sprague's Pipit. I continued to watch this mere speck in the heavens hoping that it would again alight. Suddenly the bird pitched downward and alighted in a grassy field. I hastened to the spot and as it flushed I shot it. The specimen is an adult female, and, like the first one taken, is in fine unworn plumage.

This second specimen was captured within a quarter of a mile of the spot where I shot the first specimen on November 24, 1893. The capture of this second specimen seems to warrant the belief that this bird is something more than a mere wanderer or accidental visitor.

On the morning of November 1, 1904, I saw and *heard* a Sprague's Pipit *sing* while flying high in the heavens. I apparently saw the very spot where it alighted, but although I hunted the ground thoroughly throughout the entire day, I failed to find the bird. For previous records of the capture of this species in South Carolina by the writer, see 'The Auk,' Vol. XI, 1894, p. 80, and Vol. XVIII, 1901, p. 275.

In this connection I wish to place on record a bird of this species which I saw and also heard *sing* while it was flying overhead. This record was made the first week in November, 1892, on the west shore of Lake Tohopekaliga, Osceola County, Florida. I have no doubt that ornithologists who will investigate the fauna of this lake during the winter, will find this species to be a regular winter visitor there.

The specimen taken November 24, 1893, remained for nearly ten years the only record for the Atlantic coast or indeed anywhere east of the mouth of the Mississippi River. In 1903, Mr. A. H. Helme[1] secured on Cumberland Island, Georgia, nine specimens which were taken between January 19 and April 3.

The breeding range of this species extends from North Dakota northward to the Saskatchewan region of Manitoba and Assiniboia.

FAMILY MIMIDÆ: THRASHERS, MOCKINGBIRDS, ETC.

281. **Mimus polyglottos** (Linn.). MOCKINGBIRD.

This well-known songster of our south-land is a permanent resident and breeds abundantly near settlements as well as occasionally in the interior of large forests.

The nest is placed in a thick bush or a clump of vines, from three to ten feet above the ground. It is constructed externally of sticks and pieces of vines and lined with rootlets. The first brood of four or five eggs is laid during the second week in April. These are greenish blue, spotted and blotched with reddish brown, and measure 1.00×.71. As far as my experience goes, only three broods are raised, the second usually numbering four, appearing in June, and the last in late July or August.

[1] *Auk*, XXI, 1904, 291.

The birds which breed on the seashore mimic the notes of the various shore birds which annually pass along the coast *en route* to their breeding grounds, while the birds that breed near large swamps imitate only the birds that breed in or near such places. I heard a Mockingbird at McPhersonville imitate the song of all the species that were breeding in a large swamp on the outskirts of the village as well as the migrating Bartramian Sandpiper. This species is a persistent singer during moonlight nights and seems to delight in imitating the notes of the Chuck-will's-widow. It is silent during August and September, but begins to sing again in October and continues until the middle of November if the weather is mild.

In spring and summer the food of the Mockingbird consists of insects, while various berries, chiefly those of the Pride of India tree, constitute the diet during the winter.

A case of the interbreeding of a bird of this species with a Brown Thrasher was witnessed on a plantation near Mount Pleasant in July, 1906, by Mr. Ferdinand Gregorie who related to me the facts concerning the breeding. The nest was built in an orange tree, which was only a few feet from the piazza of his brother's dwelling house. The inmates of the house took it for granted that the nest belonged to a pair of Mockingbirds. But before the young had left the nest, Mr. Gregorie, who is a very close observer, stood in the piazza to watch the old birds feed the young, when, to his amazement, he saw a Brown Thrasher fly to the nest with food in its bill and feed one of them. When the Thrasher had left, a Mockingbird came with food in its bill and fed a young bird. This performance was daily witnessed by Mr. Gregorie and his brother until long after the young had left the nest and flown to some live oak trees in the neighborhood. Mr. Gregorie says that the Thrasher fed the young birds ten times to the Mockingbird's once and that the former was the female and the latter the male. The young birds had spotted breasts but the general color of the plumage resembled that of the Mockingbird rather than the Thrasher.

I was invited to visit the place to see for myself that no mistake was made but as I knew Mr. Gregorie to be a thoroughly reliable and exceedingly accurate observer I considered it unnecessary to do so.

282. **Dumetella carolinensis** (Linn.). CATBIRD.

Audubon says of this species in Birds of America:[1]

> They pass in abundance through Georgia and the Carolinas early in September. On their return in spring, they reach the neighbourhood of Charleston about the 20th of March, when they feed on insects found along the lanes and garden-walks; but none are heard to sing, or are found to breed there.

From this statement one would assume that the Catbird does not winter nor breed along the coast, which is in a measure erroneous, as it winters regularly, in small numbers, where gallberry bushes are plentiful, the fruit of which appears to be its chief winter food. That the birds occasionally breed is proven by the fact that I have taken a nest and three or four eggs in May, 1879 or 1880, in the yard of Mr. D. C. Ebaugh in Charleston. This is the only nest that has come under my observation during the past twenty-five years. The Catbird is exceedingly abundant during the migration, and especially in the months of September and October, when hundreds can be seen in tangled thickets along roads in the course of a short walk.

The eggs are dark greenish blue, and are said to range from three to six in number, measuring .95×.71. Although I have seen this species as late as the middle of May, I have never heard it sing.

The Catbird breeds abundantly in the interior of the State.

283. **Toxostoma rufum** (Linn.). BROWN THRASHER.

To my ear the song of the Brown Thrasher is sweeter, richer, and wilder than the Mockingbird, and as a musician he is simply incomparable. He is at his best during the month of April and the early part of May and from the top of a towering dead pine he pours forth his wild song which thrills the senses.

This well-known bird is a permanent resident and breeds sparingly and locally along the coast where there are thickets of briars and bushes bordering woods and roads. It used to breed regularly in the beautiful grounds of Mr. D. C. Ebaugh, but I doubt if it now breeds in the city of Charleston. Two broods are annually reared and possibly three as I have seen young birds in August.

The nest is constructed of sticks and leaves, lined with rootlets, and is placed in a low bush or thicket of briars, seldom more than six feet above the ground. The eggs, which are generally five

[1] II, 195-196.

in number, are usually deposited by May 9, and are greenish white or bluish white, very thickly speckled or sprinkled with reddish brown, and measure 1.08×.80.

The Brown Thrasher is more abundant in autumn and winter than in the breeding season, since the birds that breed to the northward of South Carolina appear in large numbers during the first cold spell in October.

FAMILY TROGLODYTIDÆ: WRENS.

284. **Thryothorus ludovicianus** (Lath.). CAROLINA WREN.

The Carolina Wren is exceedingly abundant throughout the entire state. It is a permanent resident and breeds commonly on wooded land, and also sparingly in the city of Charleston. It is a very early breeder. I found a nest containing five eggs on April 4, 1908, and upon visiting the nest again on the 8th found it contained six eggs. The last egg was laid on the 5th, which is my earliest breeding record. Three broods are annually reared as is proven by the following records: May 5, 1884, Otranto, three fresh eggs, set incomplete; May 10, 1884, Charleston, five fresh eggs; May 15, 1902, Christ Church Parish, six fresh eggs; July 11, 1902, Christ Church Parish, five fresh eggs; June 6, 1890, McPhersonville, five fresh eggs.

The nest, which is constructed of grass, leaves, moss, and snake skins, and lined with hair or the dead threads of the Spanish moss, is placed in all sorts of situations, such as barns, stables, poultry houses, holes of trees, partially closed palmetto leaves, tin cans in buildings, thick bushes, on the ground at the foot of thick bushes, and in wooden boxes nailed to trees. At McPhersonville, on May 6, 1890, I collected a nest and four slightly incubated eggs. The nest was placed in a hole in a bank and within a foot of a flood-gate. As a pair of Water-Thrushes (*Seiurus motacilla*?) were seen for several days within a few feet of the nest I naturally supposed that it belonged to them and hoped to establish a record of their breeding. I visited the nest several times during the course of three or four days in order to identify its owners, but despite all my care in approaching it, the sitting bird eluded me until late one afternoon when I discovered it on the nest and it proved to be the Carolina Wren. This set of eggs is in the collection of Mr. R. P. Sharples, and while several oölogists have pronounced them to belong to the Louis-

iana Water-Thrush, they are unmistakably those of the Carolina Wren.

The eggs are four to six in number, generally five, while six is exceptional. They are white or pinkish white, speckled and spotted with different shades of reddish brown and lilac shell markings. They measure .75×.56.

The Carolina Wren sings all through the spring and summer, and during warm weather in winter its sweet notes can be heard occasionally. This species is of inestimable value to the agriculturist since its food consists of insects and their larvæ.

285. **Thryomanes bewickii** (Aud.). BEWICK'S WREN.

The credit of having first detected this species in South Carolina is doubtless due to the late Dr. R. W. Gibbes of Columbia. He sent a specimen to Bachman, who is quoted by Audubon in Birds of America,[1] as follows:

"A specimen of this bird was sent me from Columbia in South Carolina, procured by Dr. Gibbs [Gibbes], and I have no doubt it will be found on the whole range of our southern mountains."

This prediction by Bachman has been fulfilled, for Mr. Loomis found Bewick's Wren breeding "at the foot of Mt. Pinnacle"[2] and on Cæsar's Head,[3] while as low down as Chester county it is resident.[4]

On October 16, 1907, I saw and positively identified a bird of this species as it rested for about a minute in a live oak tree, which was within sixty feet of a negro house, situated on Oakland plantation, Christ Church Parish, but failed to secure it as it flew into a dense thicket of weeds, briars, and bushes. There was no mistake in the identification, as the long, fan-shaped tail was diagnostic; besides, it was not the first Bewick's Wren I had seen alive for I found this species in positive abundance at Waukeenah, Florida, in 1894.[5]

My friend, Mr. Herbert Ravenel Sass, secured a specimen at the Navy Yard, within six miles of Charleston, on October 17 of the same year.[6] This specimen is the first that has ever been taken in the low coast region of the State, the bird being confined almost exclusively to the Alpine, Piedmont, and upper counties,

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[1] II, 121. [2] *Auk*, VII, 1890, 130. [3] Ibid, VIII, 1891, 333.
[4] See Ibid, VIII, 1891, 172. [5] See Ibid, XII, 1895, 367.
[6] See *Bull. Chas. Mus.* III, 1907, 54; and *Auk*, XXV, 1908, 87. This specimen is now in the collection of the Charleston Museum (Spec. No. 7030).—Ed.

and rare or entirely absent south of Richland county, as it delights in a rolling or hilly country.

286. **Troglodytes aëdon** Vieill. HOUSE WREN.

Although this species is said to be very rare in the interior of this state, as well as in the interior of Georgia, it is a common bird along the coast where I have frequently seen hundreds of individuals in a short walk in September. It generally arrives by September 18 (or a little earlier) and remains until April 30; none breed, however.

Mr. Leverett M. Loomis has announced[1] having seen "but two, and these, May 4, 1888, in Chester county." Dr. Eugene Edmund Murphey informs me that it is very rare in Richmond county, Georgia. This wren appears to be supplanted by Bewick's Wren (*Thryomanes bewickii*), which is common and breeds in Chester county as well as in Richmond county, Georgia. It would almost seem that wherever Bewick's Wren is common as a migrant or a breeder, the House Wren is rare or even absent. This, however, is not a fact for I found Bewick's Wren and the House Wren wintering in positive abundance near Waukeenah, Florida, in 1894.[2]

The House Wren frequents wooded land as well as roads which are flanked with thickets of bushes. It also resorts to wood piles where it finds food and shelter during the coldest weather. In spring it sings with avidity.

This species breeds from Virginia northward to Maine, and winters as far south as eastern Mexico.

287. **Nannus hiemalis** (Vieill.). WINTER WREN.

In Audubon's Birds of America,[3] he says:

> Having lately spent a winter at Charleston, in South Carolina, with my worthy friend John Bachman, I observed that this little Wren made its appearance in that city and its suburbs in December. On the 1st of January I heard it in full song in the garden of my friend, who informed me that in that State it does not appear regularly every winter, but is sure to be found during very cold weather.

The statements by Audubon and Bachman that this species arrives in December and also that it is not a regular winter visitant are certainly erroneous, for the bird is a regular visitor, arriving as early as September 29, and remaining until April 20 or even later.

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[1] *Auk*, VIII, 1891, 173. [2] Ibid, XII, 1895, 365-367. [3] II, 131.

I have invariably noticed that when this diminutive wren arrives in September, or the first week in October, a severe winter can be expected. On September 29, 1903, I noted the first bird, and the winter of 1903–1904 was very severe. This has been the case in all severe winters since 1886.

The Winter Wren is by no means common, but a few birds can readily be found in woods where there are thickets and fallen trees and more or less water on the ground, from October until the middle of March. It is very retiring in its habits and is consequently oftener heard than seen. I have seldom heard it sing in winter, but from March until April 4, when the days are mild, I have often heard its exquisite song.

Mr. William Brewster[1] found the Winter Wren breeding in the Black Mountains, North Carolina, at an elevation of 5,000 to 6,000 feet. This is the most southern breeding record known in the Alleghanies, but the species breeds as far north as Moose Factory.

288. **Cistothorus stellaris** (Licht.). SHORT-BILLED MARSH WREN.

This is another diminutive species whose haunts are entirely different from those of the preceding. It inhabits freshwater marshes and fields which are covered with broom grass, rarely, if ever, resorting to the salt marshes. The centre of abundance is on the rice plantations, where it is exceedingly abundant during the autumn, winter, and spring months. My earliest record is September 23, 1896, and my latest May 15, 1906. The birds sing in the early part of April and continue in song until they migrate. I have noticed that this species is always very active about dusk, and long after the sun has set numbers can be heard uttering their peculiar call notes throughout the marshes or fields of broom grass.

Although the Short-billed Marsh Wren has been said to breed on St. Simons Island, Georgia,[2] I question the statement as I failed to find any of these birds at Darien in May, 1891, and I doubt if it breeds in any portion of the South Atlantic States; it has, however, been found breeding from the Middle States to Maine, and Mr. E. A. Preble detected it at Norway House, Keewatin, on June 20.

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[1] *Auk*, III, 1886, 176.

[2] Bailey, H. B., *Bull. Nutt. Orn. Club*, VIII, 1883, 38.

The great majority of the specimens that I have taken in South Carolina have the flanks conspicuously barred with blackish.

289. **Telmatodytes palustris** (Wils.). LONG-BILLED MARSH WREN.

The wrens of the genus *Telmatodytes* are a puzzling group, of which four forms occur on this coast, though only one breeds. This species is darker above and whiter beneath than *T. p. iliacus*, but not as dark as *T. p. marianæ*, while it differs from *T. p. griseus*—the breeding form—in being larger, browner, and with more black on the pileum and back.

This form is an abundant autumn, winter, and late spring visitant. My earliest record is September 4, 1895, and the latest May 17, 1897. During the migrations it is most abundant in October and April, when it is commonly found on the salt marshes. In winter, however, the birds prefer the freshwater marshes on the rice plantations, and I have seen more than a hundred individuals in the course of a few hours in such situations. The birds are in full song towards the last of March.

This form breeds from Virginia to Massachusetts.

290. **Telmatodytes palustris griseus** (Brewst.). WORTHINGTON'S MARSH WREN.

I have been well acquainted with this little bird ever since my boyhood days, and it was my delight to bog in the marshes at Vardell's and Paine's Creeks, near Charleston, in company with my schoolmate, Mr. B. F. Evans, and others, in search of the nest and eggs of the "Tom Tit," as this wren was known. In those days the birds fairly swarmed throughout the high marshes bordering these creeks and it was not uncommon to find from twenty-five to fifty nests in a few hours of careful search. On several occasions, between the years 1877 and 1879, I remember distinctly having found pure white eggs of this form with a speck or two of purplish shell markings at the larger end. The eggs are, however, normally chocolate color, but sometimes of a paler shade and spotted with brownish olive. From four to six eggs are laid, measuring .62×.43. If the season is forward and the marsh has attained a sufficient height, the birds sometimes have full complements of eggs by the middle of May, but most of them begin to lay in the last few days in June. Three broods are certainly raised, for I have taken eggs as late as August 9.

The nest is globular, with the entrance at one side, and is constructed of partially decayed blades of the marsh grass, which is used in a wet and muddy state, enabling the material to adhere. It is lined with the tips of the marsh grass and occasionally a few feathers. These birds often build no less than eight or ten nests in a season, because the spring tides often submerge them, and a mouse (*Hesperomys leucopus*), which lives in the marsh and builds a nest similar to that of the wren, commonly takes possession of the nest and often eats the eggs as well as the young.

The birds sing persistently all through the breeding season, but are silent in autumn and winter. At the present time the birds are rare and confined to a few restricted and widely separated localities, the great cyclone of August 27 and 28, 1893, having almost exterminated them. This form is non-migratory, and I understand that it is abundant on the coast of Georgia. If the birds were migratory the places of those that were destroyed by the cyclone of 1893 would be filled by migrants from Florida and Georgia. This, however, has not been the case, showing conclusively that this form is non-migratory.

In the *Auk*,[1] Prof. Robert Ridgway and the writer recorded this wren under the name *Cistothorus marianæ*, which was an error. Mr. William Brewster, by whom this form was described, recorded it in the *Auk*,[2] from Sapelo Island, Georgia, under the name *Cistothorus palustris marianæ*, which was also an error.

When in full adult plumage this form is unmistakable—being a gray bird. There is no evidence that *griseus* interbreeds with *marianæ*, and I think it should be given full specific rank. The breeding range of *griseus* extends along the South Carolina coast as far north as the mouth of the Santee River. A glance at the map of South Carolina will show that there are no salt marshes of any extent from Georgetown to Southport, N. C., in which this wren could breed.

291. **Telmatodytes palustris iliacus** Ridgw. PRAIRIE MARSH WREN.

This form is a regular autumn visitor, arriving by September 18 and remaining until the last of October or possibly the first week in November. It may winter, but I have not established the fact by the actual taking of a specimen, although I have ob-

[1] VIII, 1891, 239-240. [2] V, 1888, 432.

served some at close range which appeared to be very rufescent.

I have been of the opinion for many years that a new form of wren occurred on the coast of South Carolina, and in my register under date of October 1, 1898, in reference to a specimen shot near Mt. Pleasant, the following entry was made: "Marsh Wren, female, very bright and curious." Other entries in my register are as follows: September 18, 1899, Long-billed Marsh Wren, female, rufescent; September 20, 1899, two females, rufescent; September 21, 1899, one male and two females, rufescent; October 22, 1899, female, rufescent. Mr. Brewster has kindly sent me some wrens which I collected in this state years ago, and among the series I have found a specimen taken December 9, 1886, at Charleston, and another taken at Hardeeville on May 13, 1891, both referable to *iliacus*.

This race is unquestionably a good subspecies for it does not require a microscope to reveal the distinguishing characters!

According to Mr. Ridgway,[1] the breeding range is the Great Plains and the prairie districts of central United States and south central British Provinces, north to Alberta, and probably to Manitoba. As I have already stated in this work that some birds which breed in the Great Plains and Mackenzie River region migrate in a south-eastwardly direction to the coast of South Carolina, this western form is but another addition to the list.

292. **Telmatodytes palustris marianæ** (Scott). MARIAN'S MARSH WREN.

Marian's Marsh Wren was originally described from specimens taken on the west coast of Florida (Tarpon Springs) by Mr. W. E. D. Scott, who believed that it was resident; this, however, is not the case for it breeds, as far as is known, only on the North Carolina coast. Although this race was reported from North Carolina by Mr. T. Gilbert Pearson[2] under the name *Cistothorus palustris griseus*, the birds were really examples of *T. p. marianæ* as I have pointed out.[3]

On April 16, 1897, I secured an adult female near Mount Pleasant which was the first record for the Atlantic coast. This specimen, as well as many others taken in 1898 and 1899, I recorded in the *Auk*.[4] I obtained on October 1, 1898, an adult pair,

[1] Birds of North and Middle America, III, 493.
[2] *Auk*, XVI, 1899, 250.
[3] Ibid, XVI, 1899, 362.
[4] XVI, 1899, 361.

which are ultra-typical as the upper parts are very dark and the breast heavily barred and spotted. The birds that occur on this coast, however, differ from Florida examples in having more white on the under parts. This form, which is the darkest of the genus *Telmatodytes*, breeds on the coast of North Carolina and hence between two paler races, which is very strange indeed.

The birds arrive with great regularity in September, my earliest record being the 16th, when several were shot, but I suspect that they reached the neighborhood of Charleston about the 10th of the month. They are common until the beginning of November, when the great majority migrate southward, but a few winter regularly among dense reeds which grow in profusion on some of the coast islands. I have not detected it in the spring later than May 8, but believe that many remain until shortly after the middle of the month.

These wrens, as well as the Seaside and Sharp-tailed Sparrows, can only be pursued successfully when there are spring tides. At such times the birds that frequent the marshes are driven on the shore and seek protection among the broom grass, reeds, and maritime bushes which grow close to the water's edge. As soon as the tide recedes all the birds betake themselves to their favorite salt marshes.

FAMILY CERTHIIDÆ: CREEPERS.

293. **Certhia familiaris americana** (Bonap.). BROWN CREEPER.

The Brown Creeper, a winter visitant, arrives with great regularity in October, the 21st, 1898, and 17th, 1900, being my earliest records. It is common all through the winter and a few remain until early in April if the season is backward, but if the weather is mild the majority migrate by March 25.

This species prefers a swampy country which has a deciduous forest growth, rather than pine woods with an undergrowth of scrubby oaks and bushes. It is a diligent explorer when searching for insects and their larvæ, and while engaged in this occupation seldom leaves a tree until it has thoroughly searched it from the base to the topmost branches. When in a pine tree the protective coloration is so great that it can be distinguished with difficulty. The birds are rarely in song while they sojourn here, but sometimes sing in March with some energy, if the weather is favorable.

In Audubon's Birds of America,[1] he says:

> The only parts of the United States in which I have not met with this species during winter are the eastern and northern portions of the Floridas.

The writer met with this species in positive abundance on the Suwanee River from March 10 to 20, 1892, and also on the Wacissa and Aucilla Rivers, in February and March, 1894,[2] thus making the first records for Florida.

This species breeds as far south as the mountains of North Carolina (above 4,000 feet), this record being established by Mr. William Brewster.[3]

FAMILY SITTIDÆ: NUTHATCHES.

294. **Sitta carolinensis atkinsi** Scott. FLORIDA WHITE-BREASTED NUTHATCH.

Although Mr. Ridgway[4] gives the range of this form as "Florida and westward along Gulf coast to Mississippi," I must confess that I do not agree with him so far as this state is concerned, for the birds that are resident on the coast are certainly much nearer *atkinsi* than typical *carolinensis* of the interior of the State. While a great many of the females I have taken have the pileum gray or bluish gray they are undoubtedly immature, since the skull plainly shows that ossification was not fully developed. A female, taken near Charleston by the writer on January 22, 1903, has the entire pileum, as well as the nape, glossy black. This is an adult bird for the skull was fully ossified, and nearly all of the adult females that I have taken had the whole top of the head, as well as the nape, deep black. Typical *carolinensis* certainly does not occur along the coast, at least in the vicinity of Charleston and to the southward.

This nuthatch is by no means common and a forest of from one hundred to three hundred acres seldom contains more than three or four pairs. The birds frequent wooded land, showing a preference for mixed pine woods; but I have also found them in the largest swamps, where they are generally in pairs, never congregating in small flocks like the Brown-headed Nuthatch.

These birds mate in February, generally about the middle of the month, and at this season they are most affectionate. If the male has procured a tempting morsel and the female is far away in

[1] II, 109.
[2] *Auk*, X, 1893, 337, and XII, 1895, 365.
[3] Ibid, III, 1886, 176.
[4] Birds of North and Middle America, III, 444.

another part of the woods, he will call and call until she comes, when he feeds her. This habit I have not observed in the Brown-headed Nuthatch, but it is characteristic of the Titmice.

The nest of this nuthatch is very hard to discover; indeed I have found but three during all these years, although I have watched the birds daily for several weeks at a time. The first nest was found early in March, 1903, while it was being constructed, and was taken on the 18th with the full complement of five eggs. It was placed in an abandoned hole of the Red-cockaded Woodpecker (*Dryobates borealis*), in a living pine tree twenty feet from the ground. While the female was incubating, the male frequently came to the hole bringing food for his mate and exhibited the utmost affection and happiness. I disliked very much to rifle their home, but the desire of possession was too keen for me to resist, especially since it was the first nest I had ever found. Although I nailed cleats upon the tree the female did not leave the hole when I reached it, nor when it was being enlarged with a hatchet, and she continued to cling to her treasures until I gently removed her. This female had the top of head and nape wholly black. Another set of five eggs was taken on April 6 of the same year and belonged to the same pair, being the second laying. The eggs were laid in a hole of the Downy Woodpecker (*Dryobates pubescens*), in a dead pine thirty-five feet from the ground.

On March 29, 1904, I found a nest containing five eggs and left them until the 31st to see if more would be added, but upon examining the contents, the set still contained the original number and was without doubt complete. This nest was built in a natural cavity of a red oak tree about forty feet above the ground. As far as my experience goes, this form does not excavate a hole for the reception of its nest and eggs, but uses the deserted holes of the smaller woodpeckers, as well as natural cavities of trees. The nest is composed of bark strippings of various plants, as well as caterpillar silk and cocoons. The eggs are white, thickly speckled with reddish brown and lavender shell markings. A set of five eggs measure respectively: .73×.57, .74×.56, .72×.56, .73×.58, and .74×.58.

295. **Sitta canadensis** Linn. RED-BREASTED NUTHATCH.[1]

[1] The Charleston Museum has the following records for this species in 1906: October 10, St. Andrews Parish, Mr. H. R. Sass; October 28, St. Andrews Parish, Messrs. H. R. Sass and F. M. Weston, Jr.; October 29–November 2, a pair seen in his garden in Charleston by Mr. Sass, and recorded by him in *Bull. Chas. Mus.*, II, 1906, 65–66.—Ed.

Audubon says in Birds of America:[1]

The flight of the Red-bellied Nuthatch is seldom protracted farther than from tree to tree; and in this manner a certain number go south at the approach of winter, some at this season venturing as far as South Carolina although they are never seen in the maritime districts of that State.

From this statement it would appear that neither Audubon nor Bachman ever detected it at or near Charleston. On November 14, 1895, I saw two specimens on Long Island (Isle of Palms), one of which was secured, making the first record for the coast region. These specimens were recorded by the writer in the *Auk*.[2] Since these birds were observed I have found the species to be an irregular autumn and early winter visitant, as the following records will show:

Long Island, November 27, 1901. Shot six and saw over a hundred in pine and cedar woods near the front beach; also shot two on December 26 at the same place.

Dewees Island, December 18, 1903. Took an adult male.

Oakland plantation, Christ Church Parish, October 29, 1906. Shot an adult male, the specimen being the only one I have yet observed on the mainland.

Long Island, November 3, 1906. Saw more than twenty-five and obtained two.

Dewees Island, November 17, 1906. Shot two males, and observed perhaps thirty individuals.

This species shows moult when it arrives, and as long as it remains, which is certainly very strange. The birds feed upon the seed of the pine and cedar and seem to be particularly fond of the latter. While this bird has been common in November, 1901, and November, 1906, it apparently does not remain through the winter, but disappears almost as suddenly as it arrives.

My friend Mr. Ellison A. Smyth, Jr., shot a male of this species on October 4, 1886, in Clarendon county. This specimen was recorded by him in *Random Notes*,[3] and also in the *Proceedings* of the Elliott Society.[4] Mr. Smyth was of the opinion that the specimen taken by him was the first record for South Carolina, but Mr. Leverett M. Loomis secured a specimen in Chester county on February 24, 1877, which he recorded in the *Bulletin* of the Nuttall Ornithological Club.[5]

The migration of this nuthatch is not due to cold weather, but to the absence of food supply, which, as I have said, consists of the seed of the pine and cedar. The notes of this bird strikingly resemble those of the Ivory-billed Woodpecker, but are, of course, much weaker.

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[1] IV, 180. [2] XIII, 1896, 85. [3] III, No. XI, 85.
[4] II, 123-124, Oct. 1886. [5] IV, 1879, 211.

The Red-breasted Nuthatch breeds in the mountains of North Carolina (above 5,000 feet) and northward to Hudson Bay and Alaska.

296. **Sitta pusilla** Lath. BROWN-HEADED NUTHATCH.

This diminutive species is a permanent resident and is the commonest nuthatch that breeds in the State. It inhabits open pine woods where there are innumerable dead trees and stumps, in which it excavates a hole for the reception of its nest and eggs. The birds are generally distributed, being found in abundance on all the coast islands which have a heavy growth of pine trees.

If the season is forward the birds begin to mate towards the end of January, but as a rule most of them mate by the middle of February. The hole, which is excavated by both sexes, ranges from six inches to ninety feet above the ground, and is generally dug in a dead pine stump or tree, though sometimes a fence post is used. The birds are very fastidious in respect to the final selection of a nesting site and I have known them to dig several holes before a satisfactory one is finished. They are indefatigable little workers and seem never to tire, one relieving the other, or else uttering notes of encouragement while the excavation proceeds.

The nest is constructed chiefly of the leaf-like substance in which the seeds of the pine are enclosed, and I have often wondered at the infinite number of trips the birds make in carrying, one at a time, these soft and delicate pine seed-wings. The number of eggs varies from five to seven, generally six, exceptionally seven. They are white or creamy white, sometimes finely and evenly speckled, and again very heavily blotched with different shades of reddish brown and lavender. They measure .60×.49. I took a set of five fresh eggs near Charleston on March 12, 1887, which is my earliest record, while at Yemassee in the same year, I took fresh eggs on March 30. The winter of 1894-95 was very severe and the first nest, which contained six fresh eggs, was not found until April 17, while two more nests containing four eggs each were found on May 2, which shows that the birds do not breed with regularity.

Although Audubon says that "they frequently raise three broods in the season, but more commonly two," this statement is erroneous, for this species rears only one brood.

FAMILY PARIDÆ: TITMICE.

297. **Bæolophus bicolor** (Linn.). TUFTED TITMOUSE.

The Tufted Titmouse is a permanent resident and breeds abundantly in heavily timbered regions. The breeding season seems to be much later now than it was twenty-five years ago. On April 18, 1884, I examined a nest containing six young almost ready to fly, while on April 14 of the same year, a nest with six fresh eggs was found. These observations were made at Hobcaw plantation, Christ Church Parish. In more recent years full complements of eggs have been taken on the following dates: April 21, 1897, six eggs; April 26, 1899, seven fresh eggs; April 21, 1900, six fresh eggs; April 22, 1902, seven eggs; and April 30, 1902, five slightly incubated eggs.

This species deposits its eggs in natural cavities of trees or in deserted holes of the smaller woodpeckers and does not appear to excavate a hole for itself. It seems to have a preference for hollows in chinquapin and dogwood trees, and the hole ranges from four to forty-five feet above the ground. While nest-building, the birds carry large quantities of material at every trip and one generally accompanies the other to and from the site. The nest is composed of wool, cotton, hair, leaves, fibrous bark, and snake skins, the last article being indispensable to this species, as it is to the Crested Flycatcher. From five to seven eggs are laid, and these are white or creamy white, speckled, and spotted with reddish brown and lilac shell markings, and measure .75 × .52. Some specimens are of a light buff color flecked with russet. The birds are the closest of sitters and have to be removed from the nest before it can be examined. Only one brood is raised and these follow their parents for many months.

Although this species is supposed to breed only in cavities of trees, I found a pair breeding in festoons of the Spanish moss and herewith transcribe the account which I published in the *Auk*:[1]

On April 23, 1896, I noticed a Tufted Titmouse with its mouth full of building materials, and upon following it closely saw it fly into a very large mass of Spanish moss (*Tillandsia usenoides*). When it appeared again after depositing the nesting materials I was very much surprised to find that there was no hollow whatever where the moss was growing. It was followed by its mate, and made ten trips to the tree in less than fifteen minutes. Having had a good deal of experience with this species when nesting I knew it was characteristic of this bird to

[1] XIV, 1897, 98.

carry building materials to the nest even *after* the eggs were laid. I resolved to climb the tree with assistance later in the day, but a violent rain storm prevented my doing so.

The next day, however, to my sorrow, I counted five eggs upon the ground and the nest completely blown out. Undismayed, the female began work again in the same bunch of moss, but was not encouraged at all by her mate, who would fly into a hollow near at hand and whistle for her, but she paid no attention to the hollow—just looked in and left. She worked rapidly and carried huge mouthfuls at every trip. Upon climbing to the nest on May 3 I found that it contained three eggs, and left it for a full set. I was doomed to disappointment again, however, for the next day was very stormy, and upon visiting the tree I saw all the eggs on the ground and the nest, which was composed of dry leaves, hair, sedge, feathers and snake skins, blown down in a mass. The fact of the Tufted Titmouse breeding in Spanish moss is certainly a surprising departure for this bird.

298. **Penthestes carolinensis** (Aud.). CAROLINA CHICKADEE.

This species was discovered in 1833 by Audubon and Bachman who procured many specimens near Charleston. Audubon[1] says: "My friend John Bachman is of opinion that the smaller species [*carolinensis*] partially retires from South Carolina during winter, in consequence of the small number met with there at that season," and that "the eggs are pure white." This statement is a misconception, as the Carolina Chickadee is non-migratory and more are seen during the winter months than in the breeding season, for obvious reasons. Moreover, the eggs are always heavily spotted.

These birds frequent the same character of wooded land as the Tufted Titmouse, and both species freely intermingle in autumn and winter; the Carolina Chickadee, however, prefers swampy woods in the breeding season rather than uplands. The song period begins about the middle of February and the sweet notes are always welcomed as the herald of spring.

This species almost always excavates its own hole, rather than appropriating one of a small woodpecker, or a natural cavity in a tree. The birds generally select a small dead sapling (which is soft) such as a sweet gum, ash, maple, or pine, though a fence post is often used. Both sexes excavate, one relieving the other. When the hole is completed it varies in depth from seven inches to a foot or even more. The cavity is warmly lined with delicate fibrous bark of various plants, hair, fur, and a few feathers, all felted together with one side higher than the other as the birds use this part of the nest to cover the eggs when not incubating.

From five to seven eggs are laid, generally six, very rarely

[1] Birds of America, II, 153-154.

seven. They are white, speckled, spotted, and sometimes blotched with reddish brown and measure .60×.50. On March 31, 1884, I took my first nest and six eggs, which are now in the collection of my friend, Mr. William Brewster. This was the only nest taken in March up to 1903, when on the 23rd of the month I collected a nest and seven heavily incubated eggs, from a hole in a fence post, four feet from the ground. These are now in the collection of my friend, Mr. John Lewis Childs. On April 1, 1903, another set of seven eggs was found in a black gum fence-post. These are the only records I have of seven eggs. The great majority of the birds breed very regularly and full complements of eggs are usually to be found between April 4 and 10. In very backward seasons like 1895, the birds did not have full complements until April 21. I once found a bird of this species dead upon its nest, which contained six fresh eggs, on April 11, 1890, near Yemassee. Only one brood is reared in a season.

The Carolina Chickadee feeds upon insects, their larvæ and eggs, and is very beneficial to the agriculturist and horticulturist.

FAMILY SYLVIIDÆ: WARBLERS, KINGLETS, GNATCATCHERS.

299. **Regulus satrapa** Licht. GOLDEN-CROWNED KINGLET.

The Golden-crowned Kinglet is a winter visitant, arriving by October 15 and remaining until about March 28. My earliest records are October 15, 1896 and October 16, 1900. This diminutive bird always arrives later in the autumn and departs about four or five weeks earlier in spring than the Ruby-crowned Kinglet. The reason is that the birds are hardy and delight in very cold weather, being more active and conspicuous than when the weather is mild. Moreover the nearest breeding grounds are less than 300 miles from Charleston—the spruce belt in the mountains of North Carolina.

This species frequents the tops of the tallest forest trees, but at times resorts to the low undergrowth, while it frequently searches for food, during very cold weather, among the roots of fallen trees. At all times this bird seems to be fond of the company of Carolina Chickadees, Tufted Titmice, and its near relative the Ruby-crowned Kinglet. As early as the beginning of February, the males begin to look forward to the breeding season and constantly raise the feathers of the top of the head in order to

show their beautiful orange patch to the females. Although I have been familiar with this little bird ever since my youth I have yet to hear its song. The notes which it utters while it sojourns with us are squeaky, resembling those of the Brown Creeper.

During the migration I have seen over a hundred individuals in old, weed-grown fields in November, all of which showed the utmost fearlessness and would readily admit of approach to within a few feet.

Mr. William Brewster[1] found this species breeding in the spruce belt of the mountains in western North Carolina. This is the southern limit of the breeding grounds, which extend as far north as Labrador.

300. **Regulus calendula** (Linn.). RUBY-CROWNED KINGLET.

This winter visitant arrives from the north during the second week in October, the 8th, 1901, and 13th, 1899, being the earliest dates. It is never common until the last of October or the beginning of November and remains until at least May 1.

The song period begins early in April, and for so small a bird the volume and sweetness of its song is really remarkable. I have often wondered when listening to one of these little birds that a creature so small could possess such wonderful powers of vocalism. When engaged in singing, the males display the vermilion patch on the crown as if conscious of their superiority as singers, thus making lasting impression upon the observer.

The Ruby-crowned Kinglet inhabits the same character of wooded land as the preceding species, and, like it, commonly hovers on the underside of branches of trees, which are thickly covered with leaves, in order to obtain insects and their larvæ which constitute its food. This kinglet is not as high-ranging as the Golden-crowned, and appears to prefer low trees and bushes. It seems to prefer lavender and myrtle bushes, and associates freely with Orange-crowned Warblers on the coast islands as well as on the mainland.

This species breeds far north, even to the limit of tree growth, as well as in the high mountains of New Mexico and Arizona far to the southward, showing that altitude is equal to latitude. It can, therefore, be readily understood why it migrates so much later in the spring than the Golden-crowned Kinglet.

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[1] *Auk*, III, 1886, 177.

301. **Polioptila cærulea** (Linn.). BLUE-GRAY GNATCATCHER.

The Blue-gray Gnatcatcher is a permanent resident wintering regularly, as well as breeding abundantly in the vicinity of Charleston. The birds are sometimes very hard to detect during the winter, and at that season frequent the interior of large swamps where they find food and shelter. On December 15, 1885, I saw about a dozen and shot four specimens, near what is now the Navy Yard, and I herewith give a few dates on which others have been taken: January 10, 1889, one taken at Turnbull's (Navy Yard); January 2, 1893, shot one near Mount Pleasant; December 26, 1898, saw two and obtained one near Mount Pleasant; February 4, 1903, one taken near Mount Pleasant. All the specimens taken are apparently immature birds and the question is, where do the adults winter? As they are presumably more hardy than the young, the assumption would be that some of them, at least, winter at points along the coast to the northward of Charleston. This is, however, not the case for there are no records of their wintering in North Carolina. That the young should winter and not the adults is certainly very strange.

The birds that do not winter generally make their appearance about March 7, the earliest date being March 2, 1891, and by the middle of the month, or the third week, mating commences. The song of the male at this season is indeed beautiful and full of sweetness in spite of the small size of the singer. Both sexes assist in nest building and I have often observed both working on their beautiful home at the same time. The nest is built in a crotch or on a horizontal limb, from twelve to seventy feet above the ground, and from a distance it resembles a knot. Most of the nests I have examined were built in live oak trees and the birds undoubtedly prefer such trees because nesting material is plentiful. The nest is constructed of plant fibers, tendrils, and fine grasses, externally ornamented with lichens that grow on live oak and other trees; the lichens being placed on the exterior of the nest in the same manner as they grow on trees, *i. e.* with the light bluish gray side outward. By a free use of spiders' webs the lichens are firmly held in place. Most of the nests are lined with fine grass and plant fibers, but I have taken a few that are profusely lined with feathers.

The eggs, which are four or five in number, are greenish blue or bluish white, profusely speckled with reddish brown, and

measure .57×.45. The earliest dates upon which full complements of eggs have been taken are April 17, 1897, and April 19 of the same year, and the latest is May 9, 1895. These sets consisted of five fresh eggs and incubation had just commenced. Only one brood is reared in a season, unless the eggs have been taken, when the birds will build new nests and lay again.

This species breeds regularly in the live oaks on South Battery in the city of Charleston.

The Blue-gray Gnatcatcher winters from the vicinity of Charleston southward to Cuba, eastern Mexico, and Guatemala.

FAMILY TURDIDÆ: THRUSHES, BLUEBIRDS, ETC.

302. **Hylocichla mustelina** (Gmel.). WOOD THRUSH.

Although it is not generally known among ornithologists that this sweet singer breeds in the low coast region of this state, it not only does so, but also breeds as far south as northern Florida, where, on the Wacissa River, I found it breeding sparingly in 1894.[1]

The birds arrive from the south during the beginning of the second week in April—the 8th, 1890, being my earliest record—and I have observed numbers in autumn as late as October 22, which were greedily eating the berries of the dogwood. I believe many birds remain until the first week in November if the food supply is plentiful and the weather mild.

This species is eminently a swamp lover during the breeding season and the places it frequents are so dense that the sun's rays seldom penetrate to the surface of the ground even at noon. While the birds are not common as breeders, almost any large swamp will contain from two to five pairs. On June 8, 1885, I found my first nest, which contained three fresh eggs, near Charleston. The nest was constructed of leaves, twigs and moss, firmly plastered together with mud, and lined entirely with rootlets. It was built in the fork of an ash tree, over a pond of water and eight feet from the surface.

A nest containing four eggs was found on May 26, 1886, in a large swamp near Woodstock Station. This nest was built in a fork of an ash tree, ten feet above the ground, and was composed wholly of lichens, with a lining of rootlets. The earliest breeding date is May 12, 1890, when I found a nest and three incubated

[1] *Auk*, XII, 1895, 366.

eggs near Yemassee. The nest was placed on a dead ash limb, near a large cluster of vines, six feet from the ground, in swampy woods. The eggs are greenish blue, without spots, measuring 1.05×.70, and three or four constitute a full complement.

The Wood Thrush is a very shy bird and is much oftener heard than seen. Its song is flutelike, exceedingly rich in tone and volume, and can be distinctly heard for at least a quarter of a mile in the recesses of the great sombre swamps on calm days. The food in spring and summer consists of insects and other animal matter, and on this account the birds decompose shortly after they are shot.

The Wood Thrush winters in Cuba and Central America.

303. **Hylocichla fuscescens** (Steph.). WILSON'S THRUSH.

Wilson's Thrush is a transient visitant, arriving in spring during the first week of April and remaining until about May 10. In autumn it arrives with great regularity, and I have noted the first-comers on September 15, 1884, and September 14, 1895. They remain until the middle of October.

The birds inhabit deep, dark, gloomy swamps where there is more or less water on the land. Like other forms of the genus *Hylocichla*, this species delights in a well watered country where the forest is of a deciduous growth, and it is rare to meet with even a few individuals in open pine woods at the seasons of migration, as the birds prefer dark places where the sun is excluded by dense foliage. During its passage in spring, its delightful song can be frequently heard on calm days before and at noon. It is insectivorous in spring, but in autumn feeds chiefly upon various berries, principally those of the dogwood. While all the thrushes search for food on or near the ground, they commonly resort in autumn to the tops of the tallest trees to obtain berries.

The breeding range in the Atlantic states extends from Pennsylvania to Newfoundland, but it also breeds in the higher mountains of North Carolina. While a few are said to winter in southern Florida, the great majority spend that season in the tropics. It does not winter in any portion of South Carolina.

304. **Hylocichla aliciæ** (Baird). GRAY-CHEEKED THRUSH.

This species is a transient visitant, arriving from the south by the last week of April, but is not abundant until May 6. Some re-

main in backward seasons until near the end of the month. In autumn it occurs from the last of September to October 22. As common as this bird is during the migrations, it was unknown to both Bachman and Audubon, who undoubtedly overlooked or mistook it for some other species, probably Wilson's Thrush.

The Gray-cheeked Thrush is generally very shy and seldom admits of a near appproach. It inhabits the same character of swamp as the Wood and Wilson's Thrushes, but seems to prefer even darker places, and its sweet song is frequently heard in the spring.

All the thrushes of this genus have the habit of gently flapping their wings when on a tree or bush as if airing themselves, and are easily identified by this peculiarity.

According to Mr. E. W. Nelson,[1] this species breeds abundantly in Alaska and may also breed, at least sparingly, in eastern Siberia. It winters in Central America, Ecuador, Peru, and Venezuela.

305. **Hylocichla aliciæ bicknelli** Ridgw. BICKNELL'S THRUSH.

This is a small race of the Gray-cheeked Thrush, and I have taken but one specimen—on May 10, 1900, near Mount Pleasant—which is now in the collection of my friend Mr. William Brewster. As it is not always possible to distinguish this form from *aliciæ* when at large, and as it is needless to destroy it in order to ascertain its status as a migrant, I have refrained from shooting any numbers. It must, however, be rare, for the specimen taken May 10 looked so very small at a short distance, that I was certain it was a representative of *bicknelli* before I shot it, while all the others that I have seen at close range were very large and must have undoubtedly been *aliciæ*.

Bicknell's Thrush breeds in the Catskills and White Mountains, and in the Mud and Seal Islands off the coast of Nova Scotia. It winters in the Bahamas.

306. **Hylocichla ustulata swainsonii** (Cab.). OLIVE-BACKED THRUSH.

This transient visitant generally arrives in spring about the middle of April and remains until May 15. In autumn I have noted it from the last of September until October 22, but a few

[1] Report upon Natural History Collections made in Alaska, 216.

evidently remain into November. With the exception of the Hermit Thrush this is perhaps the tamest of the wood thrushes. It frequents the same character of swamp land as the other members of the genus, and like them feeds chiefly upon berries in autumn. Most of the birds sing imperfectly in spring and it is rare to hear the full volume of their beautiful song, which, once heard, is not easily forgotten.

The Olive-backed Thrush breeds in the Atlantic States from the northern Alleghanies northward, and winters as far south as Peru and Argentina.

307. **Hylocichla guttata pallasii** (Cab.). HERMIT THRUSH.

The Hermit Thrush is an abundant winter visitant arriving by October 23 and remaining until the second week in April. The birds are not abundant until the middle of November, when they are apparently settled for the winter. Although hardy, this species cannot endure sudden changes of weather, especially if very low temperatures prevail for even a few days, as great numbers perished on February 13 and 14, 1899. During January and February, 1895, hundreds succumbed to the cold weather, although the food supply was plentiful.

The Hermit Thrush is the least shy of the wood thrushes and can be readily approached within a few feet especially during cold weather. In winter the birds subsist upon berries of the tupelo, black gum, wild orange (*Prunus Caroliniana*), holly, and gallberry. In the spring the food consists of animal matter, and birds shot at this season decompose in the course of a few hours.

Although Audubon[1] states that this species is a "constant resident in the Southern States," he was misled, for the Hermit Thrush does not breed in any portion of these states, being simply a winter visitant.

The breeding range in the Atlantic states extends from the northern Alleghanies northward to Labrador.

308. **Planesticus migratorius** (Linn.). ROBIN.

The first Robins arrive from the north towards the last of October—the 20th, 1897, and 30th, 1903, being my earliest records.

Like the Cedar Waxwing, this species, upon its arrival, feeds upon the berries of the black gum (*Nyssa multiflora*) and tupelo

[1] Birds of America, III, 29.

(*Nyssa aquatica*) and confines itself to the swamps, rarely visiting settlements until the beginning of February, which is the month when most of the birds are to be observed. During this month the birds literally swarm where the wild orange (*Prunus Caroliniana*) and pride of India (*Melia azedarach*) grow in numbers near settlements.

The greatest resort for Robins between 1878 and 1883 was in the grounds of Mr. Hatch a few miles north of Charleston. This place was thickly covered with large trees of the wild orange and pride of India, and when there was a large crop of berries, the Robins frequented the place in countless thousands. I well remember the enormous numbers of birds shot for food (Robin pies) by men from Charleston who had access to the grounds. Among the great flocks of Robins, multitudes of Cedar-birds also frequented the place, and they fell victims by the thousands during the month of February and early part of March. These great flocks were migrating birds that had wintered to the southward of South Carolina and were *en route* to the north, for days would pass before another flight appeared. In the neighborhood of Charleston a few birds remain until April 20, which must be regarded as the regular limit of their sojourn, but a belated example was noted as late as May 2.

The Robin which breeds in the interior of this state, as well as in Georgia and North Carolina, has been separated as a distinct form from true *migratoria*, with the name *achrustera* applied to it. Although this race has been accepted by the committee of the American Ornithologists' Union as a valid one, I cannot detect any difference between specimens taken in the south and those of the north.

The Robin breeds abundantly in the grounds of Furman University, Greenville, as well as elsewhere in the interior of the State and northward to the Arctic regions.

309. **Sialia sialis** (Linn.). BLUEBIRD.

This familiar species is a permanent resident and breeds abundantly in settled districts as well as in the interior of large tracts of pine and oak woods. During the breeding season the birds are dependent upon woodpecker holes or natural cavities of trees in which to place their nests, and are hence wanting in most cultivated places which are destitute of dead or decaying trees.

Although Audubon[1] states that this species "breeds in the Floridas as early as January, and pairs at Charleston in that month," he was certainly mistaken, for the Bluebird does not commence to pair at Charleston until the last of February, or the beginning of March in some backward seasons, while even in forward seasons like 1890 and 1907, the birds did not begin to pair until late in February.

The nest, which is constructed of weeds, grasses and rootlets, is placed in an abandoned hole of a woodpecker, or a natural cavity of a tree or fence post, and ranges from five to one hundred feet above the ground according to the situation. The eggs are normally pale blue and unmarked, but I have taken three sets of eggs, which were pure white, in one season, from a single pair of these birds. As the taking of three clutches of white eggs in one season from one pair of birds is unusual, I herewith give the dates upon which they were secured: Mount Pleasant, March 30, 1896, four eggs, nest in fence post, and caught the female while sitting (this set is now in the collection of my friend, Mr. William Brewster); April 12, 1896, four eggs, nest in a Flicker's (*Colaptes auratus*) hole (this set was sent to Mr. R. P. Sharples); May 6, 1896, five eggs, nest in Flicker's hole and now in my collection. This bird laid another set of eggs late in May and I allowed her to raise the brood. I have taken eggs, which contained small embryos, as early as March 26, but most of the birds do not have full complements of eggs until about April 3. As many as three broods are occasionally reared, and four or five eggs are laid, measuring $.85 \times .63$.

During January and February 1895, as well as February, 1899, great numbers of these valuable birds perished from cold and starvation. Although this species is a berry-eater during the winter—and the crop of berries was a large one in the years referred to above—the cold was so intense that the birds undoubtedly perished not from lack of food but from cold and exposure. The number of birds that perished was great but this is a vigorous species and since 1899 it has recovered from the losses and is again as numerous as before.

In December it is not unusual to see flocks comprising hundreds of individuals. These birds are without doubt migrants from the north.

[1] Birds of America, II, 172.

Annotated List of Additional Species of the Interior of the State.

1. **Uria lomvia** (Linn.). BRÜNNICH'S MURRE.

A specimen of this far northern bird was taken near Anderson by Mr. J. Rowland Nowell and his brother on December 19, 1896, and was recorded by the late Dr. Elliott Coues in the *Auk.*[1] In January, 1897, I found the remains of some species of murre in a corn field near Mount Pleasant, but as it was almost denuded of feathers I was unable to identify the form to which it belonged. In December, 1896, there was a large migration of Brünnich's Murres from the north, and the remains of the bird I found may have been those of a representative of this species.

Brünnich's Murre breeds from the Gulf of St. Lawrence northward to the Arctic Ocean.

2. **Anser albifrons gambeli** (Hartl.). AMERICAN WHITE-FRONTED GOOSE.

In the Charleston Museum there were at least five mounted specimens of this species which were taken in the interior of the State. Dr. Eugene Edmund Murphey examined a goose killed in the Savannah River about Augusta and opposite Edgefield county, S. C., in the winter of 1903 or 1904, which he referred to this form.

This goose breeds in the extreme northern portions of North America, and is rare on the Atlantic coast.

3. **Bonasa umbellus** (Linn.). RUFFED GROUSE.

This fine game bird is a permanent resident in the mountainous parts of the State. In the counties of Oconee, Pickens, and Greenville the birds used to be abundant, but I doubt if many remain at the present day. They are found in the valleys as well as on

[1] XIV, 1897, 203.

the summits of the highest mountains. In 1882 the birds were really abundant at Cæsar's Head.

Mr. N. C. Brown records the capture of one of these birds at Camden on December 27, 1904.[1] A specimen of this species was said to have been shot in the autumn of 1874 at Mount Pleasant, and its identity was vouched for by several sportsmen who were acquainted with the species.

4. **Buteo lineatus** (Gmel.). RED-SHOULDERED HAWK.

The Red-shouldered Hawk is a permanent resident of the interior of the State, the subspecies *B. l. alleni* being restricted to the coast region.

5. **Strix varia** Barton. BARRED OWL.

This species seems to be confined exclusively to the upper counties, where it is a permanent resident. The line of demarcation between this form and *S. v. alleni*, I have been unable to define.

6. **Otus asio** (Linn.). SCREECH OWL.

The Screech Owl is a permanent resident of the northern counties, being found from Abbeville and Lancaster to the mountains. The form *O. a. floridanus*, of the coast region, certainly ranges northward along the Savannah River valley to the southern portion of Edgefield county.

7. **Coccyzus erythrophthalmus** (Wils.). BLACK-BILLED CUCKOO.

Dr. Coues says[2] concerning this bird: "Rare; summer, but chiefly migratory in April and September."

The Black-billed Cuckoo is not known to breed in the State and is at all times a very rare migrant. Mr. Loomis[3] records but two specimens taken at Chester during the migrations. I have not detected it on the coast, nor did Dr. Bachman ever observe it.

8. **Otocoris alpestris praticola** Hensh. PRAIRIE HORNED LARK.

This form appears to be a regular winter visitant in the upper counties of the State. Mr. Leverett M. Loomis[4] has noted immense flocks in Chester county, where the birds arrive the last

[1] See *Auk*, XXIII, 1906, 386.
[2] *Proc. Bost. Soc. Nat. Hist.*, 1868, 119.
[3] *Bull. Nutt. Orn. Club*, IV, 1879, 216.
[4] *Auk*, VIII, 1891, 57-59.

week in November and remain until the close of February.

Mr. J. Rowland Nowell has taken this form in Anderson county.

The Prairie Horned Lark breeds in the upper Mississippi Valley eastward to some of the New England states.

9. **Corvus corax principalis** Ridgw. NORTHERN RAVEN.

The Raven has been known to breed in the mountains of Oconee, Pickens, and Greenville counties for more than one hundred years, and still continues to rear its young among the more inaccessible portions of these mountains at the present day.

The old district of Pendleton, in which Table Mountain or "Table Rock" is situated—one of the breeding places of the Raven—was described in Drayton's View of South Carolina. This district now comprises the counties of Anderson, Oconee, and Pickens.

In 1882, I spent a portion of the summer at Cæsar's Head, Greenville county, but was unable to secure a specimen.

Mr. Leverett M. Loomis noted the Raven at Mt. Pinnacle, Pickens county,[1] and at Cæsar's Head.[2] He was, however, unable to obtain a specimen. At or near Toccoa, Habersham county, Georgia, this bird still breeds regularly.

Lieutenant A. W. Greely records a specimen taken at Fort Conger, latitude 81° 44′ N. on September 28, 1882, and at Cape Sabine it was observed by him in November, 1883, and February 20, 1884.

10. **Xanthocephalus xanthocephalus** (Bonap.). YELLOW-HEADED BLACKBIRD.

Mr. Leverett M. Loomis took an example of this western species at Chester on April 18, 1884, and recorded it in the *Auk*.[3] Dr. Eugene Edmund Murphey secured a specimen on September 23, 1893, at Augusta, Georgia.

The Yellow-headed Blackbird ranges from Illinois and Wisconsin westward to the Pacific coast.

11. **Icterus galbula** (Linn.). BALTIMORE ORIOLE.

This beautiful species is migratory in the upper counties. In his Birds of America, Audubon says:[4]

> They do not breed in the lower parts of South Carolina, but are found not unfrequently breeding at the distance of a hundred miles from the sea-coast of that State.

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[1] *Auk*, VII, 1890, 124. [2] *Auk*, VIII, 1891, 328. [3] I, 1884, 293. [4] IV, 41.

Dr. Elliott Coues says:[1]

Summer; not abundant as the greater number pass north.

From these statements it will be inferred that some birds breed in the middle and upper counties, but I have yet to see a specimen in the coast counties during the migrations, and doubt if it breeds in any portion of the State, as Mr. Loomis does not mention it in his list of birds of Pickens county or Cæsar's Head.

At Asheville, N. C., Mr. William Brewster[2] found the Baltimore Oriole breeding.

12. **Euphagus cyanocephalus** (Wagl.). BREWER'S BLACKBIRD.

This far western species was added to the fauna of South Carolina by Mr. Leverett M. Loomis, who on December 9 and 10, 1886, shot three males and two females from a flock of over a dozen at Chester. The capture of these birds was recorded by Mr. Loomis in the *Auk*.[3]

Brewer's Blackbird ranges from the Pacific coast eastward to Illinois, Louisiana, and South Carolina.

13. **Quiscalus quiscula æneus** (Ridgw.). BRONZED GRACKLE.

This subspecies is an abundant winter visitant in Chester county, where Mr. Loomis[4] has observed it from November 1 to March.

14. **Calcarius lapponicus** (Linn.). LAPLAND LONGSPUR.

The Lapland Longspur has been taken once in South Carolina, at Chester, by Mr. Loomis on January 1, 1881, and recorded by Dr. J. A. Allen[5] and also by Mr. Loomis.[6]

As but one specimen has been secured in the State, its presence must be regarded as merely accidental, for this species breeds in the far North—Greenland, Melville peninsula, etc. (as well as in high latitudes in the Old World), and is rare in winter as far south as Virginia.

15. **Calcarius pictus** (Swains.). SMITH'S LONGSPUR.

Two specimens of this boreal species were taken at Chester by Mr. Loomis; the first on December 1, 1880, and the second on February 9, 1889. These captures were announced by Mr.

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[1] *Proc, Bost. Soc. Nat. Hist.*, 1868, 117.
[2] *Auk*, III, 1886, 107.
[3] IV, 1887, 76.
[4] *Auk*, VIII, 1891, 167.
[5] *Bull. Nutt. Orn. Club*, VII, 1882, 54.
[6] *Auk*, II, 1885, 190.

Loomis in the *Bulletin* of the Nuttall Ornithological Club,[1] and in the *Auk*.[2]

Smith's Longspur breeds in the Mackenzie River region, from Great Slave Lake to Herschell Island, and, like many other species which breed in that region, seems to have a route of migration from the northwest into this state.

16. **Vermivora pinus** (Linn.). BLUE-WINGED WARBLER.

Mr. Loomis obtained a specimen of this species at Chester on April 30, 1887, which he recorded in the *Auk*.[3] I have never seen it in the coast region, and its occurrence at Chester is the only well authenticated record for the State.

The Blue-winged Warbler breeds abundantly in southern Connecticut, New York, Pennsylvania, etc., and winters in eastern Mexico, Guatemala, and Colombia.

17. **Vermivora chrysoptera** (Linn.). GOLDEN-WINGED WARBLER.

This species is apparently a rare autumn migrant in Chester county, where Mr. Loomis secured four specimens in August and September. He found it breeding, however, in the mountains in Pickens county, and at Cæsar's Head, Greenville county. These records were announced in the *Auk*.[4]

The Golden-winged Warbler winters in Central America and Colombia.

18. **Dendroica magnolia** (Wils.). MAGNOLIA WARBLER.

The Magnolia Warbler is an abundant transient visitant in Chester county, where it has been observed during the first two weeks of May, and from September 3 until the middle of October.[5]

This species breeds from the mountains of Pennsylvania to Hudson Bay, and winters in Mexico and Central America.

19. **Dendroica cærulea** (Wils.). CERULEAN WARBLER.

This beautiful warbler is rare east of the Alleghany Mountains. In Chester county, Mr. Loomis[6] considers it a rare though regular migrant, occurring in spring from April 13 to 30, and also in late summer and in fall, August 8 to October 22.

The breeding range of the Cerulean Warbler is chiefly the

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[1] VI, 1881, 115. [2] VIII, 1891, 167. [3] VIII, 1891, 169.
[4] VII, 1890, 127; VIII, 1891, 170, and 331. [5] See Loomis, *Auk*, VIII, 1891, 170.
[6] *Auk*, VIII, 1891, 170.

Mississippi Valley, although it breeds locally near Baltimore, Maryland. In winter it ranges as far south as Peru and Bolivia.

20. **Dendroica pensylvanica** (Linn.). CHESTNUT-SIDED WARBLER.

Mr. Loomis found this species breeding sparingly at Mt. Pinnacle[1] and abundantly on Cæsar's Head,[2] while he has noted it as a spring and fall migrant at Chester, where it occurs during the last week of April and remains until the 15th of May. In autumn it was observed from August 16 to October 19.

The Chestnut-sided Warbler winters as far south as Panama.

21. **Dendroica castanea** (Wils.). BAY-BREASTED WARBLER.

The only well authenticated records of the occurrence of this warbler in the State were furnished by Mr. Loomis,[3] who procured a specimen on May 14, 1887, and another on May 5, 1888, at Chester. This species is evidently very rare in the South Atlantic states. It breeds in northern Maine, New Hampshire, and northward, while its winter range appears to be restricted to Panama and Colombia.

22. **Dendroica dominica albilora** Ridgw. SYCAMORE WARBLER.

This is another western form which Mr. Loomis[4] has taken in the migrations at Chester, where it is common as a migrant, while in Pickens county he procured a pair of adults and one young bird on June 23, 1887, which proves that this subspecies breeds locally and sparingly in the northwestern portion of the State. Mr. Loomis did not, however, detect it at Cæsar's Head.

This form breeds in the Mississippi Valley and winters southward to Costa Rica.

23. **Oporornis agilis** (Wils.). CONNECTICUT WARBLER.

I have never seen this shy species in South Carolina, but Mr. Loomis took a specimen at Chester on May 10, 1889.[5] The capture of this bird in spring is noteworthy, as its route of migration at that season is to the westward of the Alleghanies.

The Connecticut Warbler breeds, as far as is known, only in Manitoba[6] and Minnesota,[7] and winters in northern South America.

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[1] *Auk*, VII, 1890, 127. [2] Ibid, VIII, 1891, 331. [3] Ibid, VIII, 1891, 170.
[4] Ibid, VII, 1890, 127. [5] Ibid, VIII, 1891, 172.
[6] Seton, Ibid, I, 1884, 192-193. [7] Gault, Ibid, XIV, 1897, 222.

24. **Wilsonia pusilla** (Wils.). WILSON'S WARBLER.

I can discover but one authentic record for the State.[1] This species must, however, be a regular migrant in the Piedmont region.

Wilson's Warbler breeds from northern Maine northward to Labrador and the regions about Hudson Bay, and winters south of the United States—Yucatan to Costa Rica.

25. **Wilsonia canadensis** (Linn.). CANADIAN WARBLER.

Mr. Loomis says[2] concerning the Canadian Warbler:

> Rare or casual in fall (September); not uncommon at times in spring (first two weeks of May), when they render themselves conspicuous by their frequent singing.

Although Mr. Brewster[3] found this bird breeding in the mountains of western North Carolina at an altitude from 3000 feet nearly to the top of the highest peak, Mr. Loomis did not detect it at Mt. Pinnacle (3436 feet) nor at Cæsar's Head (3218 feet), which is certainly remarkable.

The Canadian Warbler breeds as far north as Labrador, and its winter home appears to be chiefly Ecuador and Peru.

26. **Sitta carolinensis** Lath. WHITE-BREASTED NUTHATCH.

This nuthatch is a permanent resident in the interior of the State and is common on the tops of the highest mountains. The birds which breed along the coast, I have referred to the form *S. c. atkinsi*, but they are not, in every respect, typical of that race, being intermediate between *carolinensis* and *atkinsi* in regard to the black on inner web of second and third tertials. A specimen (apparently an adult male) taken February 16, 1907, near Charleston, has the black area extending to the shaft of both of the second tertials, while the third tertials are marked as in typical *carolinensis*. The majority of birds taken are intergrades, but some are almost, if not quite, typical of *atkinsi*.

The White-breasted Nuthatch ranges as far north as Fort Churchill, Keewatin.

27. **Psaltriparus minimus** (Towns.). BUSH-TIT.

Mr. Leverett M. Loomis records this diminutive species for the State on information furnished him by the late Dr. Cornelius

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[1] Loomis, *Auk*, VIII, 1891, 172, Chester, May 10, 1887. [2] Ibid, VIII, 1891, 172.
[3] Ibid, III, 1886, 175.

Kollock of Cheraw. I herewith transcribe the account that Mr. Loomis published in the *Auk*.[1]

In a letter received sometime since from Dr. C. Kollock, mention was made of the former breeding of the Least Bush-tit in the vicinity of Cheraw, South Carolina. Subsequently I wrote to him asking for further particulars concerning this interesting occurrence. His reply is as follows:—"As to the Chestnut-crowned Titmouse—*Parus minimus* of Townsend and Audubon—I never wrote anything on the subject except a short letter to the Rev. Dr. M. A. Curtis, who was then pastor of the Episcopal Church at Society Hill, about fifteen miles below Cheraw. When I first wrote him that I had found specimens of the Chestnut-crowned Titmouse near Cheraw, he wrote me promptly, saying that I must be mistaken, as that bird was never seen east of the Rocky Mountains. I had captured both the male and female, and the nest with six eggs in it. A few days later Dr. Curtis came to Cheraw, and when he saw the birds, nest, and eggs, he gave it up and said, 'You have discovered the first Chestnut-crowned Titmouse ever seen this side of the Rocky Mountains.' I saw perhaps six or eight others in the same locality. I have never seen any since that date, [the spring of] 1857, so it must have been an accident their appearing in this latitude."

This account adds still another instance of that peculiar easterly migration of "western" species toward the South Atlantic seaboard, which has so recently been revealed in the records of LeConte's Bunting, Painted Longspur, Nelson's Sharp-tailed Finch, and Yellow-headed Blackbird. It is to be hoped that the constantly increasing band of ornithological workers, scattered over the State, will be able to throw the clearer light of later experience on this and other legacies of the Bachmanian epoch of South Carolinian ornithology.

P. S.—Since writing the foregoing I have received a more detailed account from Dr. Kollock respecting the occurrence noted above, from which I add the following:

"The nest was suspended from low bushes, from three and a half to five feet from the ground; was in the shape of a long purse, from four to six inches in length, with a round hole at the top. The lower part or bottom of the nest was wider than the upper part. The nest was made principally of moss, lint, and down, and lined with feathers. There were several eggs—I do not now remember how many—four or five, I think, and were pure white. The nest was in a low place, not exactly a swamp or marsh, but a low bottom, grown up thickly with bushes of sweet-gum, hackberry, a bush known here as the spice tree. It was most beautifully and securely attached to the twigs.

"In 1857, Dr. Curtis was in the zenith of his reputation as a botanist and ornithologist. He died soon after the war. This is all I have to say on the subject of the *Parus minimus* being found in South Carolina. I had the male and female and a nest of eggs, all of which was burned in my office by Sherman's army in 1865. The birds and nest I procured in the very early part of May or latter part of April I was not mistaken in my identification. I saw the birds before they were captured, knew they were rare in this region, having given some attention to the ornithology of this State. Having procured the specimens, I referred the matter to Dr. Curtis, who, when he saw them, admitted at once they were the *Parus minimus*, and said, 'You are the first to find this bird east of the Rocky Mountains.' Dr. Curtis doubted my correctness of identification till he saw the specimens."

I have quoted Mr. Loomis' article in full, as the capture of the birds, nest, and eggs by Dr. Kollock, seems to have been discredited by ornithologists generally, no mention being made in the American Ornithologists' Union Check-List for 1895 or in the citations of this species in Birds of North and Middle Amer-

[1] III, 1886, 137-138.

ica,[1] by Robert Ridgway. My opinion is that the birds, together with the nest and eggs, taken and described by Dr. Kollock were unquestionably representatives of the Bush-tit and nothing else, despite the locality at which they were taken.

This species ranges from Oregon southward to Lower California.

28. **Hylocichla fuscescens salicicola** Ridgw. WILLOW THRUSH.

Mr. Loomis procured a specimen of this subspecies at Chester on October 5, 1888.[2]

This subspecific representative of Wilson's Thrush inhabits the Rocky Mountains, and ranges eastward to Dakota and Illinois. In winter it migrates southward to southern Brazil.

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[1] III, 1904, 433. [2] *Auk*, VI, 1889, 194.

Hypothetical List.

1. **Colymbus holbœllii** (Reinh.). HOLBŒLL'S GREBE.

Although I have been unable to find any valid record of the occurrence of this boreal species in this state, it undoubtedly occurs in severe winters, for Dr. Eugene Edmund Murphey procured two specimens at Augusta, Georgia, on February 13, 1904, and Mr. Isaac F. Arnow shot a specimen at St. Mary's, Georgia, on February 18, 1904.[1] These birds had to pass either along the coast or the interior of the State in order to reach Georgia.

This grebe breeds in the high boreal regions of North America. One of the birds taken by Dr. Murphey is now in my collection.

2. **Gavia arcticus** (Linn.). BLACK-THROATED LOON.

Audubon says of this species in Birds of America:[2]

> I well recollect that while I was standing near the shore of a large inlet in South Carolina, one of these birds, being shot while passing over my head at full speed, did not, on account of the impetus, reach the ground until upwards of twenty yards beyond me.

Audubon was unquestionably mistaken in the identification of the bird shot, as no additional examples have ever been taken in this state, and the bird he refers to was evidently a young Loon (*G. immer*), or a young Red-throated Loon (*G. stellata*). The Black-throated Loon is a very rare bird even in the northern United States, and I can find but one record for the Atlantic states, namely—Long Island, New York, April 29, 1893, recorded in the *Auk*,[3] by Mr. William Dutcher.

This Loon breeds in circumpolar regions.

3. **Fratercula arctica** (Linn.). PUFFIN.

In Audubon's Birds of America,[4] he states:

> The Sea Parrot, as this bird is usually called on the eastern coasts of the United States, as well as by the fishermen of Newfoundland and Labrador, sometimes proceeds as far south as the entrance of the river Savannah in Georgia, where I saw a good number in the winter of 1831-32. It is by no means, however, common with this species to extend its southward migrations so far, and I suspect it does so only in very severe weather.

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[1] *Auk*, XXI, 1904, 277. [2] VII, 296. [3] X, 1893, 265. [4] VII, 238.

If the birds Audubon saw were really Puffins it is the most southern record for the species and the only one for either South Carolina or Georgia, the Savannah River being the boundary between these two states. This record, however, is extremely doubtful and unsatisfactory, as the Puffin is rare in winter as far south as New Jersey.

4. **Larus marinus** Linn. GREAT BLACK-BACKED GULL.

The only direct statement I can find of the occurrence of this gull in the State is by Dr. Coues,[1] who says, "coast in winter." Dr. Coues' statement was evidently based on Audubon's statement as follows:[2]

> The farthest limits of the winter migrations of the young, so far as I have observed, are the middle portions of the eastern coast of the Floridas.

During the past twenty-five years I have failed to observe a specimen in winter, or at any other season, on this coast. Audubon must have been mistaken in his identification, for the Great Black-backed Gull is very rare in winter along the northern coast of North Carolina and no specimens appear to have been taken there, but simply seen.

In North America this fine species breeds abundantly in Newfoundland and Labrador.

5. **Sterna fuscata** Linn. SOOTY TERN.

6. **Anous stolidus** (Linn.). NODDY TERN.

In the A. O. U. Check-List for 1895 both of the above terns are accredited to South Carolina, but the authority for the citations is not given. It appears that neither Bachman nor Audubon ever observed these birds on this coast, and I have yet to see either of them.

The breeding range of these terns is similar, and in North America multitudes annually visit the Tortugas for the purpose of reproduction.

7. **Oceanodroma leucorhoa** (Vieill.). LEACH'S PETREL.

It is with some doubt that I include this species as occurring on our coast, but it appears to be well-known to the Charleston pilots, who state that it is often seen during the winter months.

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[1] *Proc. Bost. Soc. Nat. Hist.*, 1868, 126.

[2] Birds of America, VII, 173.

I have been unable to procure a specimen to substantiate their assertions.

On the Atlantic coast of North America, this species breeds from Maine northward.

8. **Mergus americanus** Cass. AMERICAN MERGANSER.

I have never seen this species alive and according to Audubon,[1] "Dr. Bachman has never seen one [in South Carolina]." This species is listed on the strength of Dr. Elliott Coues' statement,[2] but the record is unsatisfactory. While it is possible that this hardy species visits the coast region, as well as the interior, in severe winters, it has not to the best of my knowledge ever been taken in this state. Dr. Eugene Edmund Murphey tells me that it has been taken at Augusta, Georgia, and I am of the opinion that this species prefers freshwater rivers and lakes rather than salt water.

In the *Ornithologist and Oölogist*, [3] Mr. Walter Hoxie says:

> The Shell-drake (636) [=American Merganser] and Merganser (637) [=Red-breasted] are about equally common. They seem to be very irregular in the times of arrival and departure, being in some years plentiful early in the season, and in others few or none are seen until well toward spring.

As Mr. Hoxie does not appear to have taken any of these ducks, in order to place his identification of *M. americanus* beyond question, this record must be rejected. The ducks he records were all, without doubt, examples of *M. serrator*, which is found on this coast in multitudes from late in October until March; adult drakes of the two species being almost impossible to identify when at large except by an expert who has had wide field experience with both forms.

9. **Somateria spectabilis** (Linn.). KING EIDER.

While there is no specific record of the occurrence of this boreal species in the State, I include it on the strength of several specimens captured along the coast of Georgia.

The first record for Georgia was announced by Mr. W. W. Worthington,[4] who procured a specimen on April 25 and another on May 5, 1890, at the mouth of the Altamaha River. Mr. Worthington saw four males and three females on the latter date. Other Georgia records are: Ossabaw Island, December 1, 1904,

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[1] Birds of America, VI, 387.
[2] *Proc. Bost. Soc. Nat. Hist.*, XII, 1868, 125.
[3] X, 1885, 28-29.
[4] *Auk*, VII, 1890, 284.

and St. Catherine's Island, December 3, 1904. These birds had to pass along the coast of South Carolina in order to reach Georgia.

The King Eider breeds in the Arctic regions.

10. **Oidemia deglandi** Bonap. WHITE-WINGED SCOTER; VELVET DUCK.

The White-winged Scoter is another species which I have not met in South Carolina.

Audubon says in Birds of America:[1]

> The Velvet Duck arrives from the north along the shores of the Middle States about the first of September, and extends to a greater or less distance southward, according to the state of the weather, often proceeding as far as Georgia.

The only direct quotation I can find for the state is by Dr. Elliott Coues.[2] Among the enormous flocks of Surf Ducks (*Oidemia perspicillata*) that used to winter in Charleston harbor years ago, I never detected *deglandi*, but it has been taken in Florida.

The White-winged Scoter breeds abundantly in Labrador.

11. **Branta bernicla glaucogastra** (Brehm). WHITE-BELLIED BRANT.

In Dr. Coues' list,[3] this species is mentioned as occurring in winter, and in Distribution and Migration of North American Ducks, Geese, and Swans, Prof. Wells W. Cooke says:[4]

> It is common during the winter along the Atlantic coast from Florida to New Jersey.

Audubon, in his Birds of America[5] says:

> This species has never been seen by my friend Dr. Bachman in South Carolina.

Like Dr. Bachman, I have never observed one of these birds on any part of the coast of the State. Dr. Coues' record was evidently based on presumptive rather than positive evidence, and Prof. Cooke's statement requires confirmation.

This form winters abundantly off the northern coast of North Carolina, and breeds in the extreme northern portions of North America, such as Cape Sabine, Ellesmere Land, while Col. H. W. Feilden found it breeding as far north as latitude 82° 33′ in Grinnell Land.

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[1] VI, 332.

[2] *Proc. Bost. Soc. Nat. Hist.* XII, 1868, 125.

[3] Ibid, 1868, 124.

[4] U. S. Dept. Agriculture, Biol. Survey, *Bull.* No. 26, 1906, 80.

[5] VI, 203.

12. **Plegadis guarauna** (Linn.). WHITE-FACED GLOSSY IBIS.

Under the name *Ibis Ordii*, this form(?) is mentioned in Coues' list[1] as a summer resident, but without comment. Dr. Coues evidently included this bird on purely hypothetical grounds, as I have never seen either this species or *Plegadis autumnalis*, and am unable to find a single valid record backed by the actual taking of a specimen.

In his Notes on the Birds of the Sea Islands[2] Mr. Walter Hoxie mentions the "Glossy Ibis" and says: "Rare or only occasional in young plumage; (June 30.)" Mr. Hoxie, however, does not appear to have taken a specimen and the birds he saw were unquestionably the young of the White Ibis. This species has been found breeding in Florida.[3]

13. **Erolia ferruginea** (Brünn.). CURLEW SANDPIPER.

This species is included in Dr. Coues' list[4] on the authority of the late Prof. Lewis R. Gibbes, but without comment. Prof. Gibbes doubtless attributed the Curlew Sandpiper to South Carolina on the strength of Audubon's statement:[5]

> I have seen a few specimens in New York, and two in Boston; and my friend John Bachman has one or two in his possession.

The statement that Dr. Bachman had "one or two in his possession" does not prove that they were actually taken in South Carolina, as he may have obtained them elsewhere. The latest record of the occurrence of this bird in North America was a specimen taken at Barnegat Bay, N. J., on July 29, 1904, and recorded by my friend Mr. John Lewis Childs in the *Auk*.[6]

To the best of my knowledge this species has never been taken in South Carolina. It is an Old-World species, but has been taken in Greenland (where it breeds), Alaska, and at points along the northern Atlantic coast of North America.

14. **Limosa hæmastica** (Linn.). HUDSONIAN GODWIT.

This species is mentioned by Dr. Coues[7] as occurring in winter. I know of no record of its occurrence in the State. The statement

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[1] *Proc. Bost. Soc. Nat. Hist.*, XII, 1868, 123. [2] *Orn. and Oöl.*, X, 1885, 13.
[3] See Brewster, *Auk*, III, 1886, 481-482. [4] *Proc. Bost. Soc. Nat. Hist.*, 1868, 122.
[5] Birds of America, V, 269. [6] XXI, 1904, 485. [7] *Proc. Bost. Soc. Nat. Hist.*, 1868, 123.

by Dr. Coues is utterly erroneous, as this bird does not winter in any portion of the United States and is rare during the seasons of migration on the Atlantic coast. That it was attributed to South Carolina on purely hypothetical grounds by Dr. Coues, is indicated by his statement in Birds of the Northwest[1] that "I have never seen it alive."

Although the Hudsonian Godwit winters as far south as Patagonia and the Falkland Islands, it breeds only in the extreme northern part of the North American continent, where its eggs were taken in the Anderson River region by Mr. R. MacFarlane.

15. **Tryngites subruficollis** (Vieill.). BUFF-BREASTED SANDPIPER.

Dr. Coues[2] mentions this species as migratory, and in Birds of the Northwest,[3] says:

> This species I have never yet seen alive.

The Buff-breasted Sandpiper is another species accredited to South Carolina by Dr. Coues on presumptive evidence. I have yet to see this bird in South Carolina, and include it in this list solely on the authority of Mr. W. W. Worthington, who informed me many years ago that Mr. Walter Hoxie had taken a specimen on St. Helena Island, and that he had seen and identified it as a bird of this species.

The Buff-breasted Sandpiper breeds in the Anderson River region in Arctic America and westward to Point Barrow, and winters as far south as Brazil and the Argentine Republic.

16. **Empidonax flaviventris** Baird. YELLOW-BELLIED FLYCATCHER.

This species is mentioned by Dr. Coues[4] as a migrant at Columbia in April and September.

This record, as well as the next (Least Flycatcher), is doubtless erroneous and requires confirmation, as Mr. Loomis never met with either this species or the next at Chester, nor have I ever detected these birds in any of the coast counties. When Dr. Coues published his Synopsis of the Birds of South Carolina he was but twenty-six years of age, and had spent only two years in the State. The reason is obvious why so many errors appear in his work at this time.

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[1] 1874, 494. [2] *Proc. Bost. Soc. Nat. Hist.*, 1868, 123. [3] P. 507.
[4] *Proc. Bost. Soc. Nat. Hist.*, 1868, 118.

17. **Empidonax minimus** Baird. LEAST FLYCATCHER.

The Least Flycatcher is mentioned by Dr. Coues[1] as occurring at Columbia as a migrant in April and September. This species is also mentioned in Prof. Gibbes' list, but he undoubtedly mistook it for the Green-crested Flycatcher (*Empidonax virescens*), which breeds commonly throughout the entire limits of the State. Prof. Gibbes does not include the latter species in his list, proving conclusively that the birds he mentioned were really Green-crested Flycatchers.

18. **Spizella monticola** (Gmel.). TREE SPARROW.

Dr. Coues[2] records the Tree Sparrow as wintering—November to March. Audubon says:[3]

> I never observed one in either of the Carolinas.

During fourteen years of critical research in Chester county, Mr. Leverett M. Loomis failed to observe this boreal species, while I have also failed to detect it on any part of the coast during the past twenty-five years. Dr. Coues undoubtedly made an error in the determination of the birds he observed, and must have mistaken the Chipping Sparrow (*Spizella passerina*) for the Tree Sparrow.

This species breeds from Newfoundland and Labrador northward to the region about Hudson Bay, and winters from the New England states southward to Virginia.

19. **Vireosylva gilva** (Vieill.). WARBLING VIREO.

The Warbling Vireo is recorded for South Carolina by Dr. Coues,[4] who says:

> Not abundant; migratory in April and October.

This statement requires confirmation as Mr. Loomis did not detect this species at Chester, nor have I observed it along the coast.

Audubon says in Birds of America:[5]

> It was never observed by me in Louisiana or Kentucky, nor does it pass along the maritime districts of Georgia or the Carolinas.

The Warbling Vireo breeds from the Gulf states northward to Nova Scotia.

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[1] *Proc. Bost. Soc. Nat. Hist.*, 1868, 118. [2] Ibid, 115. [3] Birds of America, III, 84.
[4] *Proc. Bost. Soc. Nat. Hist.*, 1868, 111. [5] IV, 152.

20. **Vermivora rubricapilla** (Wils.). NASHVILLE WARBLER.

Neither Mr. Loomis nor I have met with this species in the State. Dr. Coues[1] includes it in his list, but his record requires confirmation, as the Nashville Warbler is known to be very rare in the South Atlantic states.

This species breeds abundantly in the New England states and northward to the Great Slave Lake region. In winter it ranges southward from the Rio Grande of Texas through eastern Mexico.

21. **Oporornis philadelphia** (Wils.). MOURNING WARBLER.

Dr. Coues[2] records the Mourning Warbler for South Carolina and says: "Very rare migrant."

Audubon[3] states that "my friend the Rev. John Bachman never has seen it in South Carolina." Mr. Loomis writes me that he has never detected it at Chester, and I may add that I have yet to see a bird of this species on the coast. I feel certain that this record by Dr. Coues also requires confirmation.

The Mourning Warbler breeds from the mountains of West Virginia and Pennsylvania northward to New England and westward to Minnesota and Manitoba. Its winter home extends from Central America to Ecuador.

22. **Salpinctes obsoletus** (Say). ROCK WREN.

In his account of the Blue-Mountain Warbler (*Sylvicola montana*), Audubon says in Birds of America:[4]

> No other person has observed the Rocky Mountain Wren in any part of the country eastward of that great chain besides Dr. Bachman, who shot one within a few miles of Charleston.

Dr. Bachman's account of the wrens that he met with in South Carolina, as mentioned in Audubon's work, is considerably confused. That he actually took a specimen of this species is open to question, as no second example has ever been taken in the State, and he doubtless confused it with the House Wren (*Troglodytes aëdon*). As the Rocky Mountain Wren was known as the "Mountain Wren," or "Rock Wren," this is evidently the species to which Audubon refers.

This species ranges from the Western United States to the Pacific Coast.

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[1] *Proc. Bost. Soc. Nat. Hist.*, 1868, 109. [2] Ibid, 110. [3] Birds of America, II, 76. [4] II, 70.

ADDENDA.

Anhinga anhinga (Linn.). WATER TURKEY; SNAKE BIRD.

On April 7, 1910, I found a nest of this species containing three eggs, and upon visiting the place on the 15th, in company with Dr. Eugene Edmund Murphey, I found *seven* eggs in the nest. If I am not mistaken this is the highest number ever found in the nest of this peculiar bird.

Aix sponsa (Linn.). WOOD DUCK; SUMMER DUCK.

I found on April 7, 1910, a nest and seven fresh eggs of the beautiful Summer Duck. The eggs were laid in a depression of a cypress tree caused by the junction of seven vertical shoots. This tree was growing in the reservoir of my friend Mr. B. B. Furman. On April 27, I encountered a brood of about eleven young which were about two days old, being accompanied by their mother. I think the Summer Duck is again increasing in numbers, but it needs protection, especially during the breeding season.

Herodias egretta (Gmel.). EGRET.

A small colony of these beautiful birds was found breeding on April 7, 1910. The nests were placed in tall cypress trees over water, and the few that were accessible contained three eggs each at the time of my visit. The birds were excessively wary, even on their breeding grounds.

In five specimens taken at this time in full nuptial plumage, the lores and orbital regions were *green*, with a bluish tinge in one specimen, but without a trace of yellow. This coloration has not been noted by the leading authorities, as the following quotations will show:

Audubon says in Birds of America:[1]

> Bill bright yellow, as is the bare space between it and the eye.

Baird, Brewer, and Ridgway give the following:[2]

> Bill and lores rich chrome-yellow (the latter sometimes tinged with light green).

[1] VI, 137. [2] Water Birds, I, 1884, 24.

Coues says in his Key to North American Birds:[1]

Bill, lores, and eyes, yellow.

Chapman says in Birds of Eastern North America:[2]

Bill yellow, lores orange, bordered below by greenish.

Egretta candidissima (Gmel.). SNOWY EGRET.

As this species is now rare, and as the few that have escaped the ravages of the plume-hunter breed in almost inaccessible places, it is perhaps worth mentioning that I discovered about four pairs on April 21, 1910. Two nests, one with four, and the other with three eggs, were absolutely identified on April 27 after hours of watching and waiting in concealment. The birds were so very shy that the mere act of snapping a twig caused them to take wing at once. It is to be hoped that this lovely species will be afforded adequate protection from further ravages by plume-hunters.

Hydranassa tricolor ruficollis (Gosse). LOUISIANA HERON.

On April 7, 1910, the "Lady of the Waters" had just commenced to lay her eggs, which is an exceptionally early date. Among the hundreds of nests that I examined (and fully identified) in no case were there more than two eggs. It must, however, be borne in mind that the spring was far advanced in late March.

Florida cærulea (Linn.). LITTLE BLUE HERON.

As in the case of the preceding species, the Little Blue Heron had one or two eggs laid on April 7, 1910, which is the earliest date upon which I have ever known the birds to have eggs laid.

The adult white phase is outnumbered by the adult blue phase in the proportion of one hundred or more of the latter to one of the former.

Nycticorax nycticorax nævius (Bodd.). BLACK-CROWNED NIGHT HERON.

Among the scores of nests that I examined on April 7, 1910, almost all contained complements of three or four eggs, which is my earliest breeding record. The nests were invariably placed in dark places in the cypress swamps, and not exposed to the sunlight as was the case in all the nests I have examined of this spe-

[1] 1892, 659. [2] 1895, 133.

cies when breeding in a cypress swamp. The nests of the Egret (*Herodias egretta*), while in close proximity to the nests of the Night Heron, were always in exposed situations, so that the sunlight could always warm the eggs.

Fulica americana (Gmel.). COOT.

A male coot was taken at Otranto, May 14, 1910, by Master Caspar Chisolm. A number of specimens were observed on the following day, at the same locality, by Mr. Herbert R. Sass, who searched for nests without success. Further observations are necessary to establish conclusively the standing of this species.

Cryptoglaux acadica (Gmel.). SAW-WHET OWL.

My friend Dr. Eugene Edmund Murphey informs me that a specimen of this species was taken in Aiken County in February, 1899, and was on exhibition in a gunsmith's store in Augusta, Georgia, where he saw and examined it, before it was ruined by the flood of August, 1908.

It must be remembered that the coldest weather ever recorded in this state was experienced in February, 1899, and the bird in question was probably forced southward by the cold wave.

Spiza americana (Gmel.). DICKCISSEL; BLACK-THROATED BUNTING.

I am pleased to announce the capture of a superb male of this species, on the morning of May 13, 1910, at Oakland Plantation, Christ Church Parish, within fifty yards of the spot where I took Sprague's Pipit in 1893.

The Black-throated Bunting was flushed from a salt meadow, and lighted on a dead oak, where I at once identified it, although its back was towards me, and the morning was cloudy. This is only the second of these birds that I have ever seen.

Dendroica cærulea (Wils.). CERULEAN WARBLER.

In April and May, 1909, I discovered three or four pairs of this species breeding near Morganton, in North Carolina, thus confirming the suggestion of Mr. Loomis that the appearance of these birds at Chester early in August leads to the inference that they breed near at hand in the mountains.

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Based on records furnished by Dr. T. Grange Simons of a bird being killed about the year 1840 near Charleston; another in June 1879, in Lucas' Mill Pond in Charleston; a third record by Mr. Henry L. Barker of a specimen taken in the early sixties by Mr. Elias A. Ball at Hall plantation (Cooper River); and a fourth record by Rev. John Kershaw, D. D., of a bird seen near Morris Island about thirty years ago and identified by the late Gen. Wilmot G. DeSaussure.

1905. WAYNE, ARTHUR TREZEVANT. Breeding of the Little Black Rail, *Porzana jamaicensis*, in South Carolina. *The Warbler*, Ser. 2, I, 33–35.

1905. WAYNE, ARTHUR TREZEVANT. Notes on certain Birds taken or seen near Charleston, South Carolina. *Auk*, XXII, 395–400.

1905. WAYNE, ARTHUR TREZEVANT. The Orange-crowned Warbler (*Helminthophila celata*) a Winter Resident in South Carolina. *Auk*, XXII, 417.

1905. WAYNE, ARTHUR TREZEVANT. The White-eyed Towhee

(*Pipilo erythrophthalmus alleni*). *The Warbler*, Ser. 2, I, 125–126.

1906. BROWN, NATHAN CLIFFORD. The Maryland Yellow-throat [=*Geothlypis trichas ignota*] and Bachman's Finch near Camden, South Carolina, in Winter. *Auk*, XXIII, 227–228.

1906. BROWN, NATHAN CLIFFORD. A Ruffed Grouse near Camden, South Carolina. *Auk*, XXIII, 336.

1906. BROWN, NATHAN CLIFFORD. A Great Flight of Robins and Cedar-birds. *Auk*, XXIII, 342–343.

These flights commonly take place every winter on the coast.

1906. REA, PAUL MARSHALL. The Limpkin (*Aramus giganteus*) in Charleston, S. C. *Bull. Chas. Mus.*, II, 55.

1906. REA, PAUL MARSHALL. A Frigate Bird (*Fregata aquila*) Taken on Sullivan's Island [S. C.]. *Bull. Chas. Mus.*, II, 66–67.

1906–9 SASS, HERBERT RAVENEL. Bird Life of a City [Charleston, S. C.] Garden. *Bull. Chas. Mus.*, II, 57–66; III, 53; V, 57–60.

Records for 139 species.

1906. SMYTH, ELLISON ADGER, JR. Bachman's Finch in Berkeley Co., S. C., in late December. *Auk*, XXIII, 341.

1906. WAYNE, ARTHUR TREZEVANT. A Contribution to the Ornithology of South Carolina, Chiefly the Coast Region. *Auk*, XXIII, 56–68.

1906. WAYNE, ARTHUR TREZEVANT. The Date of Discovery of Swainson's Warbler (*Helinaia swainsonii*). *Auk*, XXIII, 227.

1906. WAYNE, ARTHUR TREZEVANT. The American Scoter, Limpkin, and Ipswich Sparrow in South Carolina. *Auk*, XXIII, 231–232.

1907. BREWSTER, WILLIAM. Concerning Certain Supposed Instances of the Occurrence of the Cinnamon Teal in Florida and South Carolina. *Auk*, XXIV, 154–157.

Correction of an error made by Arthur T. Wayne in *Auk*, XXII, 396.

1907. SASS, HERBERT RAVENEL. Ornithological Notes [Bewick's Wren (*Thryomanes bewickii*) and Worthington's Marsh Wren (*Telmatodytes palustris griseus*)]. *Bull. Chas. Mus.*, III, 54.

1907. SMYTH, ELLISON ADGER, JR. Crossbills at Yemassee, S. C. *Auk*, XXIV, 215.

1907. WAYNE, ARTHUR TREZEVANT. The Nest and Eggs of Bachman's Warbler, *Helminthophila bachmani*, (Aud.), Taken near Charleston, South Carolina. *Auk*, XXIV, 43–48.

1907. WAYNE, ARTHUR TREZEVANT. Another Limpkin (*Aramus giganteus*) in South Carolina. *Auk*, XXIV, 95.

1907. WAYNE, ARTHUR TREZEVANT. An early Date for the Arrival of the Ipswich Sparrow (*Passerculus princeps*) on the Coast of South Carolina. *Auk*, XXIV, 101–102.

1907. WAYNE, ARTHUR TREZEVANT. Macgillivray's Seaside Sparrow (*Ammodramus maritimus macgillivraii*) with Fourteen Rectrices. *Auk*, XXIV, 102.

1907. WAYNE, ARTHUR TREZEVANT. Observations on some Birds procured near Charleston, South Carolina. *Auk*, XXIV, 377–382.

1907. WAYNE, ARTHUR TREZEVANT. A Correction (*Dendroica cærulea*). *Auk*, XXIV, 446.

1908. PEARSON, T. GILBERT. The Breeding Season of *Strix pratincola* in South Carolina. *Auk*, XXV, 316–317.

1908. REA, PAUL MARSHALL. Red-throated Loon, *Urinator lumme* [in Charleston, S. C.]. *Bull, Chas. Mus.*, IV, 73.

1908. SASS, HERBERT RAVENEL. The Snowy Heron in South Carolina. *Bull. Chas. Mus.*, IV, 47–48. *Auk*, XXV, 313–314.

1908. SASS, HERBERT RAVENEL. April Bird Life of Otranto [South Carolina]. *Bull. Chas. Mus.*, IV, 35–42.

1908. SMYTH, ELLISON ADGER, JR. Nelson's and Sharp-tailed Finches around Charleston, S. C. *Auk*, XXV, 475.

1908. WAYNE, ARTHUR TREZEVANT. The Breeding Season of the American Barn Owl (*Strix pratincola*) in South Carolina. *Auk*, XXV, 21–25.

1908. WAYNE, ARTHUR TREZEVANT. Bewick's Wren (*Thryomanes bewickii*) on the Coast of South Carolina. *Auk*, XXV, 87.

1908. WAYNE, ARTHUR TREZEVANT. The Cinnamon Teal (*Querquedula cyanoptera*) on the Coast of South Carolina. *Auk*, XXV, 216–217.

1908. WAYNE, ARTHUR TREZEVANT. The Whistling Swan (*Olor columbianus*) in South Carolina. *Auk*, XXV, 217–218.

1909. BROWN, NATHAN CLIFFORD. Note on the Red Crossbill and the Pine Finch in South Carolina [Aiken and Camden]. *Auk*. XXVI, 432.

1909. REA, PAUL MARSHALL. Whistling Swan [near Charleston, S. C.]. *Bull. Chas. Mus.*, V, 62.

1909. REA, PAUL MARSHALL, and WESTON, FRANCIS MARION, JR. A Preliminary Survey of the Birds of the Coast Region of South Carolina. *Bull. Chas. Mus.*, V, 13–24, 27–32.

Summarises the records of the Charleston Museum for 216 species.

1909. SASS, HERBERT RAVENEL. The Pine Siskin in the City [Charleston, S. C.]. *Bull. Chas. Mus.*, V, 37.

1910. REA, PAUL MARSHALL. The Hummingbird in December. *Bull. Chas. Mus.* VI, 10.

1910. WAYNE, ARTHUR TREZEVANT. Two additions to the Avifauna of South Carolina [*Zonotrichia leucophrys* and *Petrochelidon lunifrons*]. *Auk*, XXVII, 91.

1910. WESTON, FRANCIS MARION, JR. A Preliminary Survey of the Birds of the Coast Region of South Carolina—Supplement. *Bull. Chas. Mus.*, VI, 29–32.

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CORRIGENDA.

Page xxi, line 17, *for* 1890 *read* 1889.
" 14, " 22, *for* fine *read* five.
" 56, " 19, *for* comma *read* exclamation.
" 65, " 1, *for* magnificient *read* magnificent.
" 85, " 9, *for* May 26 *read* May 25.
" 174, " 37, *for* species *read* subspecies.
" 175, " 24, *for* species *read* subspecies.
" 176, " 2, Eliminate *Rubus*.
" 227, foot note, line 6, *for* Ridgeway *read* Ridgway.
" 227, " " 9, *for* Ridgeway *read* Ridgway.

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" 246, column 1, line 18, *for* Buteonidœ *read* Buteonidæ.
" 246, " 2, " 12, *for* Ciconiidœ *read* Ciconiidæ.
" 248, " 1, " 26, *for* White-faced *read* White-fronted.
" 248, " 1, " 52, *for* Black-throated *read* Black-backed.
" 248, " 2, " 36, *for* Hirundinidœ *read* Hirundinidæ.
" 249, " 1, " 1, *for* Icteridœ *read* Icteridæ.
" 250, " 1, " 4, *for* Motacillidœ *read* Motacillidæ.
" 250, " 1, " 6, *for* Mniotiltidœ *read* Mniotiltidæ.
" 250, " 1, " 34, *for* Ochodromus *read* Ochthodromus.
" 250, " 2, " 32, for *circis* read *ciris*.
" 253, " 1, " 18, *for* Foster's *read* Forster's.
" 253, " 1, " 58, *for* Turidæ *read* Turdidæ.
" 253, " 2, " 40, *for* Cairn's *read* Cairns'.
" 254, " 1, " 33, *for* Widman *read* Widmann.

The Charleston Museum

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