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THE WAY TO STUDY BIRDS

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JOHN DRYDEN KUSER

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The Way to Study Birds

HOUSE WREN

See page 22

The Way to Study Birds

By

John Dryden Kuser

With 9 Illustrations in Color

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I AFFECTIONATELY DEDICATE THIS VOLUME

TO MY

MOTHER AND FATHER

BY WHOSE UNIQUE APPRECIATION OF NATURE AND KEEN

REALIZATION OF THE VALUE OF SCIENCE I HAVE

BEEN ABLE TO FEEL A CONSTANT INSPIRA-

TION IN ORNITHOLOGY

PREFACE

PALEONTOLOGISTS tell us that thousands of years ago man was an uncultured and unreasoning beast; they tell us that the birds of our day have, as their ancestors, creatures of reptilian form. But we need not delve so far into the past. Even within written history, botany, mammalogy and the other natural sciences all show the evolutionary trend from the most simple to the most highly developed. This, then, we may take as a law of nature. Again, not many years ago, when a man wished to set out upon a journey, he often had the utmost difficulty in ascertaining exact knowledge of the country thru which he must pass, and he underwent many discomforts and endured constant delays in travel. Today, thru perfection of system, because of the advantages of newspapers, telegraphs and railroads, such an undertaking is of slight moment. Why? Because human knowledge in this and in many other directions has been carefully collected, sorted and catalogued, and we know just where to look for exact information.

Yet have not many of those authors who attempt to instill ornithological knowledge into the minds of laymen lost sight of these two basic

PREFACE

ideas in their works? For the beginner to learn avian identification is at present hopelessly complicated and unnecessarily discouraging, because of the requirement to wade, ignorantly, thru a heterogeneous mass of terms and descriptions, or to go bird-hunting without the remotest idea of what he may expect to find most common or most easily identifiable in the special locality in which he searches.

This, then, is my aim: to write a few words which I hope may be of use both to him who wishes to know and appreciate thru knowledge a few of our abundant species and to him who wishes to go thru my book and to advance, not to skeletal or highly scientific work but to a good acquaintance with all the birds of our locality and their habits.

Necessarily, this type of book is not, by its very nature, equally adaptable to all localities; and yet, altho I have written it with New York City as a center and to be used chiefly for neighboring regions, in many cases it will suffice, at least partly, for other localities. This book is not a reference work but is intended to be followed more as a course than as a text-book.

There are several books in addition to the present volume which it would be well to have at the start, among them one containing good colored plates of our common birds. If you have a book of this type already, so much the better. If not, I can suggest no work better than Reed's *Birds East of the Rockies* (pocket edition). For information aural rather than

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optical much can be gained from F. Schuyler Mathews' *Field Book of Wild Birds and Their Music*.

J. D. K.

BERNARDSVILLE, N. J.

March 27, 1917.

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The Way to Study Birds

PART ONE: PREREQUISITES

CHAPTER I

METHOD OF STUDY

The arrangement of the following pages is founded upon the principle of any elementary book. The simplest terms are used and only enough description is given for actual identification. Starting with the data about our most abundant bird, information is imparted in turn about each species, the sequence being governed by the abundance of the species and hence the probable frequency of our encountering it; the unique character of its form or markings and the consequent likelihood of its being identified by us; and lastly by a consideration of seasonal variation. In this way the reader is afforded not only the means of identifying the fifty species described in this volume, but is taught the method of identifying those not contained herein.

The book is divided into five parts. Part I

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takes up the data of a few permanent residents, the use of a bird key, and a few songs. Part 2 is devoted to summer birds, Part 3 to transients (*i. e.*, those species which neither breed nor winter in our locality, but stop in the fall and spring *en route* from their summer to their winter homes), and Part 4 describes the winter residents. One must not forget that the summer part is applicable to most of the spring and fall, as the majority of our birds arrive by the first week in May and do not leave until well into September. This is also true to a lesser extent of the winter residents.

Each part is arranged with reference to the abundance of a species, so that if all the permanent residents are not readily found, as may be the case, it is then better to turn to the appropriate season before completing Part 1. With this single exception sequence is of great importance, for each part of the work is based upon what precedes. If you are not a real beginner in ornithology and therefore know the first part, read thru until you reach the limit of your present knowledge, at which point proceed to find the bird with which you are unfamiliar and continue thus with the succeeding species.

CHAPTER II

TWELVE ABUNDANT PERMANENT RESIDENTS

Below are specified twelve common species which are with us thruout the year and of which you should endeavor to find and identify at least five before turning to the particular season you happen to require. Do *not* read over this chapter at one time. *After perusing each bird's description, etc., find its picture in Reed's or some other book before searching for it in life, and find each bird in life before proceeding to the next. Do this thruout the book for every species. If possible take a field or opera glass when you are looking for birds, and above all things keep notes of what you see.*

I. ENGLISH SPARROW

Haunts: City streets and around buildings, particularly dwellings and farms. In winter found in flocks, searching for food in almost any locality.

Description: Male: brownish-gray above, with black and chestnut markings. Under parts white, with a black throat and face. Whitish wing-bars.

Female: brown above. Under parts gray without streaks or bars.

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Size and Shape: Length 6.3 inches. Thickly built and with a short, thick bill.

Call: A harsh chirp and numerous other rarer but no less unmusical calls.

Seasonal Abundance: Equally abundant thruout the year.

Remarks: The English Sparrow is a thoro pest, introduced from Europe in 1850 and now tremendously abundant and prolific. It is inimical to our native species and of comparatively little economic value. One should attempt to exterminate the species from his locality.

2. SONG SPARROW

Haunts: Near the ground, usually in or near low bushes.

Description: Brownish above, gray beneath; the whole bird heavily streaked with dark, rich brown. Heavily marked at the center of breast and with conspicuous ear-marks.

Field-marks: Heavy streaking and dot at center of breast and the ear-marks.

Size and Shape: Length 6.3 in., size of English Sparrow, but of a more delicate appearance.

Song: A pleasing and cheery refrain, short and sweet, and, tho of no high musical value, is attractive. Sings thruout the day, and the song is repeated after only brief intervals.

Seasonal Abundance: One of our most common winter species, tho less common than in summer.

SONG SPARROW

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3. CROW

Haunts: Particularly deep woods and fields, tho occurs in any environment.

Description: Entirely black.

Size and Shape: Length 19.3 in. Thickly built and with a short tail.

Call: A harsh "caw."

Seasonal Abundance: Common thruout the year.

Remarks: The Crow must not be confused with the Grackle, a more slender bird, with a long tail.

4. STARLING

Haunts: City parks and the dwellings or farm buildings of suburbs.

Description: *Summer:* blackish, with a metallic appearance and spotted with cream-colored markings on the upper parts and sides. Bill bright yellow. *Winter:* same as in summer except that the under parts are heavily spotted with white and the bill is black.

Field-marks: The spotted upper parts. In summer also the yellow bill and in winter the spots on the under parts.

Size and Shape: Length 8.5 in. Rather thickly built and with a long bill.

Song: A squeaking, kept up almost continuously, and at times even musical.

Seasonal Abundance: Lives alone while breeding but congregates in large flocks during the fall and winter months.

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Remarks: One of the characteristics of this bird is its walk. Most birds do not walk, but hop, and therefore the walk of this species is often a good identification trait. This species is European and it is now feared that in America it will become as great a scourge as its predecessor, the Sparrow. In 1890 the first lot, consisting of sixty individuals, was liberated in New York City.

5. BLUEBIRD

Haunts: Mostly old fields, orchards and upland meadows, or, when the land is only semi-cultivated, near houses. The species may be found in almost any locality.

Description: Deep sky-blue above, with a chestnut throat, breast and sides and a white belly.

Size and Shape: Length 7 in. Slightly longer and more slender than an English Sparrow but of the same general size. Bill thinner.

Song: A sweet and seemingly ventriloquistic "tru-u-lee," softly uttered and often while on the wing.

Seasonal Abundance: Rarer in winter than in summer.

Remarks: The Bluebird is far from being a bird which attracts your attention. He is quiet and must be sought, tho he gives an opportunity for observance by frequently sitting on the outermost branch of a tree. Bluebirds are not shy and generally live near dwellings. They can most easily be induced to nest on the

John Lawrence Purves

STARLING

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premises by the attraction of a nesting box, for they are one of the few birds that show a noticeable preference for these rather than for natural sites.

6. DOWNY WOODPECKER

Haunts: Woods and orchards, as a rule, but is apt to be found in any place.

Description: Upper parts black, with a wide white stripe down the center of the back, with white spots on wings, white outer tail-feathers and a white line above and below the eye. The male has a scarlet patch on the back of the neck which the female lacks.

Field-marks: White line down the center of the back.

Size and Shape: Length 6.8 inches. Slightly smaller than a Starling. Tail short; feathers pointed.

Call: A rattling and sharp call of several notes, uttered rapidly.

Seasonal Abundance: Equally common throughout the year.

Remarks: Being a Woodpecker, we must naturally expect to find this bird climbing the branches or trunks of trees, as he indeed generally does. Apple-orchards are included among his favorite rendezvous.

7. MEADOWLARK

Haunts: Fields, dry meadows and lawns.

Description: Upper parts brownish with black and gray markings. All of the under parts

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with the exception of the sides and lower belly are bright yellow, adorned on the breast by a large black crescent. Sides and lower belly white, streaked with black.

Field-marks: When on the wing, the white outer tail feathers; when perched, the yellow breast with black crescent.

Size and Shape: Length, 11.8 inches. Very thickly built and with a long bill and short tail.

Song: A clear and penetrating call; very sweet but high-pitched.

Seasonal Abundance: Rarer in winter.

Remarks: This species' favorite post when not on the ground where it nests, is the top of some tall tree, from which it pours forth its call. It is often seen in flocks.

8. BLUE JAY

Haunts: Woods, or even cultivated land, provided that it contains many large trees.

Description: Bright blue above, including a raised crest. White markings on the outer tail feathers and on the wings. Under parts white, the breast marked with a large black crescent.

Field-marks: Crest.

Size and Shape: Length, 11.7 inches. Tail long.

Call: A screaming "jay! jay!" is its most common note.

Seasonal Abundance: Equally common thruout the year, tho seen more in winter and during migration.

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Remarks: The Jay attracts attention whenever he is present by his harsh calling.

9. CHICKADEE

Haunts: In summer usually confined to the woods or swamps, but in the fall and winter is found almost anywhere.

Description: Gray above, with white wing-bars; white below; black crown and throat.

Size and Shape: Length, 5.3 inches. Thickly built.

Call: A dental, sibilant "Chick-a-dee-dee-dee" uttered rapidly, and a high clear two-syllabled whistle, the second note of which is lower than the first.

Seasonal Abundance: Observed much less in the breeding season than at any other period.

Remarks: A most friendly bird and apparently always thoroly happy, both by its actions and its cheery call which it gives even on the coldest winter day.

10. WHITE-BREASTED NUTHATCH

Haunts: Usually near woods, tho in winter it may appear anywhere.

Description: Blue-gray above, with white and black in tail and wings. White below. Crown of male black; of female the same color as the back.

Size and Shape: Length, 6.1 inches. About the same as the Song Sparrow but thicker, and with a short square tail and a long thin bill.

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Call: A nasal "Yank-yank," and a laughing but still nasal "Ya-ha-ha-ha-ha" are its most frequent calls.

Seasonal Abundance: Equally frequent throughout the year.

Remarks: The peculiarity of the Nuthatch family is that they are our only birds which climb, head forward, down tree-trunks. This will often serve as a distinguishing characteristic, for altho the Woodpeckers go downward they back down, tail foremost. The Brown Creeper and the Black and White Warbler do not go *down* the trunk at all.

II. GOLDFINCH

Haunts: Fields and upland pastures.

Description: Male: in summer, bright yellow with black wings, tail and forehead, and white in wings and tail. Female: yellowish-brown above, blackish on wings and tail. Under parts yellowish, white in wings and tail. Male and female in winter similar to the female in summer, but white in wings and tail almost disappears.

Size and Shape: Length, 5 inches. Thickly built and with a short, thick bill.

Song: A rather sweet chattering. Flight note is a clearly accentuated "Per-chee-chee," with the second syllable accented and the whole phrase given on the rising wave of an undulating flight.

Seasonal Abundance: Breeds very late.

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Remarks: The vast majority of times you will see this bird will be on the wing. When once learned, you can always detect its presence by its flight note.

12. HAIRY WOODPECKER

Haunts: Similar to the Downy.

Description: Identical with the Downy (No. 6) but larger and has the white outer tail feathers unbarred while those of the Downy are crossed by black bars.

Size and Shape: Length, 9.4 inches. Shape like Downy.

Call: Similar to Downy, but louder.

Seasonal Abundance: Equally frequent throughout the year.

CHAPTER III

NOTE-KEEPING

Various systems for recording observations have been devised since the origin of ornithology and the types now in use are almost as many as the number of observers. Altho the method is of little importance as long as it is logically arranged for reference, yet I am so well satisfied with a system which I adopted several years ago, that I will take the space briefly to explain it. It consists of the following:

(1) A recording sheet of the following type, listing the species seen on each day, with a short note on the locality, weather, number and sex of the birds observed, etc. A sheet is intended to last a week, so that, assuming we record our observations for every day of the year, we will have but fifty-two sheets for the year.

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WEEKLY BIRD RECORD

Abbreviations:

Weather: Ctr.=clear; cly.=cloudy; r=rain; s=snow; f=fog

Wind: N. = north; s.w. = southwest; etc.; lt. = light; st. = strong

Birds: A=abundant; c=common; f=frequent; h=song; * =first record for season
†=migration record; ° =notable record.

[illegible]

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(2) A card index system, under such headings as nesting, food, songs, etc., or directly under the headings of each species. On these cards any original observations are recorded.

These two records comprise my whole system of note-keeping and I am convinced that they contain the essentials which any amateur requires. The beginner will not need (2) for some time, as his primary object is merely identification and familiarity with the different species.

CHAPTER IV

HOW TO USE THE KEY

In the Appendix of this book you will find what is termed a "Key" for the identification of any bird you may meet. You will find these keys for each family of birds in any good bird book you read, and it will be of great aid to know how to use them if you do not already know.

Take one of the birds you have already learned as an example; let us say the Bluebird. Turn to the Key and you will find at the left edge of the paper an "a." At the same indentation you will later on observe an "aa," and still further an "aaa." Read over the title of each of these and see which suits the required bird. Certainly your present species, the Bluebird, is neither a Hawk, Owl, Vulture, or Eagle (aa), nor is it an aquatic bird (aaa). Therefore turn to "a." Under "a" you will find numerous divisions at the next indentation, as "b," "bb," "bbb," etc., but realize that they must all be the same letter; that is, do not turn to "c" until you have found which one of the "b"'s it is under. By inspection it is found that since the Bluebird has a chestnut breast and a white belly, it must be found under "bbbbbb."

THE WAY TO STUDY BIRDS

Do not stop at one section until you have read over all, merely because it seems to fit your description. To continue the plan we naturally turn to find which "c" contains the Bluebird's description under "bbbbbb." It is easily seen that it is "ccccccc" and then that "ddd" and "dddd" are the next correct headings, which read Bluebird ♂ (the symbol for the male) and Bluebird ♀ (the symbol for the female).

USE OF KEYS AND SONGS

Now that you have learned the use of the Key go out of doors and either take the Key with you, or secure a detailed description which you can take home, tho the former course is preferable if practicable. In this way observe and identify five species which you do not already know. Thus you will become thoroly acquainted with the use of the Key and will also learn five new species.

After this work the best possible course would be to go out and learn five songs with which you are unacquainted. Go outdoors, and when you hear the first new song, hunt for its author, and proceed thus until you have learned five. The Key may be of great use in identifying these songsters if you do not recognize them when they are found.

PART TWO: SUMMER

CHAPTER V

THE FIFTEEN MOST ABUNDANT SUMMER RESIDENTS

I. ROBIN

Haunts: In spring and summer, cultivated land and not far from dwellings. Particularly found on lawns of parks or estates. In fall becomes wild and retires to the thickets and woods.

Description: Dark gray above, with top and sides of head black, and white spots on outer tail feathers. Throat and center of belly whitish with dark streaks. Rest of under parts brick-red. Female paler than the male.

Size and Shape: Length 10 inches.

Song: A soft and musical but spaced warbling.

Seasonal Abundance: Arrives among our first birds and remains late in the winter. Occasionally winters.

2. CHIPPING SPARROW

Haunts: Almost unlimited, altho more generally near houses or in upland fields.

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Description: Streaked brownish above, with a chestnut crown and a white line over a black line thru the eye. Under parts silky white.

Field-marks: The black bill, chestnut crown, and silky white under parts.

Size and Shape: Length 5.4 inches. Slender.

Song: A rattling trill, not unlike an insect.

Seasonal Abundance: Arrives April first and becomes abundant immediately.

Remarks: An unobtrusive but easily discovered bird. Is not shy and is often found on the ground searching for food.

3. BARN SWALLOW

Haunts: Near old farm buildings, and also flying over low meadows in search of food.

Description: Upper parts steel blue, with white markings on the tail. Forehead and throat chestnut, fading to whitish on the belly. Tail deeply forked.

Field-marks: Forked tail and chestnut throat.

Size and Shape: Length 7 inches. Very slender. Tail and wings long. Bill small.

Call: A rapid but broken twitter.

Seasonal Abundance: Arrives the last week in April and is common all summer.

Remarks: The Barn Swallow must be carefully distinguished from the Chimney Swift or other Swallows. The Swift may be distinguished in flight by its shorter tail and more rapid motion of the wings together, after which it

CHIPPING SPARROW

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will glide, while the Swallow prefers to intersperse its sailing with occasional, slower and usually single wing-beats.

Old barns are the true home of this species, in the rafters and near the eaves of which it nests.

4. CHIMNEY SWIFT

Haunts: Flying about incessantly in the air, from which it only occasionally returns to its home in some chimney.

Description: Sooty brown, grayer on the under parts.

Size and Shape: Length 5.4 inches. Tail short, wings long.

Call: A rapid, evenly uttered twitter.

Seasonal Abundance: Arrives late in April and is common immediately.

Remarks: (For difference in appearance from the Barn Swallow see "Remarks" under that species.) Chimney Swifts prior to civilization built their nests in hollow trees but now plaster them with the aid of their own mucilaginous saliva to the inner walls of chimneys. The winter range of this species is unknown, as all the birds gather at the Gulf of Mexico in the fall, suddenly disappear and are not seen again until spring.

5. GRACKLES

Haunts: Cultivated lands or coniferous thickets or woods.

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Description: Blackish, with various iridescent hues on the breast, head and back.

Field-marks: Long tail and iridescent reflections.

Size and Shape: Length 13 inches. Tail long.

Call: A guttural and rasping call, besides numerous squeaking notes.

Seasonal Abundance: One of the first summer residents to arrive, often appearing in February. Locally abundant, tho in a few localities they are almost absent. Have extended their local range greatly within the last few years.

Remarks: Very noisy and generally seen in flocks, even during the breeding season. There are two species of Grackles but they are similar in appearance and it requires an expert to detect their differences in the field.

6. PHŒBE

Haunts: Near dwellings or old bridges, in the beams or stones of which the nest is placed.

Description: Olive-brown above, blackish on the crown; grayish-white on the under parts, often with a yellowish shading.

Field-marks: A frequent flip of the tail and a blackish crown.

Size and Shape: Length 7 inches. Bill thin.

Call: A thickly uttered and labial "Phe-be."

PHOEBE

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Seasonal Abundance: Arrives early in the spring and departs late in the fall.

Remarks: Like most of its family, the Flycatchers, the Phoebe may be distinguished from many other birds by its habit of perching nearly straight up and down on a branch rather than assuming the more horizontal position of most birds.

7. FLICKER

Haunts: Orchards, lawns and woods.

Description: Brownish above, with black bars. Crown slate gray. Large white patch on lower back. Most of the under parts whitish with large black dots. Red patch on the back of head, and black crescent on the breast which is an unspotted brownish. The male has a black mustache mark.

Field-marks: White on lower back.

Size and Shape: Length 12 inches. Bill long and thin. Tail feathers pointed.

Call: "Wake up, wake up," etc., a liquid and rapid call, is one of its most common spring notes. Also a nasal two-syllabled "ka-yei."

Seasonal Abundance: Arrives early and stays late.

Remarks: Unlike most Woodpeckers, the Flicker is frequently found on the ground in search of ants, which are one of its favorite foods. Usually, however, it follows the family trait by climbing tree trunks and branches. Flight undulating.

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8. RED-WINGED BLACKBIRD

Haunts: Swamps.

Description: Male: black with red patches on wings, edged with yellow and white. Female: gray, heavily streaked with brown. Darker above.

Field-marks: Male, red on wings.

Size and Shape: Length 9.5 inches. Bill thin.

Song: A guttural but liquid "O-ka-lee," the last syllable of which is accented and drawn out.

Seasonal Abundance: Arrives early but remains in flocks for a long while before pairing off for the breeding season. Enormous flocks congregate in the late summer for a long period before the southern journey.

9. HOUSE WREN

Haunts: Near habitations, particularly those of a rustic nature.

Description: Above, cinnamon-brown, with fine black bars on wings and tail. Below, whitish with a buffy tint.

Size and Shape: Length 5 inches. Tail square. Bill slender.

Song: A mellow, bubbling trill.

Seasonal Abundance: Arrives the last week in April and starts nesting soon after.

Remarks: An active and nervous bit of feathers, always jumping here and there, apparently never lacking in full vitality. Fond

FLICKER

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of nesting boxes or almost any aid which one gives in this direction, even if it be only a tomato can.

10. WOOD THRUSH

Haunts: Woods or cultivated land containing numerous trees.

Description: Dark brown above, becoming redder on the crown. Under parts silky white with large black spots.

Field-marks: Brighter head and heavily spotted breast.

Size and Shape: Length 8.3 inches. Bill slender.

Song: A bell-like and either ascending or descending "a-o-lee," highly musical and at times almost mournful.

Seasonal Abundance: Arrives May 1st. Leaves October 1st.

Remarks: Lives a good deal on the ground in cultivated localities, but its real home is the deep woods where it thrills creation with its rapturous music. Sings mostly at dawn or vesper, but occasionally during the day.

11. VESPER SPARROW

Haunts: Fields.

Description: Streaked brownish above with a dark cheek patch. Chestnut on bend of wing, and white outer tail feathers. Under parts whitish, streaked with brown.

Field-marks: White outer tail feathers.

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Size and Shape: Length 6.1 inches. Size of English and Song Sparrows.

Song: Not unlike the Song Sparrow's, but less musical and preceded by two minor notes which are not heard except when near by. The song has more of a sameness than the Song Sparrow's and tends toward couplets.

Seasonal Abundance: Arrives April 1st.

Remarks: This bird is fond of the roadside and hence is often flushed by a passing motor, when it is easily recognizable by its tail feathers.

12. MARYLAND YELLOW-THROAT

Haunts: Low bushes, not far from water.

Description: Bright olive-green above; grayer on crown; white on forehead, and line over eye. Lower forehead and large mask extended thru the eyes, black. Under parts bright yellow, paling to white on the belly.

Field-marks: Distinct black mask.

Size and Shape: Length 5.3 inches.

Song: A musical and sharply accentuated "Witch-i-ty, witch-i-ty," etc., the first syllable accented.

Seasonal Abundance: Arrives the first week in May and leaves the middle of October. Starts breeding May 25th.

13. BALTIMORE ORIOLE

Haunts: Cultivated or semi-cultivated land with numerous shade trees.

WOOD THRUSH

THE WAY TO STUDY BIRDS

Description: Orange, with black head, upper back, wings and tail. The wings and tail with orange and white markings. Bill black.

Size and Shape: Length 7.5 inches (same as Wood Thrush).

Song: A lively and clear whistle of usually five notes, the third or more rarely the fourth, the highest.

Seasonal Abundance: Arrives May 1st and is very conspicuous during the breeding season, but almost unobservable in the late summer and early fall. One of the first birds to disappear for the moulting period.

14. CATBIRD

Haunts: Low bushes.

Description: Dark slate-gray. Crown blackish. Tail and wings darker. Under parts lighter. Chestnut under tail-coverts.

Size and Shape: Length 8.9 inches. Slender, with narrow bill.

Song: A medley of warbling, squeaking, and imitative sounds, usually uttered from the top of some bush. Also a mewling "Nee" like a cat.

Seasonal Abundance: Arrives late in April.

Remarks: Of the same family and with the same type of song as the Mockingbird, but its vocal ability is far more limited.

15. KINGBIRD

Haunts: Near fields.

Description: Dark gray above; silky white

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below. Orange-red patch on the crown, and white band on end of tail.

Field-marks: White tail-band.

Size and Shape: Length 8.5 inches. Bill thin.

Call: A sharp "Tsee, tsee."

Seasonal Abundance: Arrives the first week in May.

Remarks: A favorite perch of the Kingbird is a telegraph wire or the top of some tree. They are often seen chasing large birds, particularly Crows, which they attack with great zeal, soon driving them from the neighborhood.

CHAPTER VI

THE FIFTEEN NEXT COMMON SUMMER RESIDENTS

16. COWBIRD

Haunts: Fields, preferably cow-pastures and lawns.

Description: Male: black with a dark brown head. Female: gray; lighter below,

Size and Shape: Length 7.9 inches.

Call: A two-syllabled squeaking "swee-zee"; very highly pitched.

Seasonal Abundance: Arrives early.

Remarks: This bird follows the European Cuckoo in its well-known habit of inflicting its nesting burdens on other species. Not only do the Warblers and Sparrows, etc., have to rear the young Cowbird, whose egg the female laid in their nest, but the Cowbird often secures so much of the food that the true young starve.

17. BROWN THRASHER

Haunts: Thickets, often along roadsides.

Description: Above, bright reddish-brown; two white wing-bars. Below, white with heavy black streaks.

Size and Shape: Length 11 inches. Slender. Tail long. Bill long and slender.

THE WAY TO STUDY BIRDS

Song: A musical medley, uttered in couplets.

Seasonal Abundance: Arrives the last part of April.

Remarks: A rather shy bird, disappearing almost upon observation. Lives near the ground except when singing, at which time it choose a lofty perch if the day is cold, but a low one on hot days.

18. TURKEY VULTURE

Haunts: Flies about in the air, except for an occasional descent to earth for its food. Sometimes seen on dead trees or fence posts, usually in large groups.

Description: Black, with red unfeathered head.

Size and Shape: Length 30 inches.

Seasonal Abundance: Arrives the last of March but does not become common for several weeks. Leaves the last of October.

Remarks: This bird must be clearly distinguished from the various species of Hawks, a requirement which no doubt is easier written than accomplished. But the Vulture, or, as he is sometimes called, the Buzzard, glides or sails far more than the Hawks, and if closely enough approached, can be distinguished by his black color.

19. BOBOLINK

Haunts: Low fields and meadows.

Description: Male in summer: under parts, wings, forehead, cheeks, upper back and tail,

BOBOLINK

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black. Back of neck, yellowish-buff. Lower back and lines down the center and sides of back white. Also white in wings and tail. Bill blue black. Female and male in fall: above, olive-buff with blackish markings. Below, yellowish. Crown dark, with a light yellowish stripe down the center.

Field-marks: Pointed tail feathers. Male: black forehead and under parts and white rump.

Size and Shape: Length 7.3 inches. Bill short and thick. Tail feathers pointed.

Song: An ecstatic gurgling melody, utterly indescribable.

Seasonal Abundance: Arrives the first week in May, and altho not leaving until October, congregates in flocks soon after the breeding season.

Remarks: The Bobolink of our spring meadows changes completely after he completes his nesting duties. He dons the inconspicuous garb of his mate and together they migrate southward to become the "Rice-bird" and "Reed-bird" of the Southern sportsmen, who consider them to be game birds.

20. TOWHEE

Haunts: Thickets, or land covered by a low growth of any tree.

Description: Male: upper parts, head and throat black. Belly white, sides chestnut. White in wings and end of outer tail feathers. Female: similar to the male, but black replaced by brown.

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Field-marks: White in tail and chestnut sides.

Size and Shape: Length 8.4 inches. Bill short and thick.

Song and Call: Call, a sharply whistled "To-whee," the last syllable accented. The song starts with the same note but is followed by a musical trill.

Seasonal Abundance: Arrives the last of April and stays until late in October.

Remarks: Lives close to the ground.

21. SCARLET TANAGER

Haunts: Deciduous woods.

Description: Male in summer: scarlet with black wings and tail. Female and immature: yellowish green above; paler below. Wings and tail darker but not black. Male in fall and winter: similar to the female, but with black wings and tail.

Size and Shape: Length 7.3 inches. Bill short and thick.

Song: Similar to the Robin's but with a unique grating quality and lacking the soft tones of the Robin.

Seasonal Abundance: Arrives May 1st and during the month is often seen in flocks. Leaves the first week in October.

Remarks: This bird's home is the tops of forest trees, where it nests and from which it sings thruout the day.

Loon Ogden Porter

TOWHEE

THE WAY TO STUDY BIRDS

22. ORCHARD ORIOLE

Haunts: Orchards, roadsides and cultivated land.

Description: Male, bright chestnut, with black head, tail and wings. Female and first year male, dull olive above; yellow or yellowish below. Second year male, similar to the female but with a black throat.

Size and Shape: Length 7.3 inches. Bill thin.

Song: A sweet but clear warbling, similar to that of the Rose-breasted Grosbeak.

Seasonal Abundance: Arrives the first of May, and leaves the first week in September. Is one of the first summer residents to depart.

23. REDSTART

Haunts: Woods, or at least groves of trees.

Description: Male: black except for white belly and salmon patches on wings and all but the tips of the outer tail feathers. Female and immature: grayish-olive above; whitish below. Yellow replaces the salmon of the male. The young male does not acquire the full adult plumage until the end of his first breeding season.

Field-marks: Salmon in the male; yellow in the female and young male.

Size and Shape: Length 5.4 inches. Tail long. Bill slender. General appearance slim.

Song: A high-pitched ascending "Tzee-tzee-tzee," etc., becoming slower at the end; and a "We-ez, we-ez, we-ez," etc., very squeaky and monotonous.

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Seasonal Abundance: Arrives the first week in May and remains until October.

24. BLACK AND WHITE WARBLER

Haunts: Woods.

Description: Black above, with white streaks on the crown and back, and white in tail. Below, white streaked with black on throat and sides.

Field-marks: Striped crown and habit of tree-climbing, like a Woodpecker.

Size and Shape: Length 5.3 inches. Slender and with thin bill.

Song: A thin, wiry "Se-e-ee-ee."

Seasonal Abundance: Arrives April 20th. Common immediately. Leaves October 15th.

Remarks: Because of its tree-trunk creeping habit, this true Warbler is known to many observers as the Black and White Creeper. The individual range of this species is uniquely limited during the nesting season.

25. YELLOW WARBLER

Haunts: Thickets, preferably near water.

Description: Bright yellow; wings, tail and back more olive-yellow, and the breast and sides streaked with reddish-brown. Yellow in wings and outer tail feathers.

Field-marks: Yellow in tail, which is unique among the Warblers.

Size and Shape: Length 5 inches (same as preceding). Bill slender.

Song: Similar to Redstart's last mentioned,

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but with the accent on the fourth from the last syllable.

Seasonal Abundance: Arrives the first of May. Leaves September 15th.

Remarks: Sometimes known as the "Wild Canary."

26. CHESTNUT-SIDED WARBLER

Haunts: Roadsides, upland meadows and cultivated land.

Description: Male: cheeks and under parts white, with chestnut sides meeting a black line from bill; another black line thru eye; crown yellow; back, wings and tail greenish with black markings. Yellowish wing-bars. White in tail. Female: similar but colors paler and with less or no black and chestnut.

Field-marks: Yellowish crown and the chestnut sides of the male.

Size and Shape: Length 5.1 inches.

Song: Similar to the Yellow Warbler's but with the accent on the third instead of the fourth from the last syllable.

Seasonal Abundance: Arrives May 1st and remains until October.

27. OVENBIRD

Haunts: Woods.

Description: Above, olive. Below, whitish with brown streaks. Center of crown dull orange with black borders.

Field-marks: Orange in crown.

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Size and Shape: Length 6.2 inches.

Song: A loud "Tee-che-tee-che," etc., becoming louder with each syllable and with a longer space between the second and third, fourth and fifth syllables, etc. Also an infrequent flight song.

Seasonal Abundance: Arrives late in April and leaves in October.

Remarks: Often found on the ground.

28. RED-EYED VIREO

Haunts: Almost any locality, provided it contains trees.

Description: Upper parts, olive green. Below, whitish. Crown, gray with a narrow black border. White line over eye.

Field-marks: White line over eye.

Size and Shape: Length 6.2 inches.

Song: A peculiar, declamatory, two or three syllabled note, kept up incessantly, even throughout the midday heat of a summer day.

Seasonal Abundance: Arrives May 1st and stays until the middle of October.

Remarks: Rather inconspicuous in markings and habits, tho far from shy, and, tho constantly seeming to attract attention by its call, yet by its very monotony it often passes unnoticed.

29. BELTED KINGFISHER

Haunts: Near some stream or body of water.

Description: Male: blue-gray above, with small white dots on wings and tail; breast with

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a wide blue-gray band. Female: similar, but has the sides and an incomplete band across the lower breast chestnut.

Size and Shape: Length 13 inches. Very thickly built; bill long and slender; tail short.

Call: A harsh rattle.

Seasonal Abundance: Arrives early and is one of the last summer residents to depart. I have even seen them at Christmas when the winter was an open one.

Remarks: Lives along the borders of inland lakes, where it perches until, having sighted its prey, it darts forth, capturing some fish from the water, and returns with a rattling note of triumph.

30. RUBY-THROATED HUMMINGBIRD

Haunts: Flower gardens or wherever blossoms are to be found.

Description: Metallic green above; silvery white below; the male having a metallic ruby throat which the female lacks. Part of wings and tail dark purple; tail of the male forked, while his mate's is rounded and bordered by white.

Field-marks: Long bill and bright green upper parts.

Size and Shape: Length 3.7 inches. Bill extremely long, thin and pointed.

Seasonal Abundance: Arrives the 1st of May and leaves the last of September.

Remarks: This single Eastern species of a

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distinctively South American family is one of the wonders of the bird world. A bullet-like flight, a dazzling beating of wings and a stable poising, together with its nest and eggs, are among the attributes which make this ball of feathers the admiration and marvel of our bird life.

CHAPTER VII

NESTS

Before the summer is over a bird student should learn to identify the nests of our common birds. Therefore, after having learned to identify the preceding thirty species, go nest-hunting. Let us consider the nests in the same manner as the birds, *i. e.*, according to their abundance and relative ease of recognition.

1. **English Sparrow:** A bulky affair, consisting of straw and dry grass as a rule, but may be built of anything from chicken feathers to bits of paper. Always huge, untidy and loosely constructed, and built either in the eaves or roof of one's house, the barn, or some nearby shade tree. Eggs: white with olive markings.

2. **Robin:** A nest of coarse grass, mud-lined, and with an inner covering of fine grasses, placed usually near houses, but otherwise the situation is unlimited. The mud lining is the chief identification mark. Eggs: greenish-blue.

3. **House Wren:** Generally built in the hole of a tree, bird-box or some other crevice and constructed of twigs, grass and feathers. Eggs: pinkish-buff, occasionally with fine spots and a deeper shaded wreath at the larger end.

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The Wren never strays far from its home, which vastly simplifies the search.

4. **Phoebe:** Situated on the beams or stones of some dwelling or underneath a bridge. Of grass, hair and moss, bulky and mud-lined. The bird is generally found near the nest. Eggs: white, rarely with a few brownish spots.

5. **Barn Swallow:** On the rafters of farm buildings and made of mud and grass with a grass lining. Eggs: white, with small brownish spots.

6. **Chipping Sparrow:** Nests in low bushes and the nest is formed of grass or rootlets and is heavily lined with horse-hair. Eggs: blue with reddish-brown spots. The unique hair lining of this nest is a good identification mark.

7. **Song Sparrow:** Rather coarsely constructed of grass, rootlets, etc., with a somewhat finer lining. Placed either on the ground or in low bushes. Eggs: whitish with heavy brownish markings.

8. **Baltimore Oriole:** Pendant-shaped and hung by a few strands to the limb of a shade tree or sapling; consists of grass, bark, hair and string, concisely interwoven and hung at a height of from twenty to thirty feet. Eggs: white with blackish scrawls, spots and blotches.

9. **Bluebird:** Placed in a hollow tree or bird house and made of grasses. Eggs: white, usually with a decidedly blue shading.

10. **Crow:** A loose mass of dead twigs, moss and bark, laid together high up in the crotch of some tree, usually in the woods. Eggs:

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bluish-green, generally with brownish markings. The Crow's nest must not be confused with that of the Gray Squirrel, which is composed chiefly of dead leaves. The Crow's does not contain dead leaves.

PART THREE: FALL AND SPRING

CHAPTER VIII

TRANSIENTS

It must be remembered that, in migration, birds travel in unaccustomed localities and, therefore, the haunts of transients are variable. Also, that owing to the variation of a bird's migration, some of the following transients may not always be found, even during the migration period. It is usually better to study the summer part, if not too early in the spring or too late in the fall, as this will be apt to suffice, tho it might be well to state here that the early fall is probably the worst period for a beginner to start ornithology, owing not only to the transients or even to the changed plumages of many of the males, but also to the presence of numbers of young birds with all their immature markings.

I. TREE SWALLOW

Haunts: Flies about in the air, particularly near marshes. Flies the highest of the swallows.

Description: Steel-green above; silky-white below.

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Size and Shape: Length 5.9 inches. Wings long. Bill thin.

Seasonal Abundance: Arrives April 1st. Is common for several weeks until its disappearance for nesting; but it is easily the first bird to congregate in our swamps before migration, often being seen in early July.

Remarks: For many swampy localities near New York this bird is a summer resident, not a transient, but since for the majority it is the latter, I have included it in this chapter. The Tree Swallow breeds in nesting boxes or in tree stumps.

2. BLACK POLL WARBLER

Haunts: Wood or thickets.

Description: Male: crown black; cheeks white; under parts white, the sides, starting at the bill, streaked with black. Upper parts ashy, streaked with blackish. Two white wing-bars and white in tail. Female, male in fall and immature: no black crown; olive-green above and yellowish below. White in tail and two wing-bars.

Field-marks: Adult male in spring: black crown and white wing-bars.

Size and Shape: Length 5.6 inches. Heavily built.

Seasonal Abundance: Arrives May 15th and remains until the first week in June. Very abundant in fall migration.

Remarks: In the fall great difficulty is experienced in distinguishing this bird from

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the Bay-breasted Warbler, owing to the male's change in plumage and the abundance of the immature birds.

3. RUBY-CROWNED KINGLET

Haunts: Thickets or trees.

Description: Above, grayish olive-green; below, soiled whitish; two whitish wing-bars. Male with a bright red patch on crown.

Field-marks: Red on the male's crown.

Size and Shape: Length 4.4 inches. Bill thin.

Song: A low but penetrating warbling, very rich and filled with variety.

Call: A sputtering buzz.

Seasonal Abundance: Arrives early and remains late, both in spring and fall.

Remarks: This active little creature flits about nervously from some low bush to the tip top of a tall tree. It is fond of conifers but is at home anywhere, and may be alone, in pairs or in flocks. It does not cease its flitting about while in song, and often accompanies its flight with its frequently uttered scolding call note.

4. YELLOW-BELLIED SAPSUCKER

Haunts: Woods, orchards or shade trees.

Description: Male: crown and throat bright red; breast black; belly pale yellow; sides lighter, with black streaks. Back, wings and tail a conglomerate mixture of black and white bars and spots; white line from bill under eye; dis-

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tinct white line down wing. Female: similar to the male but throat white and sometimes crown black.

Field-marks: Wide white stripe down the wing.

Size and Shape: Length 8.6 inches.

Song: A clear, penetrating and sweet call, repeated several times. Not unlike the call of the Carolina Wren. I have never heard the song during migration.

Seasonal Abundance: In the spring stays from April 10th to only the end of the month. Returns the end of September, leaving again the last of October.

Remarks: A very shy bird and hard to discover. Most likely to be found near apple or other fruit trees. Can be readily told while on the trunk of the tree from any other Woodpecker by the distinct white stripe down the wing. The bird girdles fruit trees in search of both the sap and the insects which feed upon it. Few apple-trees do not show the Sapsucker's visits.

5. RED-BREASTED NUTHATCH

Haunts: Woods or groups of trees.

Description: Male: similar in general appearance to the White-breasted but smaller, with a reddish breast and with a black line thru the eye. Crown black. Female: similar, but the black replaced by bluish-gray.

Field-marks: Black (male) or blue-gray (female) line thru eye.

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Size and Shape: Length 4 inches. Bill slender.

Call: More nasal and finer than the White-breasted's.

Seasonal Abundance: Arrives early and departs late both in spring and fall.

CHAPTER IX

MIGRATION DATA

There are certain data regarding the arrival and departure of our birds which it is not only interesting to keep for one's own reference, but which can be made of service to any of the various organizations compiling such material. The Biological Survey of the United States Department of Agriculture is perhaps the largest and best organized. There are varied questions asked on blanks of this type but if you wish to keep a brief record of your own migration observations covering a period of several years, I think the following scheme is as good as any.

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<i>Species</i>	AVERAGE ARRIVAL TO DATE	ARRIVAL				AVERAGE DEPARTURE TO DATE	DEPARTURE			
		19-	19-	19-	19-		19-	19-	19-	19-

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This can be used for both the spring and fall migrations, as in the spring the arrival columns will be left blank for the winter residents, and the departure columns for the summer residents, whereas in the fall the reverse will hold true. At either season both blanks will be filled for transients.

PART FOUR: WINTER

CHAPTER X

WINTER RESIDENTS

I. SLATE-COLORED JUNCO

Haunts: Fields, thickets or around houses.

Description: Male: slate-gray, almost black on head and breast; belly clear white; outer tail feathers white; bill flesh-color. Female: paler, with a brownish rather than black shading, particularly on the breast.

Field-marks: White outer tail feathers and the flesh-colored bill.

Size and Shape: Length 6.3 inches. Bill short and thick.

Song and Call: An unbroken, rattling trill. Call: a deep metallic "Tsip."

Seasonal Abundance: Arrives early in September and does not leave until the end of May. Only abundant, however, for about six months.

2. WHITE-THROATED SPARROW

Haunts: Thickets or low bushes.

Description: Male: streaked brown above; crown black with a central white stripe; white line over eye, becoming bright yellow before

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eye; under parts light gray, the throat with a square white patch. Female and immature: much paler, almost lacking the sharply defined white areas of the male and with the black replaced by brown.

Field-marks: Yellow in front of eye. Sharply defined white throat patch of male.

Size and Shape: Length 6.7 inches. Bill short and thick.

Song: A clearly whistled and plaintive "Swee-e-e-e, e-he-e, e-he-e, e-he-e," the last three notes uttered rapidly, the first drawn out. Call: a sharp metallic click.

Seasonal Abundance: Arrives early in the fall and departs late in the spring.

Remarks: An easily found yet not conspicuous bird. Often feeds in winter with Juncos and Tree Sparrows. Old brush piles, thickets and roadsides are its main haunts, tho it strays to the open woods and fields for food. The female and young are nondescript and unattractive.

3. TREE SPARROW

Haunts: Almost unlimited, tho preferably fields or thickets.

Description: Similar to the Chipping Sparrow, with which it may be easily confused. The Tree Sparrow, however, has a black central breast spot, and a brown rather than a black line thru the eye. The Tree Sparrow is also larger than the familiar "Chippy."

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Field-marks: Black breast spot; reddish-brown crown; brown line thru the eye.

Size and Shape: Length 6.4 inches. Bulkier than the Chipping Sparrow.

Song: Not unlike a Canary's; a sweet, low and broken medley.

Seasonal Abundance: Arrives late in the fall and leaves in the first part of April, tho a few individuals may linger until May.

Remarks: This bird arrives at about the same time as its near-double, the "Chippy," leaves. The two birds see little of one another, yet for a short period are liable to be observed in the same flock, when their distinctions may be well noted. Together with the Junco and the White-throat this species forms a trio of our most common winter birds, and flocking together as they do, may constitute a large proportion of the bird-life of the community.

4. HERRING GULL

Haunts: Seashore and the mouths or even streams of large rivers.

Description: Adults in summer: white, with back and wings pearl-gray; outer wing-feathers black, with white spots. Adults in winter: similar but with neck and head grayish. Immature: streaked brownish; lighter below.

Size and Shape: Length 24 inches. Bulky and with short tail, long wings, thick bill and webbed toes.

Seasonal Abundance: Arrives September 10th and leaves in May.

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Remarks: To observe this bird, merely the fare and the time for a ferry ride are required or, even simpler, go to either shore of the Hudson River near New York City and you will see dozens of them flying above the water.

5. GOLDEN-CROWNED KINGLET

Haunts: Trees or shrubs.

Description: Olive-green above; dull white below; wings and tail blackish with yellow markings; crown bright yellow, the male with a central orange shading.

Field-mark: Yellow crown.

Size and Shape: Length 4.1 inches. Bill thin.

Call: A high, thin "Teet-ee-tee," uttered rapidly.

Seasonal Abundance: Remains from September 20th until the last part of April.

Remarks: An easily overlooked type of bird, yet one of our steady and common winter species, apparently unaffected by any degree of temperature.

6. BROWN CREEPER

Haunts: Woods.

Description: Streaked brown and gray above, with a light reddish-brown rump; tail uniform brownish. Below, clear white.

Field-marks: Streaked back and uniform reddish-brown rump.

Size and Shape: Length 5.5 inches. Very slender bill and a long tail with pointed feathers.

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Call: A thin squeaky note.

Seasonal Abundance: September 20th until April.

Remarks: A quiet bird, which would be very hard to find were it not for its occasional note. Consistently starts climbing at the foot of a tree trunk, and having advanced to the top, flies directly to the bottom of another nearby, and thence continues another upward journey in search of the larvæ which comprise its food.

7. MYRTLE WARBLER

Haunts: Trees and bushes.

Description: Male: gray above, streaked with blackish; white in tail and two white wing-bars. Under parts white, the breast and flanks with black streaks. Cheeks black, line over eye white; rump, center of crown and sides bright yellow. Female: similar, but with the black replaced by grayish-brown.

Field-marks: Yellow rump, sides and center of crown.

Size and Shape: Length 5.5 inches.

Song: A nondescript but broken trill. **Call:** a distinctively deep chirp; deeper than that of the other warblers.

Seasonal Abundance: Arrives early and departs late. Locally rare or absent in winter. Always most common at the height of migration.

Remarks: Often seen on the ground. Our most consistently common Warbler thruout migration and always recognizable by its unique call-note.

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8. HERMIT THRUSH

Haunts: Woods and thickets.

Description: Olive-brown above, with a bright reddish-brown tail. Below, buffy-white, spotted with blackish.

Field-marks: Length 7.2 inches. Bill slender.

Song: The Hermit Thrush is probably the most highly musical in clearness and tone of all American birds. The song is somewhat similar in quality and modulation to that of the Wood Thrush, but is nevertheless unique.

Seasonal Abundance: Common transient. Rare in winter. October to May.

Remarks: Shy and retiring in its habits, depriving us in its winter home of the rapture of its marvelous voice. Usually lives near the ground.

CHAPTER XI

WINTER FEEDING

It is an established fact that the main factors in bird migration are weather and food. Temperature is of surprisingly small account in its effect on birds. This is shown by the example of almost Arctic birds thriving in captivity under the same climatic conditions as those whose habitat is some portion of the equatorial zone, in which the temperature never varies more than ten degrees thruout the year. Undeniably, during terrific storms, in which the birds become soaked and then the water freezes, many hundreds of birds die in a day or night; but as a rule these conditions are rare and it is not from them that birds flee to southern lands.

The most potent factor is food, whether it be with the Flycatchers, the insects which have disappeared for the winter; with the Osprey, the fish; or in the case of the Finches, the lack of seeds. To cite instances which prove the truth of the theory is as useless as it would be facile.

Seeing thus how large a part the food supply plays in the lives of birds, we can realize how greatly we may aid the birds by remedying the scarcity which drives them hundreds of miles away. When supplying food in winter consider

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the species that you are feeding, unless you are sufficiently philanthropic to wish to satisfy all tastes. The following is a good list of suitable food and outfit¹:

(1) Beef suet, for Woodpeckers, etc., should be tied to the branch of some tree by heavy cord or wire to prevent the birds or vermin from carrying the suet away; or preferably placed in a "Simplex Suet Holder," made by the Simplex Bird Apparatus Co., Demarest, New Jersey.

(2) Seed Mixture for the seed-eating birds. This group includes the Sparrows and Juncos. The Mixture should be placed in the upper part of a small wooden hopper, which allows the birds to feed out of the lower part. The Mixture should consist equally of white millet, yellow millet, canary and hemp seed.

(3) Sunflower seed scattered on the ground or an adjacent shelf.

(4) Poultry "scratch food" strewn on the surrounding ground.

Keep away the English Sparrows and Starlings at any cost. Their presence will mean far fewer native varieties.

Begin your winter feeding early, so that before the hard winter storms come the birds will become acquainted with your hospitality and accustomed to avail themselves of its use.

¹I desire to thank Mr. Beecher S. Bowdish for the greater part of the following information on food and apparatus.

PART FIVE: SUPPLEMENTARY DATA

CHAPTER XII

BOOKS, PUBLICATIONS, SOCIETIES, ETC.

I have stated that the only volume needed in connection with the present book was one containing the colored plates of the birds herein described. Now, however, having learned fifty of our most common species, you must have a reference book to identify the hundred odd more you may meet with in your locality. The most reliable and the most thoroly useful book will prove to be Chapman's *Handbook of Birds*, which will contain any species you may meet in Eastern North America and with which, if you get a good description of your bird, you stand the best chance of learning its identity.

If you are utterly puzzled and ignorant of the family of your bird, try my Key in the Appendix. However, by this time you should know by the form of the bill, tail, wings or some special markings to what family the bird in question belongs and therefore should be able to turn directly to the Key of that family, or to the description of its various members in the Handbook. This, with the book of colored plates, will suffice for the work, but as an aid the following stand high in ornithological literature:

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Eaton's *Birds of New York*, undoubtedly containing the best plates of New York birds ever produced. Exceedingly fine.

Chapman's *Warblers of North America*, a masterpiece on the biographies of the family.

A. O. U. *Check List*, giving the authoritative order, names and habitats of North American birds.

Ridgway's *Birds of North and Middle America*,—a more detailed and technical account. Very complete.

PUBLICATIONS

The following publications are the chief ones relating to ornithology:

Bird Lore, the popular official organ of the Audubon Society. Bi-monthly.

The Auk, a scientific record published as the organ of the A. O. U. Quarterly.

Wilson's Bulletin, the organ of the Wilson Ornithological Club.

The Condor, the organ of the Cooper Ornithological Club.

Oölogist, a magazine devoted largely to oölogy.

The first one of these, *Bird Lore*, should certainly be in the home of every bird lover. It is trustworthy and at the same time has popular appeal. The others, of which *The Auk* probably stands highest, are not essential, but if the reader becomes sufficiently interested, he may procure them.

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SOCIETIES

As to the various bird clubs and societies which have been formed, only a word need be said. Co-operation undeniably affords strength, as well as the pleasure to be derived by association in work in which all are mutually interested. If a *local* society for either bird study or bird protection exists, by all means join it. It deserves the support of all who are interested in bird life. As to joining a state or national organization, it is not essential to do so unless you feel you will benefit thereby, except where you are aiding protection and preservation by your support. That cause is certainly worthy. Some of the important Eastern associations are:

1. AMERICAN ORNITHOLOGISTS' UNION, the national scientific body of ornithologists. Their annual meetings held in different cities are both instructive and entertaining. Their word on nomenclature, etc., is considered authoritative.

2. NATIONAL ASSOCIATION OF AUDUBON SOCIETIES, the national head of all state Audubon Societies; one of the best organized and most successful organizations for the protection of our bird-life.

3. LINNÆAN SOCIETY, a scientific body confining its activities to the neighborhood of New York City.

4. DELAWARE VALLEY ORNITHOLOGICAL CLUB, a society with Philadelphia as the center of its field.

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Besides these there are many organizations which are not restricted to ornithology, as the American Museum and the New York Zoölogical Society, but which do vast research and scientific work along practical lines.

CHAPTER XIII

PROTECTION, PRESERVATION AND PROPAGATION

If, as a bird lover and scientist, you do not already recognize the economic value of birds then I can only refer you in proof to the statistics which flourish in all libraries; and if you have not already an appreciation of beauty highly enough developed to perceive the beauty in birds, then I cannot convince you. There are thousands who have that appreciation, however, and, to be iterative, the practical value in dollars and cents of bird-life is no myth. The question most naturally arises next as to how we may best protect those agents which make for this condition. Coöperation tends towards greater coordination of effort, and thus success is best attained when those who wish to work along preservative lines combine in their endeavors. Yet do not be discouraged if you are unable to ally yourself with any organization and are obliged to work alone, for much can be accomplished by a single worker even though no others assist. Either for societies or for individuals the following brief summary of the field which lies open for experimentation may be of assistance.

Protection: The two lines which this division contains may be termed the educational and the

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practical. The educational consists in circulating literature relating to birds in the school or other organizations and particularly in driving home the need of protection to the youth of the country who are not yet prejudiced and who do not still believe that "the only good Hawk's a dead Hawk." The societies can do a great deal, but this does not mean that the individual should lie quietly back and omit an opportunity for personal effort.

The practical field is that of legislation and warden work. First the bills must be constructed, entered and pushed thru the legislature. But the work only begins here, for surely a law might just as well be off the statute books as to be unenforced. And yet without warden service that is in many cases precisely the status of affairs. Important colonies of near-extinct birds, rookeries of Egrets and haunts of valuable insectivorous species must be carefully patrolled and protected from the gun of the game-hog, the milliners' representative or the over-zealous collector or oölogist. This is the practical field of bird protection.

Preservation: Bird preservation means to me one and only one thing: The bettering of the chances of our birds to live in safety and to increase. It consists of the establishment of either governmental, state or private game reservations, where the game is killed only on a legitimate and sane basis, so that it may increase, and the insurance of safety for the non-game birds. It means also the aid of nesting boxes in

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summer and of feeding boxes in winter. Here are great opportunities for service.

Propagation: This section contains references to game breeding and liberation. *By all means confine your efforts to native game!* For years the Hungarian partridge has been liberated by the thousand in America. Nor is this game bird a unique example. The Bullfinch and the European Goldfinch stand forth as instances among the perching birds. And, on the other hand, look at the few cases where acclimatization has been successful. The English Sparrow is notable among this class. From ornithological history we find that almost without exception the importation and liberation of foreign species either has proved unsuccessful or has resulted in a plague.

The breeding in captivity and restoration of our native game and bird-life is one of the largest and heretofore almost untouched fields in the work of bird propagation.

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KEY

List of Abbreviations

in. = inches.	♂ = male
im. = immature	♀ = female
ad. = adult	+ = hybrid

- a. All birds except Game birds, Raptores, and Aquatic birds.
- b. Under parts entirely one shade of color.
- c. Under parts white or light gray.
- d. Back brownish.
- e. Length over 11 in.
 - f. White spots on under side of tail $\frac{1}{4}$ in. long—Black-billed Cuckoo.
 - ff. White spots on under side of tail $\frac{1}{2}$ in. long—Yellow-billed Cuckoo.
- ee. Length under 7 in.
 - f. Crown rich chestnut; back streaked—Chipping Sparrow.
 - ff. Crown rufous-brown as back—House Wren.
 - fff. Crown white with two black stripes—White-crowned Sparrow.
 - ffff. Crown brownish-gray—English Sparrow. ♀
 - fffff. Crown streaked with gray and brown—Brown Creeper.
- dd. Back striped with black and white.
 - e. Length over 9 in.; outer tail feathers without black bars.
 - f. With scarlet patch on nape—Hairy Woodpecker. ♂
 - ff. Without scarlet patch on nape—Hairy Woodpecker. ♀

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- ee. Length under 7 in.; outer tail feathers barred with black.
- f. Scarlet patch on nape—Downy Woodpecker. ♂
- ff. Without scarlet patch on nape—Downy Woodpecker. ♀
- ddd. Back metallic green.
- e. Length of wing under 2 in.—Ruby-throated Hummingbird. ♀
- ee. Length of wing over 4 in.—Tree Swallow. ad.
- dddd. Back dark gray, pearl-gray or blue-gray.
- e. Wings with broad yellow bars—Brewster's Warbler.
- ee. Wings with white spot and patches—Migrant Shrike.
- eee. Wings without white or yellow markings.
- f. Back bluish-gray; outer tail feathers white; length $4\frac{1}{2}$ in.—Blue-gray Gnatcatcher.
- ff. Back dark gray; white band on end of tail; length $8\frac{1}{2}$ in.—Kingbird.
- ddddd. Back olive-green.
- e. Length $6\frac{1}{4}$ in.; crown bordered by black lines—Red-eyed Vireo.
- ee. Length 5 in.; crown *not* bordered by black lines—Tennessee Warbler.
- dddddd. Back olive-green, streaked with black—Chestnut-sided Warbler. ♀ ad.
- cc. Under parts dark gray or brownish.
- d. Body warm brown—Indigo Bunting. ♀
- dd. Body slate-gray; crown blackish; under tail-coverts rufous—Catbird.
- ddd. Body sooty brown; wings very long—Chimney Swift.
- ccc. Under parts black.
- d. Back black with two red patches on wings—Red-winged Blackbird. ♂
- dd. Back black and white—Bobolink.
- cccc. Under parts olive-green or yellowish-green.
- d. Wings with white markings.
- e. Length 7 in. or over.

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- f. Breast dull orange—Baltimore Oriole. ♀
- ff. Breast dull yellow—Orchard Oriole. ♂
- ee. Length $5\frac{1}{2}$ in. or under.
- f. Bill thick—Goldfinch, ♀ and ♂ in winter.
- ff. Bill slender.
- g. One white spot on wing—Black-throated Blue Warbler. ♀
- gg. Two wing-bars.
- h. Back distinctly streaked—Black-poll Warbler. ads. in fall, and im.
- hh. Back without distinct streaks—Pine Warbler.
- dd. Wings with white markings.
- e. Without white or yellow line over eye.
- f. Wings black—Scarlet Tanager. ad. ♂ in winter.
- ff. Wings brownish—Scarlet Tanager. ♀
- ee. White line over eye; crown gray;—Tennessee Warbler. ♂
- eee. Yellow line over eye.
- f. Line over eye paler and narrower; crown brownish—Black-throated Blue Warbler. ♀
- ff. Line over eye brighter and wider; crown greenish—Philadelphia Vireo.
- ccccc. Under parts crimson, pink or scarlet.
- d. Breast brick-red; no wing-bars—Crossbill. ♂
- dd. Breast scarlet; no wing-bars—Scarlet Tanager. ♂ in summer.
- ddd. Breast pink; two white wing-bars—White-winged Crossbill. ♂
- dddd. Breast rose-red; two whitish wing-bars—Purple Finch. ♂ ad.
- cccccc. Under parts yellow.
- d. Wings black; crown black—Goldfinch. ad. ♂ in summer.
- dd. Wings gray; two white bars.
- e. Crown and rump slaty-blue—Perula Warbler. ♀
- ee. Crown and rump bright olive-green.
- f. Crown and breast brighter—Blue-winged Warbler. ♂

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- ff. Crown and breast paler—Blue-winged Warbler. ♀
- ddd. Wings olive-green; two white bars—Pine Warbler.
- dddd. Wings olive-green; no wing-bars.
- e. With black on head.
 - f. Crown black; lores and auriculars yellow—Wilson's Warbler. ♂
 - ff. Crown black; lores and auriculars and side of throat black—Kentucky Warbler.
 - fff. Crown greenish, bordered by white; forehead, lores and auriculars black—Maryland Yellow-throat. ♂
- ee. Without black on head.
 - f. White line over eye—Maryland Yellow-throat. ♀
 - ff. Yellow line over eye.
 - g. Blackish line along crown and nape—Hooded Warbler. ♀
 - gg. Crown dark green, no black border—Wilson's Warbler. ♀
 - fff. Without line over eye; cheeks gray; crown with chestnut patch—Nashville Warbler. ad.
 - ffff. No line over eye; cheeks gray; no chestnut crown—Nashville Warbler. im.
- cccccc. Under parts deep blue—Indigo Bunting. ♂
- bb. Under parts glossy, appearing black at a distance.
- c. With patches of red on wing—Red-winged Blackbird. ♂
- cc. Without patches of red on wings.
 - d. Length 15 in. or over; tail short; body thick.
 - e. Length 15 in.—Fish Crow; call flatter and more nasal.
 - ee. Length 19 in.—Crow. Call less flat and less nasal.
 - dd. Length 13 in.; tail long; body slender.
 - e. Breast, crown and nape, reddish-blue—Bronze Grackle.

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- ee. Breast, crown and nape greenish-blue—
Purple Grackle.
- ddd. Length 9 in. or under.
 - e. Tail deeply v-shaped at end; wings extremely long; bill small—Purple Martin. ♂
 - ee. Tail square at end; wings normal length; bill rather large.
 - f. Bill yellow; feathers at breast tipped with buffy—Starling.
 - ff. Bill blackish, feathers tipped with buffy.
 - g. Head brown; very distinct from body—Cowbird.
 - gg. Entire body glossy bluish-black—Rusty Blackbird. ♂ in summer.
 - fff. Bill blackish buffy, and rufous tips to feathers—Rusty Blackbird in winter.
- bbb. Under parts the same general color, but varying in shade.
- c. Upper parts, except wings, unstreaked.
- d. Back brown or olive-brown.
 - e. Wings long; breast gray; length of wings $4\frac{1}{4}$ in.—Rough-winged Swallow.
 - ee. Breast gray with yellow tinge—length of wing $2\frac{3}{4}$ in.—Alder Flycatcher.
- dd. Back green or olive-green.
 - e. With conspicuous white or buffy wing-bars.
 - f. White eye-ring.
 - g. Throat pure white.
 - h. Top and sides of head gray—Blue-headed Vireo.
 - hh. Top and sides of head greenish.
 - i. Length $6\frac{1}{2}$ in.—Wood Pewee.
 - ii. Length 6 in. or under.
 - j. Very little yellow on under parts, smaller, and lower mandible brown—Least Flycatcher.
 - jj. More yellow below, larger, bill light.
 - k. With a brownish wash on back—Alder Flycatcher.

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- kk. Without a brownish wash on back—
Acadian Flycatcher.
- gg. Throat sulphur yellow—Yellow-bellied
Flycatcher.
- ggg. Throat soiled white, washed with buffy.
 - i. Ruby patch on crown—Ruby-Crowned
Kinglet. ♂
 - ii. Entire crown greenish—Ruby-crowned
Kinglet. ♀ im.
- ff. Without eye-ring; line over eye white; center
of crown yellow. ♂ also has orange—
Golden-crowned Kinglet.
- fff. With yellow eye-ring—White-eyed Vireo.
- ee. Wing-bars inconspicuous.
 - f. Crown olive-green; white line over eye—
Tennessee Warbler. ♀
 - ff. Crown blackish; no white line over eye—
Phoebe.
- eee. No wing-bars; one white dot on wing—Blue-
winged Warbler. ♀
- eeee. No white in wings.
 - f. Throat white—Warbling Vireo.
 - ff. Throat grayish-brown—Connecticut War-
bler. ♀
 - fff. Throat yellow.
 - g. Brighter forehead and patch around eye
black—Maryland Yellow-throat. ♂
 - gg. Duller, no black on forehead or lore—
Maryland Yellow-throat. ♀
- ddd. Back bluish-gray.
 - e. Length 9 in.—Migrant Shrike.
 - ee. Length under 6 in.—Brewster's Warbler.
- dddd. Back dark blue.
 - e. Throat rich chestnut—Barn Swallow.
 - ee. Throat grayish—Purple Martin.
- cc. Upper parts streaked or spotted entirely or in
some places.
 - d. Length 13 in.—Mourning Dove.
 - dd. Length 6 in. or under.
 - e. With pink bill—Field Sparrow.

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- ee. With short, thick, black bill.
 - f. Crown chestnut; lores gray; no wing-bars; larger.
 - ff. Crown black with cream buff line through center; lores dull orange; smaller—Grass-hopper Sparrow.
 - fff. Crown with brown stripes; white wing-bars; lores yellowish; larger;—White-throated Sparrow. ♀ and im.
- eee. Bill slender and dark colored.
 - f. Crown olive-green; sides brownish—Bay-breasted Warbler. ♀
 - ff. Crown reddish-brown—Carolina Wren.
 - fff. Crown blackish-brown—Long-billed Marsh Wren.
 - ffff. Crown white streaked with brown—Short-billed Marsh Wren.
 - fffff. Crown olive-green; sides olivaceous—Black-poll Warbler.
- bbbb. Under part with spots, streaks or narrow bars.
 - c. Throat buffy without streaks.
 - d. Length $7\frac{1}{4}$ in.—Bobolink, ♀ and ♂ in winter.
 - dd. Length 4 in.—Winter Wren.
- cc. Throat dark gray—Cowbird. ♀
- ccc. Throat whitish, streaked with black or brownish.
 - d. Back streaked; under parts streaked with black.
 - e. Bill not thick; length .88 in.—Red-winged Blackbird. ♀
- ee. Bill thick; length .69 in.—Rose-breasted Grosbeak. ♀
- eee. Bill thick; length .45 in. or under.
 - f. Band of cream buff across breast—Lincoln's Sparrow.
 - ff. No band across breast.
 - g. Two white outer tail feathers—Vesper Sparrow.
 - gg. Patches of yellow at base of tail, also in wing—Pine Siskin.
 - ggg. No yellow or white on tail.
 - h. Tail forked; no large dot in center of

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- breast or large marks on side of throat—
Purple Finch. ♀
- hh. Tail not forked; large dot in center of
breast; large marks on side of throat—
Song Sparrow.
- eeee. Bill slender; length .37 in. or under.
- f. Crown green—Black-throated Green Warbler.
♀
- ff. Crown black and white striped.
- g. Large black ear patch—Black and White
Warbler. ♂
- gg. Without large black ear patch—Black and
White Warbler. ♀
- fff. Crown black—Black-poll Warbler. ♂
- dd. Back streaked; under parts streaked with
rufous.
- ddd. Back unstreaked.
- e. Cheeks yellow—Black-throated Green Warbler.
♀ or im.
- ee. Cheeks not yellow.
- f. Crown with orange stripes—Ovenbird.
- ff. Crown without orange stripes.
- g. Under parts distinctly tinged with sulphur
yellow; line of same color over eye; length
6 in.—Water Thrush.
- gg. Under parts without sulphur yellow; no
line over eye; length $6\frac{1}{4}$ to $7\frac{1}{2}$ in.
- h. Crown and back dark olive-brown; breast
heavily spotted; tail bright rufous—
Hermit Thrush.
- hh. Entire upper parts rich but not bright
cinnamon-brown; breast faintly
spotted—Veery.
- hhh. Entire upper parts olive-brown; breast
heavily spotted.
- i. Cheeks grayish.
- j. Larger and darker—Gray-cheeked
Thrush.
- jj. Smaller and brighter—Bicknell's
Thrush.

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- ii. Cheeks creamy-buff — Olive-backed Thrush.
- cccc. Throat dull orange; with or without black spots — Baltimore Oriole. ♀
- cccc. Throat olive-green, or yellowish-gray olive.
- d. Bill crossed.
- e. With white wing-bars—White-winged Crossbill. ♀
 - ee. Without white wing-bars—Crossbill. ♀
- dd. Bill not crossed—Black-poll Warbler. ads. in fall or im.
- cccccc. Throat whitish.
- d. Crown grayish with two brown stripes—White-throated Sparrow. ♀
- dd. Crown black—Black-poll Warbler. ♂ in spring and summer.
- ddd. Crown brown with two orange stripes—Ovenbird.
- dddd. Crown olive-green, olive-brown or fuscous.
- e. White in wings.
- f. Center of throat and center of breast whitish—Olive-sided Flycatcher.
 - ff. Entire under part even olive-greenish yellow —Black-poll Warbler. im. and ads. in fall.
- ee. Without white in wings.
- f. With distinct white line over eye—Louisiana Water Thrush.
 - ff. No white line over eye.
 - g. Tail the same color as rest of upper parts.
 - h. Cheeks grayish.
 - i. Larger; darker—Gray-cheeked Thrush.
 - ii. Smaller, brighter—Bicknell's Thrush.
 - hh. Cheeks creamy-buff — Olive-backed Thrush.
 - gg. Tail rufous, much brighter than back—Hermit Thrush.
 - dddddd. Crown cinnamon-brown, the same color as rest of upper parts.

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- e. Under parts heavily streaked with black—
Brown Thrasher.
- ee. Under parts not heavily streaked with black.
- f. Length $7\frac{1}{2}$ in.; breast faintly striped with
brown—Veery.
- ff. Length 5 in., under tail-coverts and (usually)
sides and flanks barred with black—House
Wren.
- dddddd. Crown bright cinnamon, differing from the
darker lower back and tail—Wood
Thrush.
- ccccccc. Throat brownish-gray tipped with whitish—
Purple Martin. ♀
- ccccccc. Throat yellow.
- d. Without streaks on throat.
- e. White in wings.
- f. End third of tail on under side black.
- g. Duller—Magnolia Warbler. ♀
- gg. Brighter—Magnolia Warbler. ♂
- ff. End third of tail on under side not black;
cheeks not yellow.
- g. Center of crown yellow or orange—Black-
burnian Warbler. ♀
- gg. Center of crown not yellow—Pine Warbler.
- fff. End third of tail not white on under side,
cheeks, yellow—Black-throated Green
Warbler. ♀
- ee. No white on wings.
- f. Tail with yellow patches; under part marked
with rufous.
- g. Breast and sides with rufous markings—
Yellow Warbler.
- gg. Breast and sides without rufous markings
—Yellow Warbler. ♀ sometimes.
- ff. Tail without yellow patches, under parts
streaked with black.
- g. With necklace of black spots across breast—
Canada Warbler. ♂
- gg. With necklace of dusky spots across
breast—Canada Warbler. ♀

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- ggg. Without necklace across breast.
- h. Chestnut in middle of back—Prairie Warbler. ad.
- hh. No chestnut in back—Prairie Warbler. ♀ sometimes.
- dd. With black streaks on throat.
- e. Auriculars yellow—Black-throated Green Warbler. ♀
- ee. Auriculars rufous, surrounded on the front, back, and below by yellow; crown black—Cape May Warbler. ♂
- eee. Auriculars neither rufous nor yellow.
- f. Rump pale yellow—Cape May Warbler.
- ff. Rump not pale yellow.
- g. Paler, no chestnut on back—Prairie Warbler. ♀ sometimes.
- gg. Brighter, chestnut spots on back—Prairie Warbler. ad.
- ddd. With chestnut-rufous streaks or spots on throat.
- e. Yellow in tail, chestnut cap—Yellow Warbler.
- ee. No yellow in tail, chestnut cap.
- f. Entire under parts bright rich yellow—Yellow Palm Warbler.
- ff. Throat and breast yellow, belly yellowish-white—Palm Warbler.
- cccccccc. Throat sulphur yellow, streaked with black—Water Thrush.
- cccccccc. Center of throat white, sides of throat olive with darker shaft-streak—Olive-sided Flycatcher.
- bbbbbb. Under parts cut or patched into two or more colors, or with a single blotch (without streaks or narrow bars).
- c. Throat white.
- d. With black on breast.
- e. A small black blotch in center of breast—Tree Sparrow.
- ee. Large black patch on breast.
- f. Crown and back blue, crested—Blue Jay.

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- ff. Crown red, back black and white—Yellow-bellied Sapsucker. ♀
- dd. Without black on breast.
- e. Breast white or light gray.
- f. Grayish on back, unstreaked.
- g. Yellow on sides and in wings and tail—Redstart. ♀
- gg. No yellow on sides, wings or tail.
- h. Crown entirely black or entirely gray, not crested—White-breasted Nuthatch.
- hh. Rear portion of crown gray, black on forehead—Crested Titmouse.
- ff. Back streaked.
- g. Chestnut on sides.
- h. Less chestnut—Chestnut-sided Warbler. ♂
- hh. More chestnut—Chestnut-sided Warbler. ♀
- gg. No chestnut on sides—White-throated Sparrow. ♂
- ee. Breast with grayish-brown band across length $5\frac{1}{4}$ in.—Bank Swallow.
- eee. Breast with bluish band across; length 13 in.
- f. Band on belly rufous, same on sides—Belted Kingfisher. ♀
- ff. No band of rufous on belly, sides bluish—Belted Kingfisher. ♂
- eeee. Breast chestnut.
- f. Crown black—Red-breasted Nuthatch. ♂
- ff. Crown grayish—Red-breasted Nuthatch. ♀
- cc. Throat red.
- d. Back green, length $3\frac{3}{4}$ in.—Ruby-throated Hummingbird. ♂
- dd. Back not green; length $8\frac{1}{2}$ in. or over.
- e. Entire head red, belly white, upper back black, lower back and rump white, tail black—Red-headed Woodpecker. ad.
- ee. Entire head not red, belly yellow, back streaked black and white—Yellow-bellied Sapsucker. ♂

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- ccc. Throat ashy-gray—Crested Flycatcher.
- cccc. Throat yellow.
 - d. Conspicuous ear tufts; black patch on throat.
 - e. Forehead and line over eye yellow—Horned Lark.
 - ee. Forehead and line over eye white—Prairie Horned Lark.
- dd. No ear tufts, band of black, bluish black or rufous across breast—Northern Parula Warbler.
- ddd. No ear tufts; throat and breast bright yellow, paling to white on belly.
 - e. White line over eye; no wing-bars; length $7\frac{1}{2}$ in.—Yellow-breasted Chat.
 - ee. Yellow line over and around eye; white wing-bars; length 6 in.—Yellow-throated Vireo.
 - eee. No line over eye; white wing-bars; length $4\frac{3}{4}$ in.—Northern Parula Warbler. ♀ sometimes.
- ccccc. Throat brown.
 - d. Belly white in center, rufous on sides—Towhee. ♀
 - dd. Belly blackish—Cowbird. ♂
- ccccc. Throat black.
 - d. Lower breast and belly yellow, orange or greenish yellow.
 - e. Entire head black, breast and rump bright orange—Baltimore Oriole. ♂
 - ee. Broad line thru eye black; entire crown yellowish—Lawrence's Warbler.
 - eee. Crown except forehead black, forehead and cheeks yellow—Hooded Warbler. ♂
 - eeee. Crown greenish, cheeks yellowish—Orchard Oriole. im. ♂ 2d summer.
- dd. Center of lower breast and belly white or light grayish-white.
 - e. Crown yellow—Golden-winged Warbler.
 - ee. Crown dark bluish-gray—Black-throated Blue Warbler. ♂
 - eee. Crown brownish-gray, cheeks chestnut—English Sparrow. ♂

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- eeee. Crown black.
- f. Upper breast and lining of wings rose-color—
Rose-breasted Grosbeak. ♂
- ff. Basal two thirds of outer tail feathers and
lining of wings salmon—Redstart. ♂
- fff. Entire head black; sides chestnut—Towhee.
♂
- ffff. Cheeks white—Chickadee.
- ddd. No white or yellow on breast.
- e. Under parts except throat red—Cardinal. ♂
- ee. Under parts except throat green—Cardinal. ♀
- eee. Under parts except throat and breast chest-
nut—Orchard Oriole. ad. ♂
- ccccccc. Throat chestnut.
- d. Back brownish-ashy; two white wing-bars—Bay-
breasted Warbler. ♂
- dd. Back, crown and tail dark metallic blue; rump,
nape and forehead bright chestnut; no white
in wings—Cliff Swallow.
- ddd. Entire upper part rich, bright blue—Bluebird.
♂
- dddd. Upper part blue mixed with grayish—Blue-
bird. ♀
- cccccccc. Chin black, lower throat and rest of under
parts soft brown, crested, yellow band on
end of tail—Cedar Waxwing.
- ccccccccc. Throat blue-gray.
- d. No eye-ring; gray on breast mixed with black—
Mourning Warbler. ♂
- dd. No eye-ring; no black mixed with gray on
breast—Mourning Warbler. ♀
- ddd. White eye-ring, no black mixed with gray on
breast—Connecticut Warbler. ♂
- ccccccccc. Throat buffy—Bay-breasted Warbler. ♀
- bbbbbb. Under parts cut or patched into two or more
colors, with spots or small streaks.
- c. Wing with white stripe, rump black and white—
Yellow-bellied Sapsucker. im. ♂
- cc. No white in wing, rump white—Northern Flicker.
- ccc. White wing-bars, rump yellow.

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- d. Back brownish—Myrtle Warbler. ♀
- dd. Back black—Myrtle Warbler. ♂
- cccc. No white on wings or rump.
 - d. Breast and belly chestnut.
 - e. Brighter—Robin. ♂
 - ee. Paler—Robin. ♀
- dd. Breast and belly yellow with black crescent on breast—Meadowlark.
- ddd. Breast and belly mottled with ochraceous-buff and blackish; a narrow white band across the upper breast—Whippoorwill.
- ccccc. White wing-bars; no white on rump.
 - d. Length 10 in.—Nighthawk.
 - dd. Length $5\frac{1}{4}$ in. or under.
 - e. Throat, upper breast and sides pure black—Black-throated Green Warbler. ♂
 - ee. Breast and sides mottled black—Black-throated Green Warbler. ♀
 - eee. Throat and upper breast orange—Blackburnian Warbler. ♂
 - eeee. Throat and upper breast rosy, chin black, crown red—Red-poll. ♂
 - eeeee. Throat and upper breast white, chin black, crown red—Red-poll. ♀
- ccccc. White dot on wing, rump greenish-olive—Black-throated Blue Warbler. ♀
- aa. Hawks, Owls, Vultures, Eagles.
 - b. Hawks, Vultures, Eagles.
 - c. Entire body except head and feet black.
 - d. Head red, naked—Turkey Vulture. ad.
 - dd. Head black, naked—Black Vulture.
 - ddd. Head blackish, feathered—Turkey Vulture. im.
 - cc. Body brown, head and tail white, length 34 in.—Bald Eagle. im.
 - ccc. Entire body dark brown; length 34 in.—Bald Eagle. im.
 - cccc. Body black and orange brown; length 10 in.—Sparrow Hawk.
 - ccccc. Body not entirely brown, black or orange.

APPENDIX A

- d. Under parts unmarked white—Osprey.
- dd. Under parts marked.
 - e. Upper parts slate gray; under parts white, without rufous markings.
 - f. Throat and upper breast immaculate white; belly streaked and barred with black; under part of tail *dark* gray—Duck Hawk.
 - ff. Throat, breast and belly streaked and barred with blackish; under part of tail *light* gray—Goshawk.
- ee. Upper parts light pearl-gray; under parts whitish with a few rufous markings; rump white—Marsh Hawk. ♂
- eee. Upper parts slate; under parts marked with rufous.
 - f. Under parts without cross-bars—Pigeon Hawk.
 - ff. Under parts with rufous cross-bars.
 - g. Tail square at end; length 16 in.—Sharp-shinned Hawk.
 - gg. Tail decidedly rounded at end; length 17 in.—Cooper's Hawk.
- eeee. Back fuscous.
 - f. Rump white—Marsh Hawk. ♀
 - ff. Rump not white.
 - g. Shoulders rich rufous; under parts heavily marked with same; length 19 in.—Red-shouldered Hawk.
 - gg. Shoulders not as highly colored; length 16 in.; back browner; primaries unbarred, tarsi scales distinct—Broad-winged Hawk.
 - ggg. Shoulders not as highly colored; back grayer; primaries barred; tarsi scales distinct; cap blacker; length of wing over 9 in.—Cooper's Hawk.
 - gggg. Shoulders not as highly colored; back grayer; primaries barred; tarsi scales indistinct; cap grayer; length of wing under 9 in.—Sharp-shinned Hawk.

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ggggg. Breast whitish; belly with blackish band—Rough-legged Hawk.

gggggg. Breast gray and buffy; upper side of tail bright rufous; length 21 in.—Red-tailed Hawk.

bb. Owls.

c. With ear tufts.

d. Length under 10 in.—Screech Owl.

dd. Length over 10 in.

e. Under parts with cross-bars; ear tufts conspicuous.

f. Length over 20 in.—Great Horned Owl.

ff. Length over 20 in.—Long-eared Owl.

ee. Under parts without cross-bars; ear tufts inconspicuous—Short-eared Owl.

cc. Without ear tufts.

d. Length under 10 in.—Acadian Owl.

dd. Length over 15 in.

e. Entirely white, with black or brown markings—Snowy Owl.

ee. Upper part rich buffy-rufous; breast creamy-buff with a few spots—Barn Owl.

eee. Upper parts grayish brown; breast heavily marked with cross-bars; belly streaked—Barred Owl.

aaa. Aquatic and Game Birds.

b. Under parts uniform white, grayish-white or buffy-white.

c. Entire head pure white.

d. Back black; length 30 in.—Great Black-backed Gull.

dd. Back pearl gray.

e. Length 24 in.—Herring Gull.

ee. Length 19 in.—Ring-billed Gull.

cc. Head not entirely white.

d. Crown black—Black-crowned Night Heron.

dd. Crown not black.

e. Bill long and bright yellow—Least Bittern.

ee. Bill dark and length 3 in.—Loon.

eee. Bill dark and under 1 in.

APPENDIX A

- f. With brownish wash below—Pied-billed Grebe in winter.
- ff. Without brownish wash below—Horned Grebe, in winter.
- bb. Under parts with uniform field but streaked, spotted or barred.
- c. Tail over 12 in. and pointed—Common Pheasant.
- cc. Tail 7.5 in., rounded and wide at end—Ruffed Grouse.
- ccc. Tail under 5 in.
- d. Legs long, unwebbed and bright yellow.
- e. Length 14 in.—Greater Yellow-legs.
- ee. Length 10.8 in.—Yellow-legs.
- dd. Legs not *bright* yellow, or if so unwebbed or short.
- e. Bill wide, legs short, feet webbed and flight rapid.
- f. Length under 16 in.
- g. Lesser wing-coverts blue—Blue-winged Teal.
♀
- gg. Lesser wing-coverts gray—Green-winged Teal. ♀
- ff. Length 20 in. or over.
- g. Bill 2.5 in.—greatest width at end—Shoveller.
- gg. Bill 2 in.
- h. Belly not conspicuously streaked or spotted—Pintail. ♀
- hh. Underparts conspicuously streaked.
- i. White in wing-coverts noticeable—Mallard. ♀
- ii. White not noticeable in wing-coverts—Black Duck.
- ee. Bill narrow, legs short, feet webbed, flight slow with sailing.
- f. Length 30 in.—Great Black-backed Gull. im.
- ff. Length 24 in.—Herring Gull. im.
- fff. Length 19 in.—Ring-billed Gull. im.
- eee. Bill long and slender, legs long, feet unwebbed, length 28 in.—Bittern.

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- eeee. Bill long and slender, legs long, feet unwebbed; length under 15 in.
- f. Bill over 2 in.
- g. Tail barred with black—Dowitcher.
- gg. Tail black with rufous tip—Wilson's Snipe.
- ff. Bill under 1.5 in.
- g. Tail with cross-bars, bill over 0.9 in.
- h. Length 12 in.—Upland Plover.
- hh. Length under 9 in.
- i. Above, spotted with white; below, spotted with black—Spotted Sandpiper.
- ii. Above, barred and below, streaked with, black—Solitary Sandpiper.
- gg. Tail without cross-bars.
- h. Toes, 4 unwebbed—Least Sandpiper.
- hh. Toes, 4 partly webbed—Semipalmated Sandpiper.
- hhh. Toes, 3—Sanderling.
- bbb. Underparts not of uniform field but varying distinctly, either patched or shading.
- c. Feathers of entire head, excepting neck, of one color.
- d. Head bright reddish-brown.
- e. Line from crown to tip of bill almost straight—Canvas Back. ♂
- ee. Line from crown to tip of bill decidedly indented at base—Redhead. ♂
- dd. Head brown or grayish, not sharply contrasted to rest of body.
- e. Slightly crested—Red-breasted Merganser.
- ee. Not crested.
- f. Line from crown to tip of bill nearly straight—Canvas Back. ♀
- ff. Line from crown to tip of bill decidedly indented at base of bill—Redhead. ♀
- ddd. Head dark green.
- e. Lower breast and belly unstreaked white.
- f. Wing largely white; breast white—Merganser. ♂

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- ff. Wing not largely white; breast dark green.
- g. Larger—Greater Scaup Duck. ♂
- gg. Smaller—Lesser Scaup Duck. ♂
- ee. Lower breast and belly not white.
- f. Tail over 10 in.—Common Pheasant. ♂
- ff. Tail under 5 in.
- g. Breast white, belly chestnut—Shoveller. ♂
- gg. Breast and belly white, the breast with a band of rufous streaks; crested—Red-breasted Merganser. ♂
- ggg. Dark brownish below—Mallard. ♂
- dddd. Head cinnamon-brown.
- e. Bill 2 in. Tail 7.5 in.; pointed—Pintail. ♂
- ee. Bill 1.3 in. Tail short—Golden-eye. ♀
- dddd. Head deep slate color or black.
- e. Back black with white spots—Loon, in summer.
- ee. Back pearl gray.
- f. Outer primary largely black—Laughing Gull.
- ff. Outer primary largely white—Bonaparte's Gull.
- cc. Head not entirely one color.
- d. Throat chestnut or reddish-brown.
- e. Crown of same color as throat; auriculars green; length 14 in.—Green-winged Teal. ♂
- ee. Crown gray; length 25 in.—Red-throated Loon, in summer.
- dd. Throat black.
- e. Conspicuous crest, largely white—Hooded Merganser. ♂
- ee. No crest.
- f. Belly with distinct black bars—Sora Rail.
- ff. Belly without distinct black bars.
- g. Upper tail-coverts white—Brant.
- gg. Upper tail-coverts not white—Horned Grebe.
- ddd. Throat unspotted white.
- e. Crested.
- f. Length over 40 in.—Great Blue Heron.
- ff. Length under 30 in.

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- g. Crown greenish.
- h. Legs and bill long; neck chestnut; belly gray; wader—Green Heron.
- hh. Legs and bill short; belly white; swimmer—Wood Duck.
- gg. Crown brownish.
- h. Length 25 in.—Merganser. ♀
- hh. Length 18 in.—Hooded Merganser. ♀
- ee. Not crested.
- f. Breast brown; belly clear white—Old Squaw, in winter.
- ff. Under parts white with one or two black bands on breast.
- g. Breast crossed by a single black band—Wilson's Plover.
- gg. Breast crossed by two black bands; rump rufous—Killdeer.
- fff. Belly not clear white.
- g. White throat sharply defined, slightly crested; bill short.
- h. Feet unwebbed—Bob White.
- hh. Feet webbed—Canada Goose.
- gg. White throat, not sharply defined.
- h. Breast cinnamon or rufous; bill long and thin.
- i. Length 15 in.—King Rail.
- ii. Length 9.5 in.—Virginia Rail.
- hh. Under parts ochraceous-buff; bill short and thick—Yellow Rail.
- hhh. Breast and back light gray; bill long and slender—Clapper Rail.
- dddd. Throat spotted or streaked.
- e. Toes webbed; bill thick—Bald-pate.
- ee. Toes unwebbed; bill slender—Sanderling.
- ddddd.
- e. Bill slender; toes unwebbed—Purple Sandpiper.
- ee. Bill thick; toes unwebbed—Blue-winged Teal.
- dddddd.
- e. Larger—Greater Scaup Duck. ♀
- ee. Smaller—Lesser Scaup Duck. ♀

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ddddddd.

e. Large part of crown white—Ruffle-head.

ee. White on crown; white lores—Golden-eye. ♂

bbbb. Under parts of a uniform color (other than black).

c. Under parts rufous or reddish-brown.

d. Bill 1.3 in.—Knot.

dd. Bill 2.9 in.—Woodcock.

cc. Under parts dark brownish.

d. Upper and under tail-coverts white—Wilson's Petrel.

dd. Upper and under tail-coverts *not* white.

e. White in wing—White-winged Scoter. ♀

ee. No white in wing.

f. White patch on ears and before eyes—Surf Scoter.

ff. No white on head—Scoter. ♀

ccc. Under parts black or slate color.

d. Bill white—Coot.

dd. Bill white, black and orange; white nape and forehead—Surf Scoter. ♂

ddd. Bill orange and black; no white on head—Scoter. ♂

dddd. Bill orange and yellow and black around eye and on wing—White-winged Scoter. ♂

ddddd. Bill red; back brown—Florida Gallinule.

APPENDIX B

GLOSSARY

The following is intended to identify, for the beginner, a few of the most common ornithological terms and abbreviations which he will encounter.

1. Abbreviations:

♂ = sign of the male.

♀ = " " " female.

im. = immature, which is accepted to mean the young birds of the same year.

† = sign of a hybrid.

ad. = adult.

2. Parts of the bird:

Auriculars = back and below eye, commonly called cheeks.

Belly = lower part of the under parts.

Breast = forward part of the under parts.

Crown = upper part of head.

Lores = between eye and bill.

Mandible = division of the bill.

Primaries = outer wing feathers.

Rump = lower part of back.

Tarsus = lower part of leg.

Tibia = upper part of leg.

Under tail-coverts = feathers under base of tail.

Upper tail-coverts = lower edge of rump.

Wing-coverts = feathers nearer inside of wing.

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