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The University of the State of New York

New York State Museum

JOHN M. CLARKE, Director

Memoir 12

BIRDS OF NEW YORK

BY

ELON HOWARD EATON

Part 2

GENERAL CHAPTERS; LAND BIRDS

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INTRODUCTORY NOTE

The first volume of this work was communicated for publication in 1908 and was distributed to the people of this State and to the general scientific public in 1910. It was the expectation that volume 1 would be immediately followed by another volume which would afford descriptive accounts, with necessary illustrations, of the land birds of New York, but this purpose has been obstructed by the regrettable illness of the author. Students of the birds interested in this work will, therefore, understand the reason for the apparent long delay in the completion of this undertaking. With the presentation of this volume 2, the entire field, as originally planned for the work, is covered, and there are excellent reasons for feeling that the unavoidable delay has, in some regards, increased the real value of the present book, as it has afforded opportunity for the preparation of chapters of a more general import, particularly bearing upon the relations of the bird life of the State to human concerns.

JOHN M. CLARKE

Director

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BIRD ECOLOGY

It is evident that any comprehensive scheme for the protection of bird life, the increase of valuable species or the introduction of new ones, must proceed on sound principles of bird ecology, or the relationship of birds to their environment, and their ability to adapt themselves to new conditions as they arise. It is not our purpose in this short chapter to discuss the reaction to environment which resulted in the development of the bird's wing and feathers or its numberless other structures which fit the various species of birds for life in their chosen spheres, but rather to consider those general principles of ecology which show the relationship of our different species of birds, first, to their natural environment as it existed in primeval times, and second, to the changed environment which obtains throughout the greater portion of the State at the present day. It is so often thought to be merely a question of the protection of birds from boys, gunners, cats and hawks which is necessary to insure their proper abundance that a consideration of the subject of ecology seems

absolutely necessary at the present time in order to explain the probable reasons why some birds are abundant in various sections of the State and others are fast disappearing; and to suggest reasonable means of encouraging desirable birds to increase in our domains.

FUNDAMENTAL FACTORS OF ENVIRONMENT

Climatic. Of the natural factors which influence the bird life of any part of the world, those due to the climate are undoubtedly of foremost importance. Among these is *light*, the effect of which may be illustrated by reference to owls, goatsuckers and woodcocks, which feed mostly by night or in the twilight, and in the daytime must hide away in hollows or dark portions of the forest. To a less extent the influence of this factor is observed in those forest species such as many thrushes and wood warblers whose eyes are noticeably larger than those of their relatives which live in more open surroundings, and unquestionably the intensity of light affects their nervous equilibrium to such an extent that it even determines their presence or absence in a given locality, apart from all other factors.

Temperature has usually been considered the most important climatic factor and is the principal one taken into account by the United States Biological Survey in mapping the distribution of animals in America. As illustrations of this factor, it is frequently evident when surveying a ravine in central New York or when approaching the outskirts of the Adirondacks, that such species as the Junco, Canada warbler and Hermit thrush will frequently be present or absent according as the average temperature varies 2 or 3 degrees during the six hottest weeks of summer.

Of very great importance is the *humidity*, which is largely dependent upon temperature and, with it, regulates the distribution of many species. As direct examples of this factor, the author has become convinced that such birds as the Wood thrush and the Hooded warbler are usually found in a denser cover than some of their allies merely because the percentage of humidity is higher in the coverts where they are found than in other localities which, by the casual observer, might be considered equally con-

genial to them, and because of the humidity, the *rate of evaporation* from their bodies is proportionately reduced. In the hard wood tract described on page 27, it was noticeable that as the lower thickets disappeared by growth of the taller poles, the amount of humidity within ten feet of the ground was perceptibly lower, so that it undoubtedly was not only the lack of favorable nesting sites, but the slight change in humidity acting with it, which caused the Hooded warbler and the Wood thrush to disappear. Conversely, on many bushy hillsides, if the atmosphere is comparatively dry, the Field sparrows, chewinks and thrashers will be in evidence. In damper thickets yellowthroats and Yellow-billed cuckoos will appear, undoubtedly attracted not primarily by the edaphic condition but by the humidity of the bush stratum which lies just above the ground.

Another climatic factor of great import is *rainfall*, which affects the forest growth; but apart from its influence upon vegetation and thus upon bird life, it is also a direct factor when flooding marshes and destroying the nests with eggs and young, or when beating down nests directly from their support, and sometimes even destroying the full-grown birds themselves,¹ and by the destruction of migrating birds, often observed, while crossing the sea or large lakes. When the rain is dense enough birds frequently lose their bearing and fly headlong into the water without realizing the direction they are taking.

Ice and *snow* are also factors worthy of consideration as they frequently cover the food of many species during the winter season. In this way Quail are frequently winterkilled, and in the early spring meadowlarks and Savannah sparrows in western New York may often be observed in severe straits during the days of late March and early April. Many species during an extensive ice storm or snow storm are in danger of starvation. In the winter of 1895, as elsewhere noted, the Bluebird was nearly exterminated by continued ice storms in its winter home and its numbers were again decimated by the severe winter of 1911-12. During a severe

¹Great numbers of sparrows killed in Providence by cold rain and sleet (Bumpus, Wood's Hole Biological Lectures 1898, p. 24).

snowstorm millions of longspurs were destroyed in Minnesota (see page 56, volume 1).

Winds are also a climatic factor of effective influence not only in determining the humidity and the rainfall of a region, but also because of their influence upon migrating birds. As an example note the destruction of warblers, beaten into the sea by severe head winds while crossing the Gulf of Mexico, mentioned by Frazar (Henshaw, Nutt. Orn. Club Bul. 6, 189). Every bird student may also recall numerous instances of nests and young birds blown down and destroyed by high winds.

Other climatic factors, such as hail and electricity, might also be mentioned, and the illustrations given might be multiplied indefinitely, but we trust that those cited will serve to show that these various factors act directly upon the physiological nature of the bird and thus serve to control its abundance, or even its very presence in a given locality.

Physiographic factors. The wrinkling and sculpturing of the earth's surface into great or small land masses, mountains, ravines, valleys, flood plains, marshes, streams, lakes, sounds and seas, thereby determining the slope of the land and the influence of the sun's rays upon it, all have great influence upon the avifauna of a region. It is evident that they control many of the climatic factors, especially the latitude and altitude determining the temperature and the humidity, and the latter is controlled also by the nearness to the sea and the presence of streams or underground water on the slopes of ravines and hillsides.

The various statements made in the chapter on distribution in volume I, illustrate the influence of mountains or altitude upon the various zones of bird life within the State. The effect of ravines is well displayed in central and western New York where many Canadian species are often found on the south side of ravines which are not exposed so directly to the sun's rays, whereas on the north margin of the same ravine Alleghanian and Carolinian species usually predominate. The influence of streams and bodies of water is clearly illustrated by their effect on the presence of such species as kingfishers, herons, ducks and shore birds. Marshes are

indispensable to the presence of rails, bitterns and numerous species which belong to their community. Rocky cliffs determine the nesting site of Duck hawks and murrens. Thus it might be shown that the physiography of every locality attracts its own characteristic bird life.

Soil factors. The character of the soil, whether it is wet or dry, must not be neglected while making a study of bird ecology; and the material of its composition, whether rock, gravel, sand, clay, loam, marl, muck or peaty ooze; also its richness in mineral ingredients such as lime, nitrates, sulphates, phosphates etc. These edaphic conditions influence bird life mainly through their control of vegetation and so affect the breeding and feeding habitats of numerous species. Some are more directly affected, such as the Bank swallows, woodcocks, and snipes which can not breed or find their food supply except in proper soil.

Biotic factors. Under this heading must be considered first, plants as furnishing nesting sites, food and shelter, and also as controlling the light, heat, humidity, and through the heat and humidity the rate of evaporation which is of great importance in determining the presence of various species of animals in a given habitat. The effect of vegetation upon the nesting site is illustrated in the case of all arboreal species which decline directly in proportion to the deforestation of a region, and of the thicket community which is very quickly affected by pasturing or the clearing of hillsides and swamps. Illustrating the important effect upon various species by certain kinds of vegetation, I noticed that in 1880 the Purple finch appeared as a common breeding species in the village of Springville at the same time with the growth of numerous spruce and cedar trees which were planted by residents in their dooryards. When these became of a height from ten to twenty feet they were invariably utilized by the finch as breeding sites. Everyone has noticed the influence of the American elm upon the abundance of the Baltimore oriole, which, although it breeds also in various other kinds of trees, succeeds much more often in rearing its young when it chooses the drooping branches of an elm. In driving across the country in springtime everyone must have noticed that colonies

of Bronzed grackles are almost always found about dooryards and roadsides where groups of spruces or pine trees are growing. Thus, if carefully studied, a large percentage of our native birds will be found to choose a preferred site for nesting.

Plants as affecting the food directly are of most importance, of course, in the case of frugivorous and granivorous species such as the Grouse, Bobwhite and Sparrow which will not be abundant in any district unless their favorite food can be found. Striking examples of the influence of food are frequently noticed; a crop of mountain ash berries attracts flocks of Cedar birds and Pine grosbeaks. Large beds of vallisneria in the central lakes, of recent years have attracted flocks of redheads and canvasbacks, sometimes hundreds and thousands, during the early winter. The Ruffed grouse is frequently observed traveling long distances in the winter to feed on the buds of birch and apple trees. Unless its coverts contain a sufficient admixture of such species upon which it can feed in winter it will rapidly disappear. A crop of cones in spruce or pine trees frequently attracts flocks of crossbills in winter or early spring, and a field of lettuce or dandelions will bring large numbers of goldfinches to feed on the seeds.

Plants are also of great importance as shelter for birds apart from their use as nesting sites, and apart from furnishing food. They afford a refuge from enemies as well as from storms and the heat of the sun. Everyone has seen sparrows and other birds scurrying to the shrubbery when disturbed in the open field or when pursued by hawks or cats. When grouse are frightened they seek either the dense thicket or trees as a refuge, the former when pursued by hawks and the latter when pursued by dogs or foxes. During the migration season one must look for transient birds on the leeward side of the woods during wind storms. Here they are often found feeding at leisure, while on the windy side few or none are observed. Once while seeking refuge beneath a dense maple from an approaching thunder shower, I observed a small company of goldfinches come diving into the tree and arrange themselves so that

each was protected as by an umbrella under the overhanging leaves near the top of the twig selected for its perch. Everyone has noticed how rapidly the birds disappear during a severe storm, each seeking its proper refuge and almost without exception this refuge is some kind of vegetation. The importance of a shelter from the heat of the sun is illustrated by the actions of mother robins and other birds when the sun shines directly upon their nestlings. Then they stand on the edge of the nest and shade the birds with their outstretched wings. In a similar way the older birds themselves are affected by the extreme heat of midday. As everyone knows, the time to go birding is in the morning or in the afternoon. During the middle of the day the birds are quiet and a greater portion of them are hidden away in the shadows of the trees and shrubs. During the hottest days of midsummer one may often notice our common birds standing with drooping wings and open mouths within the shade of the foliage seeking to avoid the overheating due to the direct rays of the sun.

Under biotic factors must also be classed the various animals which affect the bird as a part of its environment, either food, allies or enemies. As food it is evident that all carnivorous, piscivorous and insectivorous species will necessarily be present or absent according as their favorite food may be found. One may not seek for Belted kingfishers in the midst of a plain, nor for insectivorous birds over the middle of the lake or sea. During the winter of 1901 meadow mice were very abundant in the fields of western New York, and the Rough-legged hawk, their principal enemy, appeared in abundance. The withdrawing of water from the Erie canal left large numbers of small fish stranded in the wide waters of eastern Rochester, and immediately great numbers of Herring and Ring-billed gulls appeared and remained there until the fish were devoured. During the migration seasons of 1911 and 1912 the author noticed an unusual number of warblers of eleven species frequenting a group of beech trees on a tree-covered campus in Geneva, and on investigation discovered that this group of trees was infested with an innumerable swarm of plant lice upon which the birds were feeding. Other groups of trees which

looked equally attractive to the casual observer had no warblers among their branches. These illustrations easily indicate the relationship between food and the abundance of a species, but it must be borne in mind that similar relationships are all the while at work governing the abundance of birds when the exact cause is not manifest to the observer.

As allies, some animals affect slightly the abundance of species. Undoubtedly the Kingbird assists the Yellow warbler and other birds in escaping from the depredations of hawks and crows when nesting in the same orchard, and the various little associations observed, such as the Downy woodpecker, Nuthatch, Chickadee, Creeper and Kinglet coterie, have a real cause for their existence other than the desire for mutual companionship.

The most evident cause of the disappearance of birds, to the casual observer, is the enemy factor. Under the head of enemies must be classed all beasts and birds of prey, rivals and parasites. To illustrate the influence of these factors, it is often observed by bird students that a single pair of Sharp-shinned hawks will destroy nearly every song bird in the wood where they are nesting, and a cat which has discovered a brood of bobwhites will return to their range and follow the birds until every chick has been destroyed. In the same way the cat destroys the broods of numerous birds which nest in the garden and dooryard, and the parasitic Cowbird which lays her egg in the nest of a small warbler or sparrow thereby destroys the entire brood of the other bird. To illustrate the influence of rivalry, we might mention the effect of the English sparrow upon the martins and bluebirds. By continually occupying their nesting sites it is gradually forcing these birds more and more from our dooryards, and, unless the martins and bluebirds are assisted, they will finally be driven from the immediate vicinity of our homes. I have also observed that the Wren frequently picks holes in the Bluebird's eggs, and thus destroys one of her rivals in the race for food. The problem of food rivalry is rather complex, but unquestionably is very often of a determining influence in governing the abundance of various species. Parasites must

also be regarded as enemies of the birds, especially the bird-lice which frequently destroy whole broods of phoebes and swallows, and seriously impair the vitality of others. Internal parasites are also a source of great harm. During one afternoon in the summer of 1900, the author picked up forty terns on the Weepecket islands which had died from the effect of flat-worms growing within the intestine. Thus various kinds of parasites frequently sap the vitality of birds or destroy them altogether.

The various factors enumerated work together to make up the bird's environment. By a combination of favorable factors, as opposed to the unfavorable ones in any given locality, the balance may be turned to the bird's advantage, so that it may increase like the English sparrow in America. If the natural influences which are unfriendly to the presence of a bird overbalance the favorable factors, it is useless to expect the species to increase. The factors which naturally produce a favorable environment for it must be induced artificially if the species is to be encouraged. A thorough study of the ecologic status of the birds which societies or individuals wish to encourage in a given locality, should be made when any action is taken either to introduce or to encourage the species and by varying those factors which are of the greatest importance to produce a favorable environment they may finally be successfully encouraged.

BIRD HABITATS

For ecological purposes, birds are properly classified according to the nesting habitats which they occupy, but for various reasons these do not always agree with the places chosen for the birds' other life activities, and it is necessary, for purposes of general discussion, to recognize also the feeding habitat. This is different from the breeding habitat of all truly aerial and aquatic species, of which we have a goodly number. All our diving birds, gulls and waterfowl must necessarily make their nests on shore and are usually classified according to the habitat which they utilize for that purpose; but in many of the species, especially the diving ducks, grebes and loons, the food is almost entirely pursued and taken

in the water. In the aerial feeding habitat we notice such species as the Nighthawk, Whippoorwill, swifts and swallows; and, to a certain degree, the flycatchers, waxwings, the Red-headed woodpecker, warblers, kinglets and even many species of sparrows. Of our land birds, likewise, many that are arboreal in nesting habits are eminently terrestrial in their feeding, such as the crows, grackles, robins, and, to a certain extent, many species which normally feed in trees or shrubbery, as they frequently alight upon the ground to capture their prey; and others like the Bluebird and Red-headed woodpecker which frequently take their food from the ground although watching for it from more elevated stations. Many species like the herons are arboreal in nesting habits but seek their food in the marshes and streams and lake shores. Some species of ducks that feed in the open water or in the marsh make their nests in hollow trees. Thus the feeding habitat must be recognized in considering the landscape which should be most advantageous to a species, as well as the breeding habitat which is necessary for its increase.

Likewise, the refuge habitat is of importance in this connection, for many birds will not appear even in migration time unless their proper refuge is at hand to protect them both from their enemies and from the wind or rain or sunshine. Everyone has noticed that many species of waterfowl which feed in the shallows or marshes make their refuge habitat on the wide waters of lakes and bays, or even the ocean, and that birds like the Blackbird, Robin and Swallow, that feed in the open field and scatter widely during the nesting season, unite to seek a safe refuge for roosting purposes, often congregating in immense numbers to pass the night or to combine against their enemies. The importance of the refuge habitat is more noticeable in the case of granivorous species than others, for they necessarily seek their food largely in the fields, and yet most of them do not roost or nest in the field, and, if disturbed while feeding, will quickly seek the friendly shelter of shrubbery or dense foliage. This is particularly noticeable in the case of sparrows and juncos during the migrating season. Scores of them may be feeding in the open field, but

if any one approaches, or if a dog runs toward them, they immediately rise and follow each other in succession to the shelter of the thickets. These shelter or refuge habitats are of particular importance in the case of game birds, as all sportsmen know, for it is in the best cover that they search for the Grouse, Pheasant and Bobwhite. The various nesting habitats are enumerated in connection with the bird communities which inhabit them.

NESTING SITES OF NEW YORK BIRDS

For ecological purposes it is necessary to determine the nesting habitat and exact nesting site of birds in order to classify them properly. In recording the nesting site, we might arrange our birds according to the strata or layers or stories which they occupy, as follows:

Subterranean stratum. In this are included the Kingfisher, Bank swallow, Rough-winged swallow and occasionally the English sparrow when usurping the nesting holes of Bank swallows.

Ground stratum. Here are found all the birds which place their nests directly upon the ground, such as the Loon, Herring gull (on rocks), Mallard, Black duck, Blue-winged teal, Woodcock, Bertramian sandpiper, Killdeer, Piping plover (sand or pebbles), Bobwhite, Ruffed grouse, Pheasant, Mourning dove (occasionally), Duck hawk (on rocky ledges), Nighthawk, Whippoorwill, Prairie horned lark, Bobolink, Cowbird (in Song sparrow's nest, etc.), Meadowlark, Vesper sparrow, Savannah sparrow, Grasshopper sparrow, Song sparrow (usually), Field sparrow (usually), Junco, Towhee (usually), Black and white warbler, Canada warbler, Worm-eating warbler, Nashville warbler, Blue-winged warbler (occasionally), Ovenbird, Kentucky warbler, Brown thrasher (frequently), Wilson thrush, and Hermit thrush. Here also might be included those species which nest on the oozy ground or grass or moss of marshes, such as the Pied-billed grebe, Black tern, American bittern, King rail, Sora rail, Virginia rail, Florida gallinule, Coot, Wilson snipe, Marsh hawk and Short-eared owl. Also those species whose nests are usually placed in mossy banks or moss-

covered logs and in the roots of trees, like the Yellow-bellied fly-catcher, White-throated sparrow, Junco, Water thrush and Louisiana water thrush.

Herb stratum. Here are included those species whose nests are usually placed in tussocks of grass or flags or among tangles of ferns and weeds. Many species which nest habitually upon the ground or in thickets are frequently found nesting in this stratum, but its most characteristic representatives are the Least bittern, Red-winged blackbird, Sharp-tailed sparrow, Seaside sparrow, Swamp sparrow, Song sparrow, Blue-winged warbler, Golden-winged warbler, Mourning warbler, Maryland yellowthroat, Short-billed marsh wren and Long-billed marsh wren.

Thicket stratum. In this are included all birds which usually nest in bushes or in small saplings, usually in tangles on the borders of woods and in the undergrowth of the forest. The nests are usually placed from one to eight feet above the ground. The characteristic representatives of this story are the Yellow-billed cuckoo, Black-billed cuckoo, Alder flycatcher, Cowbird, Rusty blackbird, American goldfinch (often in trees), Field sparrow (frequently on the ground), Song sparrow (later broods), Cardinal, Indigo bird, Migrant shrike (often in low trees), White-eyed vireo, Yellow warbler (frequently in trees), Chestnut-sided warbler, Prairie warbler, Black-throated blue warbler, Myrtle warbler and Blackpoll warbler (in low spruces), Maryland yellowthroat (occasionally on the ground), Yellow-breasted chat, Hooded warbler, Redstart (occasionally), Catbird, Brown thrasher (sometimes on ground), Olive-backed thrush. I was surprised to note how few species had been entered under this stratum, because it seemed to me it would include by far the most of all the strata enumerated, but this impression is undoubtedly due to the fact that the layer is so frequently invaded by both terrestrial and by arboreal species which belong more characteristically in the lower tree stratum.

Lower tree stratum. In this are included those birds that do not require so dense a covert for the nesting site as the thicket stratum, but prefer a moisture habitat in which the rate of evaporation is lower than in the tree-top story which follows. They are characteristically the

birds of the shaded or lower branches of forests and groves, placing their nests from 5 to 35 feet above the ground. Here we might include the Green heron, Mourning dove, Sharp-shinned hawk, Ruby-throated hummingbird, Kingbird, Wood pewee, Green-crested flycatcher, Least flycatcher, Bluejay, Orchard oriole, Purple finch, Goldfinch, Chipping sparrow, Rose-breasted grosbeak, Scarlet tanager, Cedar waxwing, Red-eyed vireo, Blue-headed vireo, Parula warbler, Magnolia warbler, Black-throated green warbler, Redstart, Golden-crowned kinglet, Wood thrush, Robin.

Higher tree stratum or tree-top story. Many species included in the former story frequently invade the higher portions of the trees, especially trees which have not reached their maximum height in the forest; but as building more characteristically in this layer we might mention the Great blue heron, Black-crowned night heron, Cooper hawk, Goshawk, Red-tailed hawk, Red-shouldered hawk, Broad-winged hawk, Bald eagle, Fish hawk, Long-eared owl, Barred owl (occasionally), Great horned owl (frequently), Olive-sided flycatcher, Raven, Crow, Fish crow, Baltimore oriole, Purple grackle, Bronzed grackle, Crossbill, Siskin, Warbling vireo, Yellow-throated vireo, Cerulean warbler, Blackburnian warbler, Pine warbler.

Birds nesting in hollow trees. These species might have been included in the last two strata enumerated, but as it is of more importance to recognize them as birds nesting in hollows or woodpecker holes, they are placed under this separate heading. In it are included the American merganser, Hooded merganser, Wood duck, Golden eye, Duck hawk (very rarely), Sparrow hawk, Long-eared owl (occasionally), Barred owl (usually), Saw-whet owl, Screech owl, Great horned owl (frequently), Chimney swift (rarely at the present day), Crested flycatcher, Bronzed grackle (occasionally), Song sparrow (rarely), Purple martin (occasionally), Tree swallow, Prothonotary warbler (built once in this State), Carolina wren, House wren, Brown creeper (behind loose bark), White-breasted nuthatch, Red-breasted nuthatch, Tufted titmouse, Chickadee, Robin (rarely), Starling, English sparrow.

Birds that excavate their nesting holes in trees. Here belong all our nine species of woodpeckers, Chickadee (usually), White-breasted nuthatch and Red-breasted nuthatch (partially excavate their holes).

Birds that nest in boxes. Under this heading we place those species that are known to avail themselves of bird boxes: Wood duck (occasionally), Screech owl, Crested flycatcher (occasionally), Purple martin, Tree swallow, Carolina wren, House wren, Chickadee (occasionally), Robin (in boxes with large openings), Bluebird, Starling, English sparrow. All species which nest in hollows, included under the previous heading, might be induced by judicious treatment to nest in properly prepared boxes or hollowed limbs.

Birds that nest on structures erected by man. These species, like the last, have shown some adaptation to civilized surroundings and furnish clues to methods which might be employed to increase their numbers. Under this heading we include the Mourning dove (rarely on fence posts and fence rails), Fish hawk (on wheels or platforms erected on poles), Barn owl (in belfries and outbuildings), Screech owl (in openings in gable ends etc.), Downy woodpecker, Red-headed woodpecker and Flicker (in posts and poles), Nighthawk (on flat roofs), Chimney swift (in unused chimneys and gable ends), Kingbird (rarely on posts), Crested flycatcher (sometimes in hollow poles), Phoebe (on beams and under eaves and bridges), Cowbird (in nests of Phoebe, Robin, Chippy etc.), Chipping sparrow (in vines on porches and sides of houses), Purple martin (under eaves etc.), Cliff swallow (under eaves of barns), Barn swallow (on beams and rafters of sheds and barns), Tree swallow (in holes of posts and telegraph poles), Rough-winged swallow (in abutments of bridges), House wren (in posts, crannies of buildings, etc.), Chickadee (in hollow fence posts), Robin (on beams, brackets, porch posts, fence posts, window sills, etc.), Bluebird (in crannies of eaves occasionally), Starling (in eaves and crannies), English sparrow (in every available hollow, nook and cranny).

BIRD COMMUNITIES

After long continued consideration and sorting of the species of birds that nest within the limits of New York State, the author is convinced that the following communities might be recognized, although the obvious difficulty of confining many species of birds to one of them is no more than can be expected.

Communities of the seashore and lake shore. Here we might place all those species whose nesting site is confined to the immediate vicinity of larger bodies of water. In this State there seems to be no sharp distinction between lake shore and seashore communities, so this difference is not recognized. Even the Roseate tern and the Least tern undoubtedly nested at one time on the shores of the Great Lakes and the Common tern at the present time nests on the Canada-New York border among the Thousand Islands. Those species which breed on the *sandy or gravelly beach* are the Common tern, Roseate tern, Least tern and Piping plover. The species which nest on rocks or waste near the shore are the Loon and Herring gull. Here might also be included those that nest on trees in the immediate vicinity of the seashore such as the Osprey, Bald eagle, Golden eye, and also the Fish crow, which has not been found far from the sea or the brackish waters of the Hudson.

Community of the salt marsh. A few species are not known to nest except in the salt marshes of the coast. These are the Laughing gull, Clapper rail, Sharp-tailed sparrow and Seaside sparrow.

Communities of the fresh water marshes. The marshland community is one of the most sharply defined on account of the peculiar edaphic and humid conditions found within the coverts of the cat-tail, reed and sedge formations. Herein are included, in the wider and deeper portions of the marsh where the water is continually standing, such species as the Pied-billed grebe, Black tern, Least bittern, Sora, Florida gallinule, Coot, Red-winged blackbird, Long-billed marsh wren. Where the ground is still moist and water may be standing, but nearer the solid ground than

those already mentioned, may be found the American bittern, King rail, Virginia rail, Marsh hawk, Short-eared owl, Swamp sparrow and Short-billed marsh wren; where the wet ground is sparsely covered or about its swampy borders, the Wilson snipe; and invading the marshland from the shore side, numerous examples of the stream margin and damp meadow communities, such as the Spotted sandpiper, Song sparrow and Maryland yellowthroat.

Communities of the meadowland. These birds are related ecologically to the prairie society, to which they undoubtedly belonged in primeval time. In the damper portions of our meadowlands will be found the Bobolink and Savannah sparrow, and in the wet meadows, sometimes in bogs and weedy marshes, the Henslow sparrow. In the dryer portions of the meadowland may be found the Bartram sandpiper, Bobwhite, Meadowlark, Vesper sparrow and Grasshopper sparrow. What might be called another general division but more or less related to the meadowland communities, are those inhabiting plains, waste fields and pastures and plowed fields which have a very sparse vegetation. Here belong more properly than in the grassland the Vesper sparrow, Killdeer, Prairie horned lark and Nighthawk, the latter, however, preferring rocky fields in the wildest districts.

Community of the pond and stream margins. It has often been noted that many species are practically confined to pond shores and stream courses although they are not called aquatic species, and it might be said that the presence of streams and bodies of water is unquestionably a factor which attracts nearly all species of birds to a greater or less extent, but those confined to the immediate margins of ponds or streams are the American merganser (in hollow trees), Red-breasted merganser (nesting among the grass or low shrubbery), Hooded merganser (in hollow trees), Green heron (nesting among the lower trees), Spotted sandpiper (nesting among the grass and weeds), Belted kingfisher, Bank swallow and Rough-winged swallow (nesting in banks), the Phoebe (on ledges and bridge beams), Tree swallow (in hollow trees), the Alder flycatcher, Rusty black-bird, Lincoln sparrow and Northern yellowthroat (in bordering thickets).

Community of the wooded swamp. These birds are related to the marshland and stream margin species on one side and to the forest society on the other, but characteristically seem to prefer wooded country of considerable extent covering damp or flooded land. Here are included the Black duck, Wood duck, Great blue heron, Black-crowned night heron, American woodcock, and Water thrush.

Communities of the deciduous forest. Under this heading we might make several subdivisions, as, first, those preferring the *mature mesophytic forest*. Here might be included the Red-bellied woodpecker, Green-crested flycatcher, Crested flycatcher, Yellow-throated vireo and Cerulean warbler. In the same kind of forest, but determined by more or less dense *growth of underbrush* may be found the Black-throated blue warbler, Mourning warbler, Kentucky warbler, Hooded warbler, Canada warbler and Redstart; and in swampy bottomlands and *wooded streamsides*, the Louisiana water thrush; in the flooded bottomlands, the Prothonotary warbler. In the deciduous woodland but also showing no objection to the presence of coniferous trees and sometimes preferring the *mixed woodland* might be mentioned the Ruffed grouse, Cooper hawk, Red-tailed hawk (mostly on the higher ground and gully margins), Red-shouldered hawk (preferring swampy forests), Broad-winged hawk, Great horned owl, Long-eared owl, Barred owl, Saw-whet owl, Hairy woodpecker, Whippoorwill, Ruby-throated humming bird, Wood pewee, Bluejay, Crow, Rose-breasted grosbeak, Scarlet tanager, Red-eyed vireo, Tufted titmouse and Chickadee.

Communities of the open woodland. Here might be included the Mourning dove, Sparrow hawk, Screech owl, Downy woodpecker, Red-headed woodpecker, Northern flicker, White-breasted nuthatch.

In scattered trees or bushes in fields and along the roadside nest the Kingbird, Cedar bird, Migrant shrike.

Open woodlands with thick underbrush are characterized by such species as the Yellow-billed cuckoo, Black-billed cuckoo, Least flycatcher, Orchard oriole, Golden-winged warbler, Nashville warbler, Canada warbler, Yellow warbler, Catbird, Brown thrasher, Carolina wren, Wilson thrush.

Communities of the thicket and forest margin. These are closely related to the open woodland communities which prefer dense underbrush, represented by such species as the White-eyed vireo, Black and White warbler, Worm-eating warbler, Golden-winged warbler, Blue-winged warbler, Yellow warbler, Chestnut-sided warbler, Prairie warbler, Maryland yellowthroat, Yellow-breasted chat, Field sparrow, Towhee, Cardinal, Indigo bunting, Catbird, Brown thrasher.

Communities of the mixed and coniferous forests. Many of our species are almost never found except in woodlands with a fair admixture of coniferous trees or with a preponderance of them. To this group belong the Sharp-shinned hawk, Goshawk, Broad-winged hawk, Long-eared owl, Saw-whet owl, Yellow-bellied sapsucker, Whippoorwill, Bluejay, Blue-headed vireo, Brown creeper, Black-throated green warbler, Chickadee and Hermit thrush.

Communities of the coniferous forest. Practically confined to the pine forests, especially those of pitch and red pine, is the Pine warbler. To the *spruce and balsam forests* belong the Canada grouse, Arctic three-toed woodpecker, American three-toed woodpecker, Olive-sided flycatcher, Yellow-bellied flycatcher, Canada jay, Raven, American crossbill, White-winged crossbill, Pine siskin, Winter wren, Red-breasted nuthatch, Hudsonian chickadee, Golden crowned kinglet, Bicknell thrush, Olive-backed thrush, Myrtle warbler and Black-poll warbler. Practically confined to spruce, pine or hemlock forests are the Magnolia warbler, Black-throated green warbler and Blackburnian warbler.

Communities of the culture formations. The *shade tree and orchard* community includes a few species which have adapted themselves so much to civilized conditions that their breeding site is more confined to these situations than to the open woodland formation to which they probably belonged at the beginning. In this are included such species as the Kingbird, Baltimore oriole, Purple grackle, Bronzed grackle, American Goldfinch, Chipping sparrow, Cedar waxwing, Warbling vireo, Robin, Bluebird. This community is often joined by other representatives from

the forest, especially from the open woodland, such as the Mourning dove, Screech owl, Downy woodpecker, Flicker, Least flycatcher, Cowbird, Orchard oriole, Purple finch, White-breasted nuthatch and Chickadee.

The *garden and shrubbery community* is represented by the Song sparrow, Chipping sparrow and Yellow warbler. This is also frequently invaded by representatives from the orchards and shade trees as well as from the open woodland and thicket, such as the Catbird, Goldfinch, and Maryland yellowthroat.

The *bird box and barn communities* are represented by the Wren, Bluebird, Purple martin, White-breasted swallow, Barn swallow, Eaves swallow, Chimney swift and Phoebe. These species have accommodated themselves most fully to the culture conditions which prevail about towns and dooryards.

SUCCESSION OF BIRD LIFE

Just as a succession of plant formations may be observed in different localities as the climatic and edaphic conditions change, so different bird societies will be found in the same locality, as the plant formations and the various factors of environment vary. When the mature forest is cleared off, the thickets or underbrush which grow up will support various brushland communities; and if the thickets are destroyed by pasturing and cultivation, and grassland succeeds it, the meadow community will occupy the country. Likewise, when marshes are drained, there will usually be a grassland or meadow association succeeding the marsh community which preceded it. If lakes are lowered by the deepening of their outlets, the marshes which are usually found at their heads or near their outlets, become less in area, and grassland communities invade the marshland country. This subject is illustrated by the paragraphs on "Potter Swamp," and a "Typical Deciduous Forest." During the last thirty years in western New York I have noticed various illustrations of the succession of bird communities besides those alluded to. When the waters of Canandaigua lake are held up in the springtime at a higher level than formerly prevailed, certain marshlands both at the foot and at the head

of the lake become more extensive. As a result, the marshland community has noticeably increased in numbers. In a single year at the foot of the lake I noticed that the number of pairs of Least bitterns nesting in a marsh of only a few acres in extent increased from one to seven pairs, and the Florida gallinules from two to four pairs, whereas the rails, Marsh wrens, Red-winged blackbirds and Swamp sparrows increased in like ratio, and American bitterns which had not nested near the mouth of Sucker brook for many years again returned to their old haunts at the foot of the lake and nested there as they do in the marshes near the outlet. A similar change is noticed at the head of the lake in the marsh between the Inlet and Clark's Bridge. Here great numbers of Marsh wrens, Red-winged blackbirds, Swamp sparrows, soras and Virginia rails, likewise a goodly number of gallinules, Least bitterns and American bitterns, as well as a few Black ducks and Blue-winged teals made their summer home. On a smaller scale I have noticed an increase of marshland community in a bit of land near Springville, where a small brook was bridged by the highway and its channel was dammed by the raising of the outlet beneath the bridge. As a result, the land, covering only a few acres, which had been slightly swampy before, grew up to sedges, cat-tails and rank marsh grass. In the swamp there had been found Wilson's snipe and Virginia rail nesting. In one year after the raising of the outlet the appearance of soras and the Red-winged blackbird was noted, while within two years both Least bitterns and King rails also appeared.

In like manner the draining of marshes has been observed to result in the reverse condition. The swamp near the foot of Canandaigua lake, lying between the "feeder" and the old outlet, has been drained and largely converted into meadowland and cultivated fields. As a result, within five years the Short-eared owl, Marsh hawk, Bittern, Least bittern, Sora, Virginia rail, Marsh wren, Red-winged blackbird and Swamp sparrow, together with an occasional pair of Black duck and Blue-winged teal which formerly occupied it as a breeding ground, disappeared, and in their places

I noticed only Spotted sandpiper, Killdeer, Savannah sparrow, Song sparrow, Vesper sparrow, Horned lark and Meadowlark.

On a hillside overlooking Canandaigua lake I noticed a definite change brought about by the cutting off of woodland and the resultant growth of dense thicket six to twelve feet in height. In this woodland there had been the usual bird community of that region, especially Wood thrush, Red-eyed vireo, Scarlet tanager, Crested flycatcher, Redstart and Ovenbird. Two years after the cutting of the taller trees the thicket was occupied by Brown thrashers, catbirds, Chestnut-sided warbler, Yellow-breasted chat, Field sparrow and Indigo bird.

I am aware that most of these successions are more or less unnatural; but all of them do occur at times in nature, though more slowly, and what we are at present concerned with is the line of succession which is likely to occur as a result of conditions now obtaining in the State.

THE BIRDS OF POTTER SWAMP

To give bird students a basis for future comparison as well as to illustrate the exact nature of swamp bird life in central New York, and the rapid changes brought about by clearing woodland, we could select no better bit of territory than Potter swamp which lies in Yates county, between the villages of Potter and Gorham. The upper part of this swamp has been carefully studied by Messrs Verdi Burch and Clarence F. Stone of Branchport, N. Y., and an estimate made of the number of breeding birds of the various species inhabiting the swamp. This portion of the swamp occupies about two square miles of moist and wet woodland along the course of Flint creek. The tree growth is mostly deciduous, consisting of red and white maple, white elm and ash, interspersed with "islands" of white pine and hemlock, and thickets of *Arbor vitae*. In most places, especially where the larger trees have been cut down by recent lumbering operations, there is a dense growth of underbrush, consisting of sprouts and saplings of the species mentioned and various swamp shrubs like spice bush, winterberry, alder, willow and a great variety of herbs, ferns, grasses

and sedges, and, in some localities along the brook, cat-tails and rushes. Numerous moss-covered logs and hummocks rise from the standing water or from the soggy earth. Around the edge of the swamp and along the wood roads there are also dense tangles and thickets of weeds and shrubbery and near the southern end, an expanse of damp meadow. The altitude of the swamp is 880 feet and it is surrounded by hills rising to a height of 1000 to 1200 feet. The estimated average summer temperature during the six hottest weeks is about 69 degrees F. The birds included in this list are from the records of Burtch and Stone, the number after each species representing its relative abundance as compared with the Song sparrow, which is held to be the most abundant bird in the swamp and is marked 100. In addition to those birds which nest within the swamp, the author has added from his own observation and consultation with Messrs Burtch and Stone the following species which nest within half a mile, but their relative abundance can not be determined: Killdeer, Belted kingfisher, Chimney swift, Prairie horned lark, Vesper sparrow, Savannah sparrow, Grasshopper sparrow, Chipping sparrow, Field sparrow, Cliff swallow, Barn swallow, House wren and Ring-necked pheasant.

Birds of Potter swamp in 1908. Numbers after each species indicate relative abundance on the scale of 100. Black duck 1, Wood duck 5, American bittern 2, Least bittern 2, Great blue heron 7, Green heron 5, Virginia rail 5, Sora 5, American woodcock 2, Wilson snipe 1, Spotted sandpiper 5, Ruffed grouse 5, Mourning dove 15, Marsh hawk 1, Sharp-shinned hawk 1, Cooper hawk 1, Red-tailed hawk 2, Red-shouldered hawk 2, Sparrow hawk 2, Long-eared owl 3, Barred owl 2, Screech owl 8, Great horned owl 2, Yellow-billed cuckoo 10, Black-billed cuckoo 1, Hairy woodpecker 25, Downy woodpecker 30, Yellow-bellied sapsucker 5, Red-headed woodpecker 8, Red-bellied woodpecker 15, Flicker 35, Ruby-throated humming bird 15, Kingbird 8, Crested flycatcher 40, Phoebe 15, Wood pewee 25, Alder flycatcher 10, Least flycatcher 20, Blue jay 10, Crow 30, Bobolink 15, Cowbird 40, Red-winged blackbird 50, Meadowlark 10, Baltimore oriole 30, Bronzed grackle 40, Goldfinch 30, Song sparrow 100,

Swamp sparrow 20, Rose-breasted grosbeak 30, Indigo bunting 5, Scarlet tanager 25, Cedar waxwing 5, Red-eyed vireo 25, Warbling vireo 10, Yellow-throated vireo 20, Golden-winged warbler 3, Yellow warbler 35, Cerulean warbler 40, Chestnut-sided warbler 1, Ovenbird 10, Water thrush 70, Louisiana water thrush 2, Mourning warbler 20, Northern yellowthroat 50, Canadian warbler 15, American redstart 75, Catbird 10, Winter wren 1, Long-billed marsh wren 15, Brown creeper 20, White-breasted nuthatch 30, Black-capped chickadee 15, Wood thrush 3, Wilson thrush 90, Robin 40, Bluebird 15, English sparrow 5.

In the year 1911 a single pair of White-throated sparrows nested in the swamp. During the year 1911-1912 nearly all the standing timber in the upper portion of the swamp was cut away and manufactured into barrel staves. As a result of the cutting of the timber a dense growth of weeds and shrubbery appeared in the summer of 1912. The effect upon the bird life was very manifest. No Black duck nor Wood duck were found in this portion of the swamp. The Great blue heron had no nesting trees and disappeared. Such species as the Hairy woodpecker, Crested flycatcher, Wood pewee, Blue jay, Crow, Rose-breasted grosbeak, Red-eyed vireo, Cerulean warbler and Water thrush had noticeably diminished in numbers, but the Bitterns, Rails, Marsh hawks, Indigo bunting, Golden-winged warbler and Chestnut-sided warbler had noticeably increased in number, the last to such an extent that 60 would represent its standing in 1912. The Brown creeper increased in the swamp just previous to 1908 due to the winter ice-girdling of the trees near the ground and the production of favorable nesting sites beneath the dead bark. In 1912 it had diminished to the standing of 3, the nesting sites having been destroyed.

BIRDS OF A TYPICAL DECIDUOUS FOREST

One and one-half miles north of the village of Springville in Erie county there is a small tract of woodland composed of a formation of sugar maple and beech with a small admixture of hop hornbeam, black cherry, white elm and cork elm; the soil is a gravelly loam, well drained,

with an intermittent brook flowing near one corner of the wood. This grove covers not more than 30 acres of land. Sometime before 1860 it was pastured by sheep and the entire growth of seedlings and small saplings as well as the ground cover was practically killed out, so that one passing along the highway at the edge of the wood could look the whole length of the grove beneath the branches of the trees. After 1865 the grove was again allowed to grow up and, as would naturally be expected, there arose a thick growth of maple and beech seedlings with a slight admixture of other forms. By the year 1880 there was a dense stand of saplings from 8 to 20 feet in height, and around the edge of the wood as well as in a few of the more open spots, a dense growth of red raspberry, blackberry, elderberry and sumac. The stand of trees and saplings was so dense that there was only a slight ground cover, except a continuous coating of dead leaves throughout the summertime, and fair growth of early spring flowers, such as *Trillium*, *Sanguinaria*, *Dicentra*, *Dentaria*, *Erythronium* and *Claytonia*. Beginning with the year 1879-1880, the author made a very careful study of this woodland recording minutely everything he could observe in regard to its bird life. The species found nesting in the wood at that time were the Ruffed grouse, Black-billed cuckoo, Downy woodpecker, Red-headed woodpecker, Flicker, Least flycatcher, Crested flycatcher, Crow, Cowbird, Red-eyed vireo,* Yellow warbler,* Chestnut-sided warbler, Hooded warbler, Redstart, Ovenbird,* Song sparrow,* Field sparrow,* Goldfinch, Rose-breasted grosbeak,* Indigo bird, White-breasted nuthatch, Wood thrush and Veery. The species marked with a star were found about the edge of the wood and in the raspberry thickets. Twenty years later I had an opportunity of observing the bird life in this same wood. In the interim the saplings had grown to tall poles and as one walked through the wood he could see for a considerable distance in all directions. There was no thicket within eight feet of the ground; in fact, very little foliage lower than the height of twenty feet. The stand of poles had killed off all the lower growths. I was interested to note that of the species found there

twenty years before, although the wood was, in other respects than those mentioned, in the same condition as formerly, one could find no longer any Ruffed grouse, Least flycatcher, Red-eyed vireo, Yellow warbler, Chestnut-sided warbler, Hooded warbler, Redstart, Field sparrow, Goldfinch, Rose-breasted grosbeak and Indigo bird. There were only a few Wood thrushes left, probably only one pair. Only two new species, however, were observed. These were the Scarlet tanager and Yellow-throated vireo, which seemed fairly common throughout the grove, and the Ovenbird and Veery were much more common than they had been twenty years before. The student of bird life will readily account for most of the change in the avifauna noted, which is principally due to the destruction of the breeding and feeding sites of the birds which had disappeared. It would seem natural enough that the Yellow-throated vireo should now be commoner than the Red-eyed vireo, but that it should have been entirely absent in 1880 and the Red-eyed entirely absent in 1900, was hard to explain. Also why the Veery was more common and the Wood thrush less common is equally difficult of solution. These cases of the vireos and thrushes may possibly be due to questions of rivalry which are not fully understood at the present time.

This brief chapter in history will serve to answer more forcibly than any general argument a question which has been put to me so often by nature lovers in different portions of the State, as to why they can not have certain species of birds in their groves and wood lots, or in their orchards and gardens. It is absolutely essential that the proper nesting and feeding habitat shall be provided for those species which are not universal in their choice of environment.

BIRDS OF THE CENTRAL LAKE RAVINES

In the west-central part of New York State and extending like the thumb and fingers of the outstretched palm from the Lake Ontario lowland toward the highlands of eastern and southern New York, lies the chain of lakes: Oneida, Onondaga, Otisco, Skaneateles, Owasco, Cayuga,

Seneca, Keuka, Canandaigua, Canadice, Conesus and Hemlock. These lakes are all of glacial origin, being the drainage valleys of a preglacial river system. At the close of the ice age their outlets to the north were blocked by extensive deposits of drift dropped by the retreating glacier, causing the general line of lakes with their outlet system to assume a direction parallel with the margin of the great Ontario lobe of the ice sheet, the lake valleys running radially to the edge of the ice lobe and extending mostly in a north and south direction. With the exception of the three westernmost lakes of the chain, they drain through the Canandaigua-Seneca-Oneida-Oswego system into Lake Ontario. Thus, the country under consideration is practically the basin of the Oswego river. The lakes lie at altitudes ranging from 364 feet to over 700 feet in the case of the smaller southern and western members of the chain. The northern and eastern portions of this country average about 500 feet in elevation. About the southern ends, after Oneida and Onondaga are passed, lie the hills which mark the northern slopes of the Alleghanian plateau. Many of these hills surpass 2000 feet in elevation. This lake country is well settled, and extensive forests are nowhere in evidence except in the larger swamps and on the more elevated hills. Characteristic trees are the beech, maple, elm, ash, basswood, sycamore, oaks, chestnut, sassafras, hornbeams, shad tree, flowering dogwood, thorn trees, white pine, pitch pine and red cedar. Arbor vitae and tamarack swamps are of frequent occurrence. In the gullies, hemlock, yellow birch, mountain maple and striped maple are common, especially on the shaded slopes. There are numerous deep-cut ravines in the shaly rock of the Hamilton and Chemung periods, well typified by the famous Watkins glen. Their prevailing east and west direction causes the southern sides to lie mostly in shade, and at the same time percolating waters from the outcropping strata on the sides of the glen, and the tumbling waters of the glen streams, cause a high moisture content in the glen atmosphere. Consequently, there is both a lower temperature in the glen and a slower rate of evaporation from the surface of

the plants and animals that inhabit it, which approaches the conditions found in the North Woods. This is illustrated by the admixture of Canadian flora on the cooler side of the glen, such as the mountain maple and moosewood, and by a number of Canadian birds which are found in nearly every one of the larger and deeper glens. The conditions may best be understood by enumerating the birds of a typical ravine like the Seneca glen on Canandaigua lake. Here are found on the forest slopes such breeding species as the Junco, Hermit thrush, and the Magnolia, Parula, Blackburnian, Black-throated green, and Black-throated blue warblers; in tangles near the bottom of the glen or about its source, the Canadian and Mourning warblers are found in small numbers. In the woodland or thicket just above the edge of the glen the Black and white warbler and Redstart are fairly common, and in the thickets near the edge the Chestnut-sided warbler, and, in some seasons, the Yellow-breasted chat. In the pine grove within hearing of the glen itself, three or four pairs of Pine warblers nest. Near the stream at the bottom of the glen, three or four pairs of Louisiana water thrushes are found; on the shaly ledges near the falls, Phoebes are nesting; near the mouth of the glen, a Wood pewee; in the woods on either side are found the Wood thrush, Scarlet tanager, Crested flycatcher, Ruffed grouse, and near the head of the glen one pair of Great horned owls, and one pair each of Red-tailed and Sharp-shinned hawks. In the thickets near the northern edge of the glen, catbirds, Brown thrashers, chewinks, Indigo birds and Field sparrows are fairly common, and rarely the Yellow-breasted chat, while near at hand in the dry field are found the Grasshopper sparrow and Prairie horned lark; not far from these, in damper situations, the Savannah sparrow and Bobolink. At the mouth of the glen by the lake shore, the Rough-winged swallow may be seen flying back and forth to his nest in the shaly bank nearby. In addition to the species mentioned, all the common birds of the Alleghanian fauna may be found in suitable sites within the woods surrounding the glen or in near-by fields. Similar conditions to these prevail in many glens which the author has visited, both on Canandaigua, Keuka, Seneca and

Cayuga lakes. It will be noticed by the student of bird distribution that here is a curious admixture within a short radius of various Carolinian and Canadian faunal species, and a striking illustration of the effects of slope and of evaporating waters, both upon the temperature and the low rate of evaporation, which determines the presence of northern species.

THE INFLUENCE OF CULTURE OPERATIONS

The effect of the so-called culture conditions upon our native bird life has been referred to in volume 1, pages 50 to 57. Anyone who has perused the present chapter thus far can not fail to perceive that all the various bird communities are immediately affected by the manifold changes which have occurred since the settlement of the State. Eighteen and one-half millions of acres of the State domains are no longer wooded, only twelve million acres of woodland remaining. The result of such a change within two centuries has been keenly felt by all the sylvan birds. The effect of the principal operations which have a widespread influence upon bird life may be briefly summarized.

Timber cutting. The destruction of our primeval forest has often been noted as the main cause for the decrease of bird life, but this subject should be considered more carefully by the students of bird conservation. There can be no doubt that such species as the Raven, Pileated woodpecker, larger hawks and owls, and most of those species which are classed as belonging to the mature forest communities, whether deciduous or evergreen, will be discouraged by a reduction of the growth of standing timber. At the same time, the effect of cutting the forest benefits all species of the open field, and nearly every kind of bird which is ordinarily classed as a forest species increases when the forest growth is less dense and the amount of underbrush increases. As an example of this, we might cite the case of the Chestnut-sided warbler. This bird was considered a rare species in the days of Wilson and Audubon. Chapman in his *Warblers of North America*, page 189, calls attention to the fact that it is now a common species in

many sections of the country. The author's own experience at Springville, where many forests were cut off and followed in 1880-85 by dense thickets of briars and saplings, which caused this species to become as abundant as the Yellow warbler; and the experience of bird students in Potter swamp, where nearly two square miles within two years have been cleared of the tall timber, and dense thickets have sprung up all around the edge of the swamp, shows that this species has increased at least 1000 per cent. There can be no doubt that the gradual clearing of the Alleghanian and Canadian zone in the northeastern states and lower Canada has opened up vast stretches of hillside and bushy pasture as a breeding ground for the Chestnut-sided warbler since the days of Wilson and Audubon, and that these general conditions are the cause of the fact that this species is now one of our commonest migratory warblers as well as one of our commonest breeding species in many sections of the State. A similar condition has been noted in regard to the Nashville warbler in other parts of the country. Alexander Wilson secured only three specimens of this bird and regarded it as a rare species. According to William Brewster, Samuel Cabot found it a rare species in eastern Massachusetts up to 1836, but by the year 1842 it had become common in that section, and a similar condition has taken place over the northeastern states so that now, in nearly every portion of New York State, the Nashville warbler is recorded as common or abundant during the migration season of early May. The immense tracts of slashings and burnt lands growing up to birch and poplar throughout the North Woods region have undoubtedly helped this warbler in its race for supremacy. The author has noticed within the last ten years an unusual increase in the numbers of Cape May warblers observed in central and western New York, and reports of similar observations have come from various other sources. There can be little doubt that the gradual advance of clearings and lumbering operations in Northern Ontario and Quebec has gradually opened up tracts of country favorable as breeding sites for this species, which formerly were covered by forests so dense that they did not furnish it the conditions necessary

for rearing its young, but that now it is increasing as the Nashville and Chestnut-sided warblers have done before it. Furthermore, there can be little doubt that nearly all the North Woods warblers which migrate through New York in the early days of May have increased in numbers since the colonial time. The author's experience in 1905 while studying the bird life of the Mt Marcy district, illustrates these general conclusions. Within the mature forest of the Adirondack Forest Reserve we found very few warblers except the Blackburnian, Black-throated green and Ovenbird, but as soon as we visited the slashings where the McIntyre Iron Company had cut off all the large timber, and the extensive burnt tracts in the vicinity of Elk lake, the number of breeding warblers immediately increased. This was especially noticeable in the case of such warblers as the Chestnut-sided, Mourning, Magnolia and the Redstart. The Black-poll warbler, which in this State is confined mostly to the stunted spruces on higher slopes of the mountains, and the Myrtle warbler as well, are favorably affected by the increase of low spruces which follows the cutting of the larger timber of the mountain sides. What is true of the warblers is also true of the Ruffed grouse in Canada and the North Woods. This species is always known to increase when the mature forest is cut off, and clearings and slashings spring up in various parts of the forest tract. It is thus evident that the cutting of the forest, *provided the land is not entirely cleared* and turned into cultivated field, is a boon to most of the species which inhabit second growth of shrubbery or open woodland, to which number must be assigned the greater portion of our song and insectivorous birds.

Draining of swamps and marshes. It is impossible to hold such hopeful opinions in regard to the draining of swamps and marshes. The marshland society is so closely confined to its own special habitat and its conditions are so different from those of any other available habitat that all those birds which nest in the marsh are surely exiled in any district where the marshes are drained and turned into cultivated fields. A similar statement could be made in regard to the extensive swamp lands which

are more or less covered with forest growth. The author has seen one heronry after another disappear in western New York through the draining of swamps, and the Wood duck and the Woodcock, as well as the other members of that community, must necessarily disappear as their coverts are destroyed. An examination of the health of people living along the margins of the Montezuma marsh and the Potter swamp reveals the fact that malaria is practically unknown, and the claim so often made by companies who wish to have the State drain such extensive marshes, that they are unhealthy in their influence, can not be sustained. The mosquitoes bred in such places are undoubtedly annoying to visitors in these districts, but the mosquitoes certainly do not spread the malaria unless the malarial parasite is present. However, we expect to see most of the swamps and marshes disappear, but we hope that a few will be preserved, at least about the Seneca river, the Hudson, and the shores of Lake Ontario, which will be preserves for marsh birds in centuries to come.

Pasturing. In many of the bird books one finds the expression that this or that species is "common on hillside pastures," and the ease with which the bird student walks over the unencumbered ground and examines the edges of the bushy tracts for favorite species has given the impression that pastures are favorable habitats for many birds. A more careful study of the situation reveals the fact that not only most of the grassland species are driven from the land by pasturing, partly because their nests are frequently trod upon by the pasturing animals, but also because the cover which protects the nesting birds is destroyed and they are obliged to seek more grassy fields outside the pasture. Furthermore, the principal harm of pasturing, to the bird life, is found in the destruction of ground cover which inevitably results in woods and thickets. This is especially noticeable in sheep pastures where all the vegetation is destroyed to a height of three or four feet above the ground. In such pasture land the thickets and undergrowth, which usually support an abundant bird life, are eliminated and the birds must seek other coverts. When we consider how few woodlands in the more cultivated portions of the State

are governed with any idea of protecting the ground cover and undergrowth, there is no wonder that the birds of the thicket community are becoming rarer except in certain favored localities.

Pruning of orchards and shade trees. In other connections we have spoken of the disastrous effects to bluebirds, chickadees and Downy woodpeckers of cutting every dead limb from shade and fruit trees, but this practice is likely to become more uniform and the only salvation for those species which nest in hollows and dead limbs, is the erection of artificial nesting sites by State authorities and by the individual landowners. The government officials of Germany that control the forest land are beginning to give more and more attention to the erecting of nesting sites, finding that woodland birds are necessary to hold in check the tree-destroying insects which sometimes do widespread damage to the young forest trees, and many private landowners in various parts of the world have demonstrated the utility of erecting hollow limbs and boxes for the woodpecker and bird box communities. It is a noticeable fact that those birds are usually species which are most useful in holding the pests of forest trees under proper check, and the day can not come too soon when bird protection societies as well as the State officials who have conservation questions in their hands, will erect nesting limbs and nesting boxes for all species that can be thus encouraged, to counteract the wholesale destruction of nesting sites which results from the "cleaning up" in orchards, parklands, shade trees and State forests.

The spraying of trees. The necessity which is increasing year by year of holding various insect pests in check by spraying with poisons, has resulted in some destruction of bird life, although the opinion is usually held that this danger is largely exaggerated; but when we consider the fact that dead birds in any case are very rarely seen, the fact that we find so few which have been killed by spraying operations is not at all surprising. Dead birds are quickly put out of sight by cats, dogs and skunks, or buried by the sexton beetles and other scavengers. Sick birds almost always fly away to some shelter, an instinct which is universal

among wild creatures, and thus the deadly effects of the spraying upon bird life are rarely observed. There can be no doubt that many birds such as cuckoos and orioles feeding continuously on poisoned caterpillars finally succumb to the cumulative effect of the arsenical poisons which are most commonly employed. There is some remedy in the fact that birds will rarely touch larvae that show evidence of sickness, and probably never touch them after they are dead. The author, however, has examined two cuckoos which evidently died from arsenical poisoning, and other instances have been reported by Brewster, Ridgway and Forbush, and by many inhabitants of New York State. We believe that the decrease of both species of cuckoos in the apple districts of western New York is partly due to their gluttonous desire for caterpillar diet.

Plowing and cultivating. The author sees no satisfactory means of overcoming the disastrous effects of late plowing which are so destructive to bird communities of the open field. The Meadowlark, Vesper sparrow, Bobolink and Bartram sandpiper have all suffered tremendously from this cause during the last fifty years. The Prairie horned lark escapes the effects to a slight extent by nesting early in the season, but a part of their broods are destroyed by the early plowing. Much good may be done, however, by the plowman if he is on the watch for nests, and plows around them. The slight loss of time and of crop space which results from such measures, will undoubtedly be repaid tenfold by the larks, sparrows, kill-deers and sandpipers that are thus preserved. They feed on the weed seeds and insects which injure the crops, and the presence of their nests in the field should be hailed with delight by the agriculturist.

Mowing. In late years the practice of mowing earlier in the season than was the custom in former years, and completing all the mowing very quickly by the aid of improved machinery, whereas in former days the hand mowing prolonged the operation through several weeks, has nearly completed the destruction of the Bobolink in many localities where it was formerly one of our most familiar birds. All the meadowland species suffer from mowing operations and there is little hope of overcoming the

evil. Even where the nests are discovered and moved, or the knife is raised before it has done its fatal work, the nests become an easy prey to grackles and crows or other marauders before the young are able to leave the nest. Our only escape from this evil seems to be the adaptability of many of the grassland species which finally teaches them to nest in the edges of the field, or to nest earlier in the season, or to rear another brood as soon as the first is destroyed. This, while not a perfect remedy, has worked marvels in many cases which have come under the author's observation where meadowlarks and bobolinks have finally succeeded in inhabiting grasslands in spite of modern conditions of harvesting and hay cropping.

FOOD OF BIRDS

Insectivorous species. Of the thirty-two families of land birds found within the State of New York, every one feeds to some extent upon insects, and several families are almost exclusively insectivorous. Among these may be mentioned the goatsuckers, swifts, flycatchers, swallows, vireos, cuckoos, wood warblers, wrens, titmice, nuthatches and kinglets. Of the great order Passeres, which includes almost all our familiar birds, every family feeds largely upon insects during the nesting season, and the young of all are fed upon them. The families which are largely insectivorous but vary their diet to some extent on seeds or fruit are the woodpeckers, larks, blackbirds, orioles, waxwings, tanagers, thrashers and thrushes. Thus it is evident that birds act as the regulators of insect life, maintaining the balance of nature so that vegetation, which is the natural food of the insects, may increase; and it is generally conceded that if the natural enemies of insects were destroyed the result would be the rapid disappearance of all vegetation in the fields and forests. We would not maintain for an instant that birds are the only enemies of foliage-feeding insects, for unquestionably among their most effective enemies are unfavorable changes in climatic conditions and the increase of parasitic species which hold them in check to a great extent; but a study of the food habits of birds, as observed in the field and by examination

of their stomach contents in the laboratory, reveals the fact that they destroy incredible numbers of insects, for they have the most voracious appetites of all warm-blooded animals. When we consider that one Whippoorwill has been known to devour thirty-six good-sized moths within one hour and that a warbler has been seen to swallow five hundred seventy-six plant lice in four minutes, it is evident that an abundance of bird life in the field and forest can not fail to keep down the number of insect pests. Furthermore, the freedom with which birds move from place to place suggests the especial value of the birds' work, for, by reason of their migratory habits and their unrestricted activity, both over the ground and through the trees and in the air, they are able to discover danger centers of insect life and prevent serious outbreaks in many cases when insect parasites might be too slow in their attacks or weather conditions unfavorable to the pest might fail to appear. The especial value of each family of birds or of each order will be found briefly summarized in the pages of this book immediately following the family and ordinal descriptions.

Carnivorous birds. Every one knows that hawks and owls feed on birds and mice. It is also a fact that nearly every species of hawk and owl feeds, especially in summer and fall, upon large quantities of insects, although this is especially true of the smaller species like the Sparrow hawk and Screech owl. Other members of this family vary their diet with fish, frogs and reptiles, as the occasion offers, so that the order Raptores can not be considered exclusively carnivorous, although the main food of all the larger species is composed of some kind of flesh. Besides the hawks, owls and vultures that are typically carnivorous species, many other birds at times kill smaller mammals or even other birds, as is the case with gulls, jaegers, herons, and bitterns, which occasionally capture mice or young birds; some Red-headed woodpeckers are known to feed on the young of other birds; crows, jays and grackles are especially fond of nestlings and also capture small mice in the field; and shrikes are adapted for capturing birds, which they impale on thorns and partly devour. It

is thus evident that only the order Raptores, of all our native birds, is characteristically carnivorous.

Piscivorous species. Many families of water birds subsist largely on a diet of fish, as is the case with the loons, grebes, auks, gulls, jaegers, cormorants, pelicans, mergansers and herons, as well as fish hawks and kingfishers. In addition, some families have a few representatives which partake to some extent of a fish diet whenever they have the opportunity. Here are included many of the larger shore birds like the Yellow-legs; a few of the Accipitres, as the Bald eagle and Red-shouldered hawk; some of the owls, like the Snowy, Great-horned and Barred owl; and crows and grackles, both of which I have observed capturing minnows in the shallow water of ponds and streams.

Granivorous species. A cursory glance at the bird kingdom will reveal the fact that the most characteristically granivorous of our native birds are the pigeons, grouse and pheasants. Of these, undoubtedly the pigeons are more granivorous than the grouse, and all these families at the same time feed to considerable extent on fruit and insects. Of our common perching birds, the larks, blackbirds, sparrows and finches are the most addicted to granivorous diet, in fact subsisting for the most part on seeds of various kinds except during the breeding season. To these families we might add a few which feed to a slight extent on seeds in addition to their other diet. Here belong many of the ducks and geese, especially the river ducks and our wild goose, which feed mostly upon grain and seeds during the fall and winter; likewise, the rails, gallinules, crows, and jays, and to a slight extent the pipits, titmice and nuthatches.

Frugivorous species. As the season of ripe fruit in this State is of comparatively short duration, except for trees and shrubs which retain their fruit late into the winter, we could scarcely expect to find any families of native birds characteristically fruit eaters, but of those that seem to prefer the fruit diet while it is obtainable, we might mention the thrushes and waxwings. Other birds which partake to a considerable extent are the rails, gallinules, pigeons, grouse, pheasants, woodpeckers,

some flycatchers like the kingbirds, crows, jays, blackbirds, orioles, sparrows, finches, a few of the vireos and warblers like the Myrtle warbler which feeds on the waxberry, and the thrashers and nuthatches.

In addition to the main articles of diet in the birds' regimen included in this brief summary, we might mention the various species of animals like snails, spiders, millipeds and crayfish, all of which are devoured by the fish-eating and insect-eating species; the sea ducks feeding largely on aquatic mollusca; thrushes frequently attacking the land snails; grebes, kingfishers and ducks devouring the crayfish; wrens, thrashers and various other species feeding on spiders.

The buds and leaves of trees are attractive to many species like the grouse and some of the finches. The sap and cambium layer is eagerly sought by one species of woodpecker, the Sapsucker. The tender shoots of many plants are also eaten by ducks, pigeons, grouse, bobwhites etc. In fact, any kind of animal or vegetable food which is tender and easily obtainable is likely to be found an article of diet of some species of bird; but the more conspicuous varieties of diet we have enumerated to suggest the benefit and the injury which it is possible for birds to accomplish.

INJURY DONE BY BIRDS

Destruction of grain. The Crow and the Blackbird have long been reviled as corn thieves by the inhabitants of New York and there can be no doubt that many fields which are located near the haunts of the Crow and the Grackle have suffered much from the destruction of newly planted grain, as they pull up the sprouting kernels and render the work of the planter useless. Various devices have been tried for preventing this pulling of newly planted corn, such as tarring the seed, which is more or less effective, but there is little doubt that the crow is injurious in other ways and there is little reason to preserve him although his injury to the corn fields might be overlooked. The newly introduced Ring-necked pheasant has also been destructive in some localities by digging up the newly planted corn with its beak, following the rows and destroying each hill in succession.

Injury to standing grain, especially corn in the ear, is often attributed to the Crow and the Blackbird. The author has examined on several occasions hundreds of acres of corn fields which have been injured while in the milk by grackles and Red-winged blackbirds, at least the upper third of nearly every ear in the field having been mutilated by the birds. Such depredations, however, are mostly confined to low-lying districts near extensive marshes inhabited by the blackbirds, and are by no means general, in fact, scarcely noticed in most sections of the country. Corn in the shock is extensively injured by crows and pheasants when it is left standing in the field through the late fall and early winter. The location of crow roosts in western New York is determined to a considerable extent by the crops of corn left unhusked in the field. It is also true that the blackbirds, English sparrows and pheasants, where numerous, do considerable damage to the wheat, barley and oat fields by attacking the grain while standing, and also in the shock or grain stack; but none of our native sparrows have been accused of doing damage to grain in New York. While ducks, geese and bobwhites take a little corn, wheat and buckwheat, near the marshes or coverts where they reside, almost all their foraging is done on waste grain which is scattered over the field and never would be brought into the granary, so they can not be called injurious from the grain which they devour.

Injury to cultivated fruit. Of all the frugivorous species mentioned in a preceding paragraph, only the Robin, Cedarbird, Red-headed woodpecker, Catbird and English sparrow have caused extensive trouble from their destruction of the smaller cultivated fruits in this State. In some sections the Crow and the Grackle have done some damage and occasionally slight complaints have been issued against thrashers, flickers, tanagers and orioles for attacks upon outlying cherry trees. The Crow and Red-headed woodpecker also attack summer apples to an annoying extent in some orchards, and in the vineyards of central and western New York, the Robin and the Pheasant, as well as the Crow, have been annoying in a few districts. Of all the damage which has been done to the fruit

crop, however, very little is worthy of sober consideration except the depredations of robins and cedarbirds in the cherry orchards of the State. Some of the other small fruits have suffered, especially the berry crop, but the main damage seems to be to the cherry, and the principal offenders are the Robin and Cedarbird. It is almost hopeless to attempt frightening the birds from the trees by any device which can be erected. We believe the best safeguard is to plant a few trees bearing early fruit around the edges of the orchard or on the roadside to attract the robins and cedarbirds away from the orchard.

Destruction of poultry and game. Many farmers have the idea that every hawk is an enemy to their poultry yard, although Fisher's famous work on the economic status of hawks and owls has been in print for twenty-five years; and it has been impossible for the Audubon Society or the scientists that have borne testimony before the legislative committees of New York State to change this popular misapprehension. The main obstacle in dealing with this subject before legislators undoubtedly arises from the difficulty which is apparent of recognizing in the field the different species of hawks, and so for the average citizen to distinguish the useful from the injurious species. Certain it is, however, that some of the hawks should be classed as injurious while others are useful in their habits. Birds decidedly injurious from their attacks upon poultry and game are the Goshawk, Cooper hawk, Duck hawk and Great horned owl. Other species of the large hawks and owls also do some injury, but, according to the most careful study of the subject, should not be classed as more injurious than beneficial because of their depredations. These are the Red-tailed hawk, Marsh hawk, Barred owl and Snowy owl. A comparative summary of the food and habits of the various species will be found on page 62.

Destruction of insectivorous birds. Several species of hawks seem to be extremely fond of small birds, especially of thrushes, sparrows, larks and warblers. In this number are the Cooper hawk, Sharp-shinned hawk, Duck hawk and Pigeon hawk. The Sharp-shinned and Pigeon hawks feed almost exclusively on small birds. Less destructive in this

respect, but, nevertheless, feeding to the extent of more than 15 per cent upon our smaller birds, are the Sparrow hawk, Marsh hawk, Screech owl, Barred owl and Snowy owl. Especially destructive to nestlings and eggs are the Crow, Bluejay, Bronzed grackle, Cowbird and English sparrow.

Destruction of fish and frogs. It will be evident to the reader that all the fish-eating species would fall in this category. Especially injurious in this respect are the loons, larger grebes, cormorants, gannets, American and Red-breasted mergansers, herons, Fish hawk and Kingfisher. It is often urged by bird lovers that the loon, grebe, fish hawk and heron are more valuable from the picturesqueness which they lend to the lake and stream-side than the small fry which they destroy in gaining their daily livelihood, and it is undoubtedly a fact that the larger fishes — the game fishes in particular — rarely fall a prey to these piscivorous species; but the destruction of great numbers of minnows, chubs and shiners has a direct influence upon the abundance of food fishes as that is their principal sustenance. The birds mentioned also destroy a considerable number of the young of trout and white fish, as I have found by the dissection of loons, grebes and mergansers; and the Great blue heron as well as the Kingfisher are sometimes veritable scourges of brook trout preserves. I have watched a Great blue heron feeding on the edge of a trout pond strike and swallow seven fingerling trout in the course of as many minutes; and the Kingfisher also destroys large numbers of these speckled beauties. All the fish-eating species are especially voracious. While duck shooting on the Montezuma marshes, I once noticed a small flock of Red-breasted mergansers feeding in shallow water capturing what appeared to be great numbers of fish. After they had been feeding for half an hour two of the birds were shot, and from the gullet and stomach of one I took thirteen chubs, some of them five inches in length. The Hooded merganser is not known to feed to such an extent on fish, although it destroys a considerable number. Many of the sea ducks, especially the Old squaw and Golden-eye, are partially fish-eaters. As far as direct usefulness is concerned, undoubtedly the American and Red-breasted

mergansers are of no value, but their depredations are chiefly confined to larger lakes and rivers. The Great blue heron and Kingfisher are the only ones that are especially destructive to brook trout culture throughout the State. Frogs, which should be ranked as mostly beneficial animals, are destroyed in great numbers by all the heron family, and especially by the bitterns as well as to some extent by the ducks and geese and even by the shore birds, crows and grackles. The Broad-winged hawk and Red-shouldered hawk, though mainly beneficial, are especially destructive to frogs, capturing them in great numbers during the spring when the frogs are in their spawning pools.

Destruction of trees and timber. There is only one New York species that can be branded as a serious destroyer of trees. This is the Yellow-bellied sapsucker. I have noticed many specimens of Scotch pines, spruces, mountain ashes and birch trees that were so girdled by this sapsucker that their life was finally destroyed, and innumerable specimens of wood that showed the scars due to holes bored by the sapsucker which had been grown over but still left knots and shaky spots in the wood. Fortunately, this woodpecker also does a great deal of good during a large portion of the year, but in parks, dooryards and nurseries where his attack is concentrated upon valuable trees he must be considered an injurious species and not to be protected.

Destruction of beneficial insects. As has been stated already, insects must be regarded as the principal food of our native birds, but it must not be supposed that all the insects destroyed are injurious species. As every one knows, the ichneumon flies are examples of a large number of parasitic hymenoptera which lay their eggs on caterpillars or other leaf-eating insects, thereby destroying them and preventing their increase. There is also a large number of ground beetles and tiger beetles which are predaceous in habits and destroy the vegetable-feeding species. There are also the lady beetles or ladybirds that feed to a great extent on scales and plant lice and many other insects beneficial in various ways, even the despised earthworm or angleworm being extremely beneficial to agricultural interests,

as shown by the investigation of Charles Darwin. These beneficial insects are destroyed as well as the injurious ones by many of our native birds, ground beetles and tiger beetles especially being destroyed by such ground feeders as the Crow, Blackbird, Robin and Bluebird; the parasitic hymenoptera by the flycatchers and to some extent by other species like the vireos, warblers and kinglets. The earthworm and ground beetles are, unfortunately, a large percentage of the food of the Robin while he is not devouring fruit of some kind.

Dispersal of injurious plants. The especial harm done in this manner may be attributed to such species as the Downy woodpecker, Hairy woodpecker, Robin, Cedarbird and to a less extent to others which feed on the fruit of the poison ivy, poison sumac, or other injurious plants and disperse their seeds broadcast over the country on the roadsides, fence rows and lake shores.

THE ECONOMIC VALUE OF BIRDS

Destruction of insects. As intimated in various connections heretofore, the main value of birds is in holding tree and crop enemies in check. Modern methods of fighting injurious insects seem, in some cases, to render the aid of birds unnecessary, but the special value of the birds' work consists in attacking insect pests which are not reached by poison spray and at seasons of the year when spraying is not practised, thereby preventing outbreaks which otherwise would cause great destruction and expense. There can be no doubt that the hordes of migrating warblers attacking plant lice, which can not be controlled by poison, and other injurious species early in the season, thereby destroying the mother insect from which innumerable progeny would later result, are of inestimable value. In fact, insect scourges can never make great headway when the proper enemies are at hand. Next after weather, parasites and predaceous beetles, birds are the most efficient force in preventing outbreaks of insects. The almost incredible voracity of birds and the rapidity of their digestive process, caused by their high temperature, rapid circulation, activity and generally high-strung mode of life, inevitably results in the consumption of large

quantities of food. This is especially true of growing birds which require one-half their own weight of food daily. As the young of our insectivorous birds are being reared while our crops are in the midst of their growth, it is evident that the resultant destruction of insects for food occurs at just the time of year to be of most service to the agriculturist. Whenever undue increase of insects begins, birds of the neighboring region invade the infected area and destroy the injurious species before they have become a consuming plague. In sections of the country, however, where nearly all the land is under cultivation and there are few breeding sites for birds, it is impossible for the few remaining birds to hold the insects in check, and thus arises the necessity of spraying on an extensive scale. During the spring of 1898 in the town of Brighton, Monroe county, the author noticed that several orchards were practically defoliated by cankerworms. On visiting orchards to which the scourge was spreading, I observed many species of birds coming from the surrounding country and feeding upon the worms. While seated in a small orchard, thirteen species of birds were noticed in the course of half an hour coming and devouring the worms as fast as they could be swallowed, or gathering mouthfuls and carrying them away to feed their young which were oftentimes at a considerable distance. Species like the Kingbird and Phoebe which rarely prefer caterpillars as diet, and others like the Bobolink, Red-winged blackbird and Vesper sparrow which are seldom seen feeding in the orchards, were coming and carrying away the worms for their nestlings. Cuckoos, orioles, catbirds and cedarbirds were noticed among the foliage swallowing the larvae at the rate of fifteen to forty a minute. There seemed to be little interruption of this work even during midday, but in the morning and late afternoon there was a decided increase in the birds visiting the orchard for the cankerworms. There could be no doubt if the birds had been in sufficient number in the immediate vicinity where this plague of caterpillars started they would have held them in check and prevented the destruction of crop and leaves in several orchards. It is probable that, in nature, worms of this kind rarely increase to such an extent as to defoliate

the forests. The service rendered by insectivorous species in destroying centers of infection is especially to be emphasized in connection with the benefit the birds render by destroying insects; while in the case of arboreal species it is immediately evident that we are practically dependent upon the birds for preserving our forests and taller shade trees, because spraying operations in these cases are practically out of our control, and the only means of preserving us from undue increase of the defoliating insect is, besides weather conditions, the work of parasites and the voracious appetite of our insectivorous birds. Some birds are especially fond of plant lice. In this number we might include the wood warblers and kinglets, which, while loitering with us on their annual migration, attack the female plant lice which have survived the winter and are about to produce countless progeny of leaf-sucking descendants. I have watched them on many occasions and counted from fifteen to seventy-five a minute swallowed by each warbler observed. Some are even fond of hairy caterpillars. This number, unfortunately, is very small but includes the cuckoos and, to a certain extent, the orioles and waxwings. Others prefer the white ground grub. Here should be mentioned the Robin, Grackle and Crow, which do considerable damage in other respects but atone in this manner for many of their sins. Woodpeckers seek the boring larvae of various beetles and moths found beneath the bark and in winter destroy numerous cocoons which are hidden in the crevices of the bark and dead limbs. Thus, if the whole list of birds is examined, we shall find that nearly every kind of insect which is conspicuous as a destructive species will have some bird enemy which seems to prefer it as diet; and if the balance of nature had not been so ruthlessly disturbed by mankind the plagues of locusts, plant lice, army worms and elm tree beetles would be cured in the natural process of adaptation.

Destruction of weed seeds. In all cultivated fields there are found many species of plants popularly known as weeds which often seem more adapted to occupying the soil successfully than the crops which the farmer wishes to raise. These weeds must be destroyed or held in check by some

process such as cultivating, or by destroying the seed, if the crop reaches its maximum productiveness. Our various granivorous species of birds such as the blackbirds and sparrows feed for a large portion of the year upon the seeds of these injurious plants. Even wild ducks and wild geese destroy immense quantities of weed seeds on the grain fields that are partially flooded in fall or early spring. The author took from the crop of a single Pintail duck that had been feeding all the morning in a corn field at the foot of Canandaigua lake, one hundred and twenty-seven thousand seeds of the common purslane. There were many other ducks feeding in this field and it is evident that in six weeks a hundred and fifty ducks might do some good in this manner. From the crop of a Mourning dove coming out of a wheat field in the town of Cheshire, I took fifty-seven hundred seeds of the pigeon grass, one of the commonest weeds that grow in our grain fields and hinder the development of wheat, rye and oats. All through the fall, winter and spring our various native sparrows, and the winter visitants from the far north, are destroying tons upon tons of weed seed every week in the fields of New York State. From the crop of a Snowflake taken from a flock of five hundred individuals, one-half ounce of seed from the Red-rooted pigweed (*Amaranthus*) and the goosefoot (*Chenopodium*) and the ragweed (*Ambrosia*) were taken. It needs only a slight arithmetical computation to convince the reader that this flock of snowflakes might do some good in the course of a few weeks if they remained in that locality. The Tree sparrow, Junco, Song sparrow, White-throated sparrow, Vesper sparrow, Savannah sparrow, Chipping sparrow and Field sparrow, as well as all our less common species of this family, are doing a similar service for several months during the year. Other birds that are especially beneficial in this respect are the ground-feeding species of the family Icteridae including the Meadowlark, grackles, Red-winged blackbird, Bobolink, and even the Cowbird which does much good in this manner but can not, however, overcome the evil which it has done early in the season by destroying the young of insectivorous birds in whose nest it has left its egg to be hatched. The Prairie horned lark, which is

a common species in our fields, is another seed eater and in this category must also be placed the Bobwhite and, as already intimated, all our granivorous species. I would not seek to overestimate the good done in this manner, but if we consider that when these birds are not destroying the weed seeds they are usually rearing their broods of young and must feed them chiefly on insectivorous diet, it is evident that our smaller granivorous species are an invaluable asset to the State.

Distributing fruit seed. While the inhabitants of New York State have been destroying the forests more rapidly than wise policy would dictate, especially on land which is poorly fitted for any other growth than trees, the birds have been overcoming to some extent the evil effects of excessive deforestation. As one drives across the country, the roadside and fence row bear abundant evidence to the effects of planting by the birds. The sweet cherry and the black tartarian have been scattered along every fence row, roadside, and the edges of the forests throughout the greater portion of the State. The Robin and the Cedarbird are principally responsible for this planting. In like manner various sections of the country have a pleasing line of junipers along the highways and fence rows planted by the selfsame birds. Likewise, throughout the forest the various dogwoods and viburnums are scattered by all the fruit-eating species mentioned in a preceding paragraph, especially by the thrushes. In western New York the panicled dogwood has been planted along roadsides and many fence rows and throughout every swamp. The seeds of the shadbush, which brightens the landscape with its showy blossoms, have been scattered by the thrushes and finches. The forester might object that most of these trees are of little use for timber, but there is at least one valuable timber tree which is planted extensively, especially by the Flicker and Robin,—the black cherry (*Prunus serotina*), and to some extent the cucumber tree (*Magnolia acuminata*) and sour gum (*Nyssa*). If the lumberman is not pleased by the fruit-planting species, the botanist certainly is, for all the fruit-bearing plants must necessarily become exterminated except for the agency of the birds in scattering their seeds throughout the fields and woodland.

Destruction of meadow mice and other injurious rodents. Just as outbreaks of insect pests are held in check by birds, so a great increase of meadow mice, squirrels and rabbits is prevented by the agency of our hawks and owls. Many species like the Rough-legged hawk, feed almost exclusively on meadow mice, and most of the heavier soaring species like the Red-tail and Red-shouldered hawks are principally beneficial for the same reason. Most of the smaller owls, as would naturally be expected, feed principally upon mice, since these animals are partially nocturnal in habit like the owls themselves, and the owls are unquestionably nature's remedy for rodent pests.

THE STATUS OF OUR BIRD LAWS

For many years on the statute books of the State there has been a paragraph in the game laws excepting certain birds from the protection which is afforded the desirable species. There has scarcely been a year within the author's memory when this list has not been changed for some reason or other, but from the beginning hawks, without exception, have been included, on the theory that they are all injurious or that the injurious can not be distinguished from the beneficial by the sportsman. As a matter of fact, opinions will differ about many species; and some species of birds that are beneficial, or at least innocuous in many localities, will be found decidedly injurious in others. Furthermore, in the same locality certain individuals frequently acquire habits which place them in the injurious list. Some individuals of the Red-headed woodpecker become much more cannibalistic than their fellows. The same is true of grackles, crows and other species which occasionally feed upon nestlings or eggs. Consequently, there is great difficulty in deciding upon a black list which shall apply to all localities of the State and be unchangeable. The general consensus of opinion, however, as a result of observation and examination of stomach contents, should certainly place the following birds on the black list: Cooper hawk, Sharp-shinned hawk, Goshawk, Gyrfalcon, Duck hawk, Pigeon hawk, Great-horned owl, Snowy

owl, Great blue heron, Kingfisher, Crow, Bluejay, Crow blackbird (Purple grackle and Bronzed grackle), Cowbird and English sparrow. Some would prefer to add to this list various of the hawks mentioned above which are injurious to a certain degree in the destruction of poultry, game and insectivorous birds. Others would place upon the list all birds the majority of whose food consists of fishes, and there can be little doubt that the fish-eating species mentioned above are in reality injurious, but in their case, as in the case of the Bluejay and Duck hawk, there is such a strong sentiment in favor of the bird due to its interesting personality, that either the Audubon Society or nature lovers in general have succeeded in keeping them off the black list. As a bird lover I sympathize with this attitude, but also as a bird lover I can not endure to see all the nestlings and birds' eggs of the coverts surrounding my own home destroyed even by bluejays or cowbirds, but these species are both protected according to the current laws in New York State. I might consent to see the Bluejay remain on the protected list, but I could never willingly consent to protect the Cowbird. In regard to such species as the Red-tailed hawk, Marsh hawk and Barred owl, circumstances should govern the attitude of the farmer. If Marsh hawks have discovered that the chickens on his premises are more attractive than meadow mice and are destroying his poultry, he certainly should be allowed in that particular instance to protect his property. If a bird lover finds the Red-tailed hawk is destroying all the grouse in the coverts which he frequents, those particular hawks should be removed from the scenes of their operations, and the same principles should govern our attitude toward all those species that are on the doubtful list. Where they are doing good in their little community they should be left undisturbed; where they develop habits which apparently are doing injury to the best interests of the State, they should be removed.

SPECIAL MEASURES FOR INCREASING BIRD LIFE

Erecting artificial nesting sites. As suggested on page 18, all birds which nest in hollows or deserted woodpeckers' holes, and even the wood-

peckers themselves, may be induced to make their nests in hollow limbs or boxes erected in orchards, groves and shade trees. It is necessary to provide these artificial sites if those birds which nest in hollows are to be encouraged about our homes. It seems that no better work could be suggested for the Boy Scouts or the country boys that wish to do some good in the world and have unbounded energies, than to provide boxes for the bluebirds and wrens. Those intended for the Bluebird should be not less than four by four inches inside measurement, and from eight to ten inches in height with a hole one and three-fourths inches in diameter near the upper part of one side of the box. Boxes of the same construction will attract the wrens, sometimes, unfortunately, to the exclusion of bluebirds and other species, but boxes erected in the garden or in a corner of the orchard near the house or even on the corner of the woodshed or under the eaves of a shed or low barn, with an opening one and one-eighth inches in diameter, will be utilized by the wren, and if a sufficient number is provided the householder may succeed in gaining some families of these interesting and beneficial birds. The wren has a habit of filling many boxes with sticks and other nesting materials, so that those which really contain no nests should be emptied occasionally to give other birds a chance. Thus, if the boxes are constructed so that one side can be removed when necessary, this work will be facilitated. I have found that the Bluebird will utilize nesting boxes placed on the tops of fence posts about the fields and gardens, but these boxes are more subject to the depredations of cats which dash up the posts and sometimes even secure the mother bird, as I have found upon several occasions. At the same time, these boxes erected on fence posts are seldom utilized by the English sparrow. Thus, if the marauding cats can be held in check, the Bluebird can be encouraged without undue rivalry with the sparrow for a nesting site. Boxes or hollow limbs should also be erected in the orchard for bluebirds, and if sparrows occupy the nests they may be destroyed by capturing them in nets thrown over the opening of the box after nightfall and then the box emptied of the bulky contents. Martin boxes should consist of four to eight or twelve com-

partments, each about eight inches square and six inches high inside, with an opening two inches wide, in this case near the bottom of each section, and a ledge or doorstep for the birds to occupy. The martins are nearly as well satisfied with a starch box which has been divided into compartments and covered with a roof as they are with the elaborately constructed martin boxes described in the bird magazines. Martin houses should be erected on poles in the garden or back yard at a height of from ten to fifteen feet, the box so mounted on the top of the pole that marauding cats can not disturb it and with removable front, if possible, so that the boxes may be cleaned each spring just before the martins arrive in April, and preferably should be closed during the winter to keep the English sparrows from occupying them, and opened just before the time of the Martin's arrival from the South. If martin houses were erected in all our villages and cities and even about many farmyards, this interesting and extremely beneficial bird might be preserved; but we can scarcely hope that it will remain a common species in any locality without special protection from the English sparrow, and unless it is furnished with suitable houses for shelter and nesting.

The progressive decline of all woodpeckers in the agricultural districts leads us to suggest that unless nesting limbs are provided for these species as well as for nuthatches, chickadees, Crested flycatchers, Tree swallows, and all those birds which nest in hollows, they will continue to decline; but if nesting limbs are provided they will undoubtedly, to a certain extent, be tided over the most difficult stage in adapting themselves to culture conditions and will finally become established among our orchards and shade trees. At least, this would certainly be the result with the Flicker, Downy woodpecker, Chickadee and Nuthatch and probably the Crested flycatcher. Likewise, the Red-headed woodpecker and Hairy woodpecker might occasionally avail themselves of the artificial sites and so be established in localities where dead and hollow limbs have all been cut away to improve the parks and shade trees. These limbs for woodpeckers, in the author's estimation, should be at least two feet in length, and for the

larger species six inches in diameter, cut diagonally at either end so that they could be nailed to the side of a large branch or the main trunk of the tree at a moderate elevation. For smaller species like the Downy woodpecker and Nuthatch, the limbs need not be more than four inches in diameter. In the case of the Nuthatch, Crested flycatcher and Chickadee, the branches erected for their accommodation should be hollowed artificially, the size of the entrance being accommodated to the size of the bird expected as an inmate. Mr William Brewster and Mr E. H. Forbush have recommended nesting boxes made of the bark of birch and elm nailed at the ends to rounded boards. Branches of these trees cut in late spring or early summer may be peeled with comparative ease. They should be cut in the lengths desired, eight to ten inches for chickadees, nuthatches and bluebirds, and a hole of the proper diameter bored before the sections are peeled. The Chickadee limbs should have the entrance hole about one and one-eighth inches in diameter; nuthatches, one and one-half inches; Crested flycatcher, one and three-fourths inches. In some localities bird lovers have found that Downy woodpeckers and flickers take possession of hollowed limbs provided the entrance hole is of a proper size (see description of the nesting holes of the various species of woodpecker which the bird fancier wishes to attract). Holes should be round or nearly so and the depth of the excavated interior correspond nearly with the holes usually constructed by these birds for their own accommodation. The experience of bird lovers in various parts of the country shows that Screech owls may also be attracted to limbs of this description, likewise the Sparrow hawk, and in rare instance, the Wood duck. We believe that hollowed limbs or even boxes, especially if covered with bark or constructed from bark-covered slabs, should be erected in the swamps frequented by the Wood duck so that the gradual disappearance of hollow trees in these localities should not force this interesting species to desert the locality from failure of suitable nesting sites. These boxes or hollow limbs for the Wood duck should have an entrance hole four or five inches in diameter and be placed at an altitude of at least fifteen to twenty feet from the ground.

The author has noticed that swallows are discouraged in most of the barns which have been erected during the last fifteen years in western New York. The entrance holes for these birds are apparently becoming "out of date" and many farmers even knock down the nests of the swallows which have entered through a window or the barn door and constructed their nests on the rafters. We believe that every barn should be constructed with an opening for swallows to enter throughout the breeding season, and even narrow ledges placed on some of the rafters to furnish the birds with suitable places to attach their nests. The slight annoyance of droppings from the nest can be overcome by stretching a piece of canvas three or four feet in diameter beneath the nest or the suspension of a small platform of half inch boards. Thus the farmyard would be tenanted by twittering swallows, not only a pleasing addition to the landscape, but a safeguard against the increase of noxious insects. The Eaves swallow has practically disappeared in many districts of central and western New York where it was a common species thirty years ago, because there is no chance beneath the eaves of the barns for these birds to attach their gourd-shaped nests. Farmers and bird fanciers might finally secure colonies of these interesting birds by erecting a very narrow ledge not more than one inch in projection beneath the eaves, running a part of the distance but interrupted over the entrance door. In this way we have seen colonies of the birds attracted. Although one may have to wait several years, finally the birds will discover the favorable site and utilize it.

Baron von Berlepsch has suggested and put into practice the habit of trimming shrubs and the lower branches of trees in such a way that they will sprout out and form suitable crotches for the attachment of nests like those of our Goldfinch, Yellow warbler, Wood thrush and any species which the landowner wishes to attract. This is unnecessary in many localities, but where bird lovers have planted shrubbery and trees for the special accommodation of birds it is worth while to practise in this respect so that safe supports may be afforded these crotch-building species.

Planting to attract birds. Those who wish to attract various species of birds to coverts which are reserved for their accommodation should plant species like red cedar (*Juniperus virginiana*), flowering dogwood (*Cornus florida*), red osier (*Cornus stolonifera*), green osier (*Cornus alternifolia*), sheep berry (*Viburnum lentago*), tree cranberry (*Viburnum opulus*), spice bush (*Benzoin benzoin*), blueberries of various species (*Vaccinium*), huckleberries (*Gaylussacia*), tupelo or sour gum (*Nyssa silvatica*), bird cherry (*Prunus pennsylvanica*), choke cherry (*Prunus virginiana*), shad bush (*Amelanchier canadensis*), barberry (*Berberis vulgaris*), winterberry (*Ilex verticillata*), bayberry (*Myrica carolinensis*), hackberry (*Celtis occidentalis*), white or Russian mulberry (*Morus alba*), red mulberry (*Morus rubra*), sassafras (*Sassafras sassafras*), the various species of American hawthorn or thorn trees (*Crataegus*), English hawthorn (*Crataegus oxyacantha*), wild grapes (*Vitis*), Virginia creeper or woodbine (*Parthenocissus quinquefolia*), elder (*Sambucus canadensis*), red-berried elder (*Sambucus pubens*), dwarf wild rose (*Rosa humilis*), blackberries and raspberries (*Rubus*), smooth sumac (*Rhus glabra*), staghorn sumac (*Rhus hirta*), European mountain ash (*Sorbus aucuparia*), American mountain ash (*Sorbus americana*), ginseng (*Aralia quinquefolia*), sarsaparilla (*Aralia nudicaulis*), spikenard (*Aralia racemosa*), wintergreen (*Gaultheria*), partridge berry (*Mitchella repens*), panicled dogwood (*Cornus paniculata*), maple leaf viburnum (*Viburnum acerifolium*), hobble-bush (*Viburnum alnifolium*), bunch berry or dwarf cornel (*Cornus canadensis*), fly honeysuckle (*Lonicera canadensis*), privet (*Ligustrum*), also cone-bearing and strobile-bearing trees like the spruce, hemlock, larch, alder and birch which furnish seeds for winter birds and buds for grouse. In addition to these shrubs and trees, bird fanciers would also do well to plant various herbs which retain seeds through the fall and winter, such as the sunflower and the much-despised pigweed (*Amarantus*) and goosefoot (*Chenopodium*), which remain standing through the winter and furnish welcome sustenance for Song sparrows, Tree sparrows, juncos and others of the family when few other seeds are obtainable. The plantation of even a few acres of the sorts

named, with small clearings interspersed, planted to large-seeded grasses and the weeds mentioned, would be ideal coverts for attracting numerous species of birds. The day will undoubtedly come when bird societies will own preserves of this kind and plant them with the principal object of attracting great numbers of their feathered friends.

Water supply. Birds are more numerous during the summer where there is convenient access to water for baths and drinking. When no pond or stream is close at hand, an artificial bath or drinking fountain will add to the attractiveness of the preserves from the birds' viewpoint. Where more elaborate provision is impracticable, a shallow tray filled with clear water to the depth of one to two inches, will serve the purpose.

BIRD REFUGES

For many years the author has had a growing belief in the efficacy of refuges or preserves, not only of trees and flowers, but for the purpose of preserving our varied and interesting bird life. The Audubon Society and the national government have demonstrated already the great importance of large preserves in saving species of birds and animals from extermination. Several foreign governments have also accomplished the same purpose. It seems that there is especial need in this State for the establishment of several well-distributed preserves, in order to save to future generations such species as the Wood duck, Woodcock, Ruffed grouse and many of the woodland song birds that naturally disappear with the cultivation of the country.

One hundred fifty thousand dollars are collected annually by the State in gun taxes. Since the principal object of gun licensing is the protection of game and wild birds, it seems that one of the most rational expenditures of this sum would be in the establishment of bird and animal preserves in various parts of the State, which could be under the control of the nearest game protectors, and be dedicated to the preservation of plants and animals which are in danger of extermination, and to act as centers of dispersal for the surrounding region. By judicious control of

the forest and thickets within such preserves, conditions could be made favorable to the species for which they were established, and thus, without additional expense to the State, they could be policed by the protectors who are already in existence as guardians of the law. It is absolutely certain that in many counties of the State the Ruffed grouse, Woodcock and Wood duck can never thrive except with such aid; and as these are three of the species with which the Game Commission is most concerned, it would seem that no better expenditure of the gun license money could be devised than the establishment of such preserves to be owned by the State and controlled by the State Conservation Commission.

PRIVATE PRESERVES

The salvation of many birds and quadrupeds in various countries of Europe has been the private preserves which have furnished them with the only habitat and protection from many of their enemies. In America the same practice is gaining ground. In New England and various other states of the Union, landowners are beginning to set aside portions of their woodlands, thickets and fields as refuges for the animals in which they are especially interested. There can be no doubt that if this practice becomes general in our own State the protection of bits of woodland and stream-side thickets will be the final means of rescuing many of our most valued songsters from extirpation in the more thickly populated districts. The widespread interest in the means of protecting birds and inquiries as to the proper trees and shrubs to plant for their accommodation are becoming more frequent. By a study of the bird communities outlined above and of the habitats which they prefer, bird fanciers may find the information they need in planting waste land for the encouragement of their feathered friends. The species of fruit and seed-bearing trees which are so often recommended (see Forbush *Useful Birds and Their Protection*, page 374; Kennard, *Bird-Lore* 14, 201) will undoubtedly attract the frugivorous and granivorous species, thereby encouraging many of the thrushes and sparrows, and at the same time these trees and shrubs will furnish nesting

sites and insect food for the vireos, warblers and wrens which would not be attracted by their fruit. The main object in planting for bird refuges, besides providing food, is to furnish shelter from storm, nesting sites for the birds and vegetation upon which insects will find abundant food. Combinations of forest growth, second growth, thickets and tangles and, wherever possible, pond-side or stream-side thickets with moist land for some distance on each side of the stream will be found to furnish the character of cover most suitable to a large number of birds.

From observations on the partially cleared hillsides of southwestern New York and in the groves and patches of the deciduous forest still common in the center of the State, the author is well convinced that most of our birds of the forest and thicket require a higher degree of humidity than is usually found in brush lots and pastures which are exposed to the direct rays of the sun, and that slopes furnishing less exposure to direct sunlight and kept humid by sufficient cover of vegetation, are necessary to attract most of our thrushes and warblers. Even the birds of the dryer thickets, such as the Field sparrow and Indigo bird, must have shelter of foliage to which they may retreat during the hottest portion of the day. A recent report of the Conservation Commission calls attention to the fact that there are in New York State at least four million five hundred thousand acres of land which is more fitted to produce forest growth than for agricultural purposes, but which is not at the present time covered with forest. If all this land were gradually planted to forest trees, the resulting growth to cover, which would gradually become fitted for various communities of woodland birds, would tend to increase to a perceptible degree the bird life of our domain, and if the twelve million acres of land which is already covered with forest growth were managed either by the clean-cutting system which some foresters advise or by selective cutting, the result would be that a sufficient portion of our domain would be left in the various types of woodland to attract both the forest community and the community of the open wood and thicket, so that conservation of birds might progress hand in hand with the conservation of our forests.

BIRDS OF NEW YORK

Order **RAPTORES**

Birds of prey

Ordinal characters. Bill stout, epignathous, hooked at the tip, cered at the base; feet strong, usually with long, curved talons; the skull desmognathos and holorhinal; sternum broad and deeply keeled; furculum U-shaped; ambiens muscle present except in owls; the biceps slip wanting; the oil gland nude; wings aquincubital; 2 carotids; crop large; regimen carnivorous; flight powerful; young downy but remaining long in the nest.

While it is true that the so-called raptorial birds may be recognized as related in the characters stated above, it is evident that the order is rather loosely connected and many ornithologists would prefer to separate at least the owls, and some the American vultures, into independent orders. The American Ornithologists Union, however, still recognizes the order as given above. On account of their rapacious habits they are associated more in the popular mind than they are in scientific classification. They have always received much attention from the agriculturist and, with the exception of the vultures, have almost universally been considered injurious species. I have found very few communities in the State of New York where even the Rough-legged hawk is recognized as beneficial in spite of the fact that Doctor Fisher's admirable work on hawks and owls has been in print for many years. A careful study of the economic value of Raptores has been undertaken by the Biological Survey, as well as by ornithologists throughout the country, and a fairly accurate estimate of their food can be made. The following table, compiled mostly from the reports of the Biological Survey, but also from many notes made by the author and other New York ornithologists, will show the exact composition, as far as it has been determined by dissection, by the examination of the stomach balls collected under owl trees and hawk trees, and by observation of the birds in the field. The fact that two or three kinds of food are frequently found in the same stomach explains the fact that the percentage of stomachs containing each variety of food will not add up to one hundred, but it is thought more instructive to show

the percentage of stomachs containing various kinds of food than to try to estimate the percentage of each kind of food taken by the species. Species marked *g* are near the border line of beneficial birds.

Food of New York hawks and owls
Percentage of stomachs examined containing various kinds of food

SPECIES EXAMINED	POULTRY OR GAME	OTHER BIRDS	REPTILES (SNAKES ETC.)	BATRACHIANS (FROGS ETC.)	MICE	OTHER MAMMALS	INSECTS	CRAYFISH AND SPIDERS	EMPTY
<i>Beneficial</i>									
Rough-legged hawk...	0	0	2	.....	81	10	2	.....	8
Broad-winged hawk...	0	3	18	10	22	19	45	6	10
Red-shouldered hawk...	1	6	10	10(fish 2)	50	20	45	3	7
Sparrow hawk.....	1/3	17	..	4	28	4	71	sp. 9	9
Red-tailed hawk (<i>g</i>)...	10	9	4	3	50	24	8	sp. 1/5	16
Marsh hawk (<i>g</i>).....	6	27	6	2	46	18	10	.....	7
Barn owl.....	3	13	.....	.....	56	54	14	.....	22
Long-eared owl.....	1	14	.....	.....	82	5	1	.....	15
Saw-whet owl.....	0	4	.....	.....	79	.....	5	.....	14
Short-eared owl.....	0	11	.....	.....	77	7	7	.....	14
Screech owl.....	1/3	15	1	2(fish 1)	36	5	40	4(sp. 3)	17
Barred owl (<i>g</i>).....	5	12	1	4(fish 2)	42	17	13	9(sp. 2)	18
Snowy owl (<i>g</i>).....	5	25	.....	.....	48	5	.....	.....	33
<i>Injurious</i>									
Goshawk.....	36	8	.....	.....	.....	40	12	.....	32
Cooper hawk.....	23	49	2	1	.....	8	2	.....	30
Sharp-shinned hawk...	4	66	.....	.....	4	.....	4	.....	35
Duck hawk.....	35	45	.....	.....	5	.....	10	.....	20
Pigeon hawk.....	4	80	.....	.....	4	.....	32	.....	9
Great horned owl.....	25	7	.....	(fish 3)	11	53	8	.....	14

Suborder **SARCORITAMPHI**

Family **CATHARTIDAE**

American vultures

Characters. Bill strong, elongated, hooked at the tip and blunt; nostrils large, longitudinal and perforate; head and neck rather long, bare, rough and usually bright colored; tongue thick and fleshy; eyes prominent; feet clumsy and covered with small scales; front toes long, webbed at the base; hind toe short and elevated; talons obtuse and only slightly curved; wings very ample; 11 primaries; tail of moderate length, even or slightly rounded, consisting of 12 or 14 *rectrices*; the basipterygoid process is present;

the *oil gland is naked*; there are *no coeca*; no syrinx or lower larynx; the ambiens, semitendinosus and its accessories are present, as is usually the femorocaudal; there are *no aftershafts* on the feathers; color somber; sexes alike in size and plumage.

This is a well-marked group, evidently of neotropical origin, consisting of 9 species. The characters in which they differ from other diurnal birds of prey are deemed sufficient by many ornithologists to place them in a separate order, the *Cathartidiformes* of Sharpe's Handlist. Their appearance and habits are also strongly characteristic. They are ambulatorial in gait and listless in attitude. More or less gregarious in habit, they sit about on dead trees, fences and large buildings sunning themselves in somber companies, or soar with easy, circling flight high over the fields looking for refuse or carrion which is their principal food. Their feet are wholly unfitted for carrying prey, as the blunt talons and small, elevated hallux would indicate; and thus rarely or never subsist on living animals. They regurgitate the disgusting contents of their crops for the young to feed upon. The nest is usually built on the ground, among rocks, or in a hollow stump in a secluded part of the woods. The eggs are commonly two in number. These birds have long been considered beneficial and are the principal scavengers of the southern fields, rendering efficient service to the community by destroying all kinds of offal.

Cathartes aura septentrionalis (Wied.)

Turkey Vulture

Plate 43

Vultur aura septentrionalis Wied. Reise Nord-America. 1839. 1:162

Cathartes aura DeKay. Zool. N. Y. 1844. pt 2, p. 2, fig. 12

Cathartes aura septentrionalis A. O. U. Check List. Ed. 3. 1910.
p. 152. No. 325

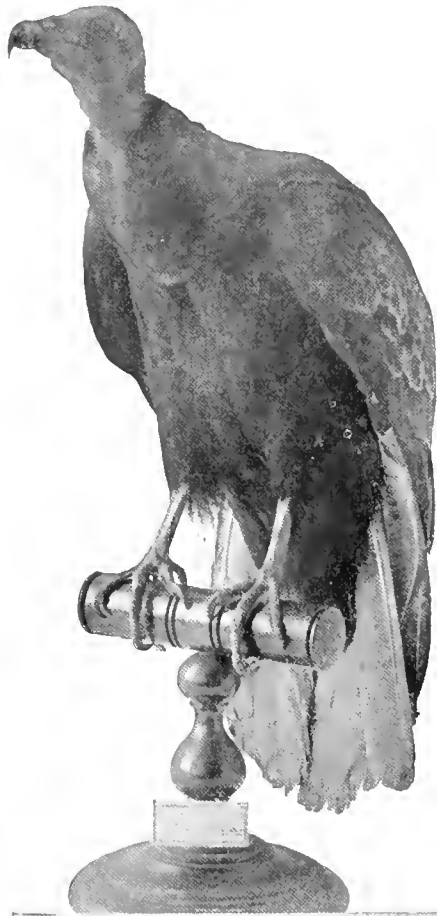
cathartes, Gr. καθάρτης; a cleanser, i. e. a scavenger; *aura*, probably a latinized form of *urubu*; *septentrionalis*, Lat., Northern

Description. *Adult:* Head and upper portion of neck bare, dull crimson, becoming bright red on base of bill. Plumage black, glossed with purple or greenish on the back, and the feathers of the upper parts, especially the wing-coverts and the secondaries, margined with grayish

brown. Quill shafts from light brown to yellowish white. Bill dull white. Iris grayish brown. *Immature:* Similar, but *head dusky* and *covered with more or less furry down*. *Downy young:* Cottony white, except the naked head.

Length 26-32 inches; extent 72; wing 20-23; tail 11-12; bill (culmen) 1; tarsus 2.23-2.30; middle toe 2.50

Distribution. The Turkey vulture, or Turkey buzzard as it is usually



Turkey vulture. *Cathartes aura septentrionalis* (Wied). From specimen in the State Museum.
 $\frac{1}{3}$ nat. size

called in the Southern States, inhabits tropical and temperate America from Patagonia to New York, Saskatchewan and British Columbia. In our State it seems to occur only as a summer visitor, more commonly on Long Island, in the Hudson valley, and in the warmer portions of western New York. In these localities it appears yearly in limited numbers, usually in the months of July and August. Dozens of records are before me, the earliest being April 24, and the latest December 28. Mr F. B. Robinson of Newburgh reports a young bird killed near Gardiner, Ulster county, June 1, 1904; and thinks this species breeds in that locality, but the specimen referred to was old enough to have flown hundreds of miles, and as yet we lack definite proof of its breeding within the limits of the State.

Habits. This bird is the most accomplished aeronaut among our birds of prey. When rising from the ground its initial flaps are hurried and somewhat ungainly, but when fairly under way it sweeps in wide interlocking circles, higher and higher, with scarcely

a motion of its long wings, except when struggling against adverse currents of air. It nests upon the ground in a secluded spot. The eggs are one to three in number, nearly plain or spotted with chocolate, 2.8 by 2 inches in size. Its food consists almost entirely of carrion, and in the South it is considered of great value as a scavenger.

Catharista urubu (Vieillot)

Black Vulture

Vultur urubu Vieillot. Ois. Amer.
Sept. 1807. 1: 23. pl. 2

Catharista urubu A. O. U. Check
List. Ed. 3. 1910. p. 153. No. 326

catharista, Gr. καθάρσις (katharsis) to
cleanse or purify, referring to its work as a
scavenger; *urubu*, a vulture

Description. Glossy black, the
under surface of the wings frosted or
silvery, giving a *distinctly whitish*
sheen to wing quills as the bird flies
overhead; *head and neck bare, black-*
ish in color. Decidedly more stumpy
in build and less graceful in flight
than the Turkey vulture, the *tail*
noticeably shorter and the wing strokes
more frequent.

Length 24 inches; extent 55;
wing 17.

Distribution. The Black vult-
ure, or Carrion crow as it is some-
times called, inhabits America from
Kansas and Virginia southward
through Mexico and Central America

and the greater part of South America, and wanders northward rarely as far
as Maine, Nova Scotia, Quebec and Ohio. There are records of two or
three specimens taken in New York, near Sandy Hook in the spring of
1877 (Robt. Lawrence, N. O. C. Bul. 5: 116), Coney Island beach, about



Black vulture. *Catharista urubu* (Vieillot). From
specimen in Am. Mus. Nat. Hist. 1/2 nat. size

1881 (Le Berier, N. O. C. Bul. 6:126), Shelby Center, May 28, 1892 (Posson, Auk 16:195), Auburn, April 11, 1911 (F. J. Stupp), and Steuben co., July 11, 1909, Burtch, Auk, 28:112. Mr Ottomar Reinecke reports that he and the late Charles Linden watched a bird of this species for some time as it flew about the village of West Seneca, near Buffalo, N. Y., one day in June 1884. Mr Dana C. Gillett also reports it from Tonawanda swamp, May 1899. The Black vulture therefore must be regarded as a rare and irregular visitor to New York, not appearing regularly in any part of the State like the Turkey vulture, but straggling within our boundaries only at long intervals.

Suborder **FALCONES**

Hawks, Falcons, Ospreys etc.

Family **BUTEONIDAE**

Buzzards, Eagles, True Hawks, Kites and Harriers

Nostrils oval and impervious; nasal septum, however, is incomplete; the palate without a median ridge; the scapular process of the coracoid not reaching furculum; tarsus shorter than tibia, scutellate in front, partly feathered; wings ample, usually somewhat rounded in shape; tail usually of 12 rectrices; the legs well feathered, usually below the heel joint, and the "flag" well developed; the basipterygoid process is wanting, and the plumage is aftershafted; general build heavy.

Beside the subfamily Buteoninae, recognized by some authors, which is the most typical of this family and includes our common buzzards or soaring hawks and eagles, is the subfamily Circinae or harriers, represented by our Marsh hawk, which is characterized by weak beak; long tarsus, bare and equal to the tibia in length; long, narrow, pointed wings; long slender tail; the legs long and slender; the general build light and slim; and a facial disc forming an incomplete ruff; as well as ears with large external opening and a conch, and a soft, fluffy plumage, which characters link them with the owls. Among the harriers, the sexes are usually unlike. The nest is placed upon the ground, contrary to the usual practice in this family.

The subfamily Milvinae, including the kites, have very weak beak

and extremely short tarsus, shorter than the tibia, with reticulate scales; the wings very long, narrow and pointed; the legs unusually small; and the general build very light. They have no ruff like the harriers and the plumage is not so soft and owl-like.

The subfamily Accipitrinae, or "true hawks," like our Cooper and Sharp-shinned hawks, has a stronger beak, with a prominent festoon on the cutting edge; the tarsus is slender and as long as the tibia; wings short, rounded, concavo-convex, with 3 to 5 of the quills emarginate; the tail is long; legs long and slim; and the general build light as compared with the buzzard. Difference in size of sexes is especially marked in this subfamily. The young are characteristically mottled and streaked longitudinally, whereas the adults are barred and heart-spotted in their marking. They are arboreal in habits, usually lie in wait for their prey and swoop upon it with a swift, dashing flight. The flight is low as compared with the buzzard, and not so free and easy as that of the Marsh hawk.

Elanoides forficatus (Linnaeus)

Swallow-tailed Kite

Falco forficatus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:89

Nauclerus furcatus DeKay. Zool. N. Y. 1844. pt 2, p. 12, fig. 15

Elanoides forficatus A. O. U. Check List. Ed. 3. 1910. p. 153. No. 327

elanoides, from Lat. *clanus*, a kite; *forficatus*, from Lat. *forfex*, a pair of shears, referring to the forked tail

Description. Wings very long, thin and pointed; *tail* also very long and *deeply forked*; feet stout but very short, the tarsus feathered halfway in front; talons short, well curved, scooped out and sharp edged on the under surface; bill weak; cere small. *Adult: Head, neck, rump and entire underparts white; wings, back and tail lustrous black. Young: Less lustrous; wings and tail feathers tipped with white, the head and neck with black shaft streaks; tail shorter.*

Length 24 inches, more or less according to the development of the outer tail feathers; extent 50; wing 15-17.50; tail 13-14.50; tarsus 1.25.

Distribution. The Swallow-tailed kite, or Snake hawk as it is often called, inhabits America from the warm portions of South America northward to Manitoba and Assiniboia, wintering from Florida and Texas south-

ward. It is of rare or casual occurrence in New England and New York, only a few State records being before me:

Raynor South L. I., 1837. Giraud, Birds of L. I. p. 13

South Shore of L. I., 1845. Le Berier, N. O. C. Bul. 6, 126

Fiermont, Rockland co., Aug. 22, 1900. G. N. Nicholas, Auk 17, 386.

In Rensselaer county, near the villages of Pittstown and West Hoosick,



Swallow-tailed kite, *Elanoides forficatus* (Linnaeus).
From specimen in State Museum. $\frac{1}{2}$ nat. size.

the male figured on this page was secured July 16, 1886 (see 50th Report N. Y. State Museum, p. 14; and Auk 3, 484). Relating to this specimen Mr Griffin Haight, who secured it, writes: "I live two miles west of West Hoosick in the town of Pittstown; and two miles from the Hoosick line. I keep a poultry yard and breed fancy fowls. Being troubled with hawks of late I thought I would clean out a few of them and stopped at home on the 16th of July for that purpose. I had succeeded in killing three hawks and had just fired at the fourth one, when I saw this kite rise from the woods back of my house and go perpendicularly up, as near as I could judge, out of sight. He was gone about 20 minutes when I saw

him coming down again. I called my wife to the door and asked her if she would like to see a Swallow-tailed kite. She said a kite was no sight to her. I told her it was a bird by that name, and that I never saw one north of Port Royal, S. C. The bird came down and lit on a dead pine. He sat there a short time. Then he took another upward flight, going straight up out of sight. He was gone just 30 minutes this time and came

down in the same place where he went up and lit on the same tree. He sat there 7 minutes this time, when up he went again straight out of sight. This time he was gone 51 minutes. I had about given him up and turned to go to the house when I saw him coming down again and another one with him. They lit on the same tree. I started for them and one started up again out of sight. He went in a flash. The other sat still. I walked on a short distance farther, when up he went and I fired at him. He folded his wings and came down. From where I stood to where the kite lay was 17 rods, 3 feet. I watched for the other one, but did not see him again that day; but I have seen him once since, yesterday, the 29th. . . . I shot the kite on the 16th of July, 10.30 o'clock, a. m.

“ I live near a big timber lot of about 500 acres, and about a mile from my house is a large ash swamp of as much more, with quite a body of water in the center.”

Under date of August 3, 1886: “ I will get the mate to this bird (the mounted kite), and will send it to you gratis. I am watching him and his manouvering and actions and learning a little something of his habits. His roosting spot is in the large swamp west of me.”

Under date of August 9, 1886, Mr Haight writes: “ I shot this bird (a great blue heron) while hunting for the kite in the big swamp. I saw him today several times. The last time that I saw him he was dissecting a hornets' nest and sat on the top of a dead stub out in the water, so I could not get a shot at him. I am going to give him another trial tomorrow if the day is cloudy. A clear day is not a good time to hunt him. He is a third larger than the other kite I sent you, and I think there are more in the swamp. I could see some birds in the dead ashes that looked like them and moved around like a kite.” Evidently, from its size, this kite was a female and was probably the mate of the male secured on July 16th. The birds seen among the ashes in the swamp may have been their young.

Under date of July 17, 1891, Mr Haight writes: “ We are watching the kite very closely. It seems to alight in the top of the tallest trees in the woods. It lit on the side hill a short ways from the house today, and

seemed to be catching grasshoppers. I do not know what else he could be after by the way he ran around and would fly a few feet and light again. It was after something, whatever it was. I could not approach it as I was in plain view so I let it work and it flew into the woods after about 25 minutes of flapping and running around. I have not seen any mate as yet. Mosher [one of his sons] saw the bird yesterday [July 16th] while I was from home and he said it lit on a tall pine and sat there for a full hour and then took a sail in the air and went out of sight behind some trees. I am watching its movements and will write you again."

In 1900 Mr Haight saw three more kites on June 9, and noticed one about his place until June 19. All of this evidence would seem to indicate that the Swallow-tailed kite has established a home in Rensselaer county, N. Y., but absolute evidence of its breeding in this State is still lacking.

Circus hudsonius (Linnaeus)

Marsh Hawk

Plates 43 and 48

Falco hudsonius Linnaeus. S. N. Ed. 12. 1766. 1:128

Circus uliginosus DeKay. Zool. N. Y. 1844. pt 2, p. 20, fig. 7

Circus hudsonius A. O. U. Check List. Ed. 3. 1910. p. 155. No. 331

circus L., Gr. κίρκος, a hawk, from its circling flight; *hudsonius* of Hudson Bay

Description. Wings and tail long, legs long and slender, face with a partial ruff, external ear large and fitted with a conch, general build light, plumage loose and owl-like in softness, sexes unlike in color, but both with *white upper tail coverts*. *Adult ♂*: Ashy or *bluish gray above* and on the upper breast, *rest of under parts white with a few rufous streaks* and mottlings on the sides and belly; tail lighter pearly gray with 5 or 6 imperfectly defined blackish bars; 5 outer primaries blackish, and all the wing feathers with the inner webs near the bases white; legs, cere and iris yellow. *Adult ♀*: Fuscous or *umber brown above* varied with rufous or yellowish brown, especially streakings on the head and neck and mottlings on the wing coverts; *under parts ochreous buff* or brownish yellow, streaked more or less with fuscous or umber brown; *tail with 6 or 7 blackish bars*, the middle feathers also with ashy bars. *Young*: Resemble the female but are darker above with more reddish mottlings on the wing coverts and feather edges. More rufous below with no streaks on the belly.

Length ♂ 17.50-19 inches, ♀ 19-22; extent ♂ 40-45, ♀ 45-52; wing ♂ 13-14.50, ♀ 14-16.50; tail ♂ 9-10, ♀ 9.50-10.50; tarsus 2.75-3.25.

Field marks. This is the easiest of our native hawks to identify. The long wings and tail, light build, low wavering or coursing flight when hawking over the marshes or meadows, distinguish the Marsh hawk at a great distance. The very light color of the old males and the dark brownish appearance of the females and young coupled with the conspicuous *white upper tail coverts* make identification doubly sure.

Distribution. The Marsh hawk is one of the most abundant and generally distributed members of its family in North America, occurring from Panama to the Arctic tundras, and wintering from 41st parallel southward. In New York it breeds in every portion of the State, from an altitude of 2000 to 3000 feet in the Adirondacks (Elk lake, Flowed land) to the tidal marshes of Long Island and the lower Hudson river. In the warmer portions of the State a few pass the winter, particularly along the coast and Hudson river, but they are commonest in nearly all portions of New York from March 10 to April 30, and from August 1 to November 10, especially in early April and in September and October, when the bulk of the migration is accomplished.

Habits. Like the Sparrow hawk this species is most common in the open country, hunting its prey over meadows, marshes and waste fields. Though it sometimes watches from a low perch, it usually searches out the mice and small birds which constitute its principal food by hawking with slowly circling or wavering flight over the marshes and lowland meadows. When attracted by some movement in the grass it wheels suddenly about and shoots upward a short distance to examine the spot; at other times it turns a complete somersault or makes a half turn and drops suddenly in the grass to strike its humble and unsuspecting quarry. The prey is devoured on the spot or carried to some sheltered hummock or muskrat house and swallowed without the plucking or tearing which is the custom of falcons and true hawks, but more after the manner of the Buteos. Doctor Fisher reports that "of 124 stomachs examined, 7 contained

poultry or game birds; 34, other birds; 57, mice; 22, other mammals; 7, reptiles; 2, frogs; 14, insects; 8 were empty." My own experience shows that the food of this hawk, as is the case of other Raptores, depends much upon the individual hawk as well as the locality and the season. Most of the Marsh hawks from the Montezuma swamp which I have examined contained nothing but birds (Song sparrows, Tree sparrows, juncos, Red-winged blackbirds) and a few batrachians, while specimens from the more cultivated country were largely filled with mice and insects, mostly grasshoppers (these latter usually in young birds). Mr Foster Parker, who lives near Montezuma, has seen Marsh hawks repeatedly attack young gallinules and finally exterminate the whole brood.

In the mating season Marsh hawks indulge in extensive gyrations above their nesting sites, often somersaulting over and over from a considerable height and soaring upward again just before reaching the ground. Both sexes take part in nest building, incubating and rearing the young. The female sits closely and often remains on the nest until nearly trod upon, when she rises with a loud harsh cackling note uttered with a jerky intonation and resembling the syllables *Cac-cac-cac-cac-cac*. The male usually joins her at once and they circle excitedly about the swamp uttering intermittently their complaining screams. If the eggs are nearing the hatching period, or if the nestlings are quite young, the old birds, especially the female, will usually charge the intruder, dashing downward from a height of 200 feet or more with alarming swiftness directly at one's head but veering off and upward just before striking. I have been brushed by the wings of a female Marsh hawk when charging to protect her newly hatched young, and have had the bellows of my camera, which I had concealed in the neighboring brush in hopes of securing a snap shot of the old bird while feeding her young, torn to pieces by the sharp claws of the parent birds as they attacked the alarming object which they did not fail to discover at their first approach. The nest, unlike that of any of our other hawks, is placed upon the ground, usually in a tangle of low bushes, weeds and grasses in the midst of a swamp or bog. On several

occasions I have found the nest of the Marsh hawk in small peat bogs overgrown with huckleberries, cassandra and Labrador tea, the situation being surrounded by cultivated fields and not far from the farm house. The nest is nearly the size of a crow's nest, but not quite so deep, and is composed entirely of grasses, twigs and weed stalks. The eggs, which are laid from the 15th to the 30th of May, are from 3 to 7 or even 9 in number, usually 5 or 6 in western New York, ovate in shape and bluish white in color, often with obscure shell markings and brownish spots, and nearly always much nest-stained. They average about 1.78 by 1.40 inches in dimensions. The period of incubation is 23 days or more, the young hatching at successive intervals for several days, the female usually beginning to sit as soon as 1 or 2 eggs have been laid, a habit which has probably been acquired to protect the eggs from the attacks of crows which would easily discover them, attracted by the light-colored eggs, as they fly over the exposed nest. While crossing bogs like those in Bergen swamp, Junius pond and Mendon pond I have several times picked up eggs of the Marsh hawk which had recently been sucked by crows, and have known them to treat the nests of Cooper and Red-tailed hawks in a similar manner. Marsh hawk nestlings are covered with a buffy white down, through which the wing feathers begin to show in about 10 days, and in 5 or 6 weeks they are able to fly. Nestlings which I brought up by hand required each from 2 to 5 mice or English sparrows daily to supply the cravings of hunger, so that the 5 young if left at Mendon pond would have consumed 600 mice and small birds, more or less, before they left the nest. The two old birds would consume in the 10 weeks of their sojourn near the nest about 500 more. So it is easy to see that a family of Marsh hawks on the farm makes a considerable difference in the abundance of meadow mice, song sparrows and other small inhabitants of the fields.

Accipiter velox (Wilson)*Sharp-shinned Hawk*

Plate 44

Falco velox Wilson. Am. Orn. 1812. 5:116. Pl. 45, fig. 1

Astur fuscus DeKay. Zool. N. Y. 1844. pt 2, p. 17, fig. 2

Accipiter velox A. O. U. Check List. Ed. 3. 1910. p. 155. No. 332

accipiter, L., a hawk; *velox*, L., swift

Description. Wings short and rounded; tail long and nearly *square*; tarsi and toes long and slender; the former feathered one-third of the way down in front; bill stout, sharp and festooned or sinuate on the cutting edge. *Adult* ♂ and ♀: Above, *slaty* or *bluish-gray*, more fuscous on wings and tail; *primaries* and *tail barred with blackish*, the tail usually with 4 bars, the subterminal one broad, and the tip whitish; *under parts* white more or less heavily *barred with rufous* except on throat and crissum, these rufous bars borne outward along each feather shaft, and the shafts, even on the throat, mostly blackish; bases of the occipital feathers downy white; scapulars and bases of primaries with concealed white spots. *Young*: *Above* fuscous or urubu brown, varied with rusty on the feather edges; *below*, dull white or buffy, *spotted and streaked with dark brown* or pale reddish brown; the wings, tail and concealed spots on occiput and scapular much as in the adults. Cere and feet yellow, often with greenish tinge; *iris* according to age varying from grayish yellow to *yellow* and in high plumage *red*.

Length ♂ 10-12 inches, ♀ 13-14; extent ♂ 21-23, ♀ 25-27; wing ♂ 6-7, ♀ 7-8.75; tail ♂ 5-7.75, ♀ 6-8; tarsus 2-2.15; middle toe 1.18-1.38.

Field marks. The small size of this hawk, when taken with its short rounded wings and long square tail, will serve to distinguish it. Its dashing flight, consisting successively of several rapid flappings followed by a short soar, together with its general shape, it shares with the Cooper hawk, the males of which species little more than equal females of this species in size, but the Sharp-shinned hawk has the *square tail* while the Cooper hawk has the rounded tail and, as intimated, is really larger. From the small falcons, that is the Pigeon hawk and the Sparrow hawk, it can be distinguished easily by its short rounded wings as compared with the falcon's long and pointed ones.

Distribution. The Sharp-shinned hawk is one of our commonest and

most generally distributed species, breeding from Hudson bay and the lower MacKenzie to Florida and Lower California; and wintering from New England and New York southward to Central America. In our State it is very common during the migrations, March 20 to April 30 and September 1 to October 30, especially about April 10 and from September 20 to October 10, when several scores, or even hundreds, of these hawks may be seen in a single day, in the line of greatest migration not far from the coast and in the country near the southern shore of Lake Ontario. A few remain through the winter in the warmer portions of the State, and the species nests throughout the State, most commonly in the wooded country.

Habits. This American representative of the European Sparrow hawk is often miscalled the Pigeon hawk but is quite different in appearance, as already indicated, from *Falco columbarius*. It is "blue," however, in the adult plumage, and is not inferior to that little falcon in fierceness, often attacking birds which are fully its equal in size, and working terrible destruction upon the small birds of the field and forest which are unfortunate enough to establish their homes near its chosen haunts. About the "killing log" or "butchering block," which is found near the nest of the Sharp-shinned hawk, one may see the feathers of thrushes, sparrows, wood warblers, flickers and young grouse scattered in profusion, telling their sad tale of the carnage which this little demon has wrought among the peaceful denizens of the wood. It is a low-flying hawk, dashing swiftly through the groves and coppice, and seizing its victims as they dash for cover or watching for them from the shade of some leafy tree and pouncing upon them as they pass by. In this respect this and the two following species, our true hawks, differ from those hawks which feed largely upon mammals, batrachians and insects, and watch for them from some conspicuous perch. Doctor Fisher's examinations show that the food of this species consists almost entirely of birds, and the experience of all New York observers as well as my own studies of its habits and of its stomach contents point to the same result. Consequently I believe this hawk should be

destroyed wherever the more desirable song and game birds are to be preserved.

The nest of the Sharp-shinned hawk in New York is almost always built in an evergreen tree near the edge of a wooded gully or beside a logging road in the forest. Hemlock, pine and arbor vitae seem to be its preference, and the nest is built close to the trunk of the tree at a height varying from 10 to 40 feet. Compared with the nests of other hawks it is



Photo by Guy A. Bailey
Sharp-shinned hawk's nest and eggs

rather large for the size of the bird, about equalling that of the crow, and is deeply hollowed to receive the eggs. It is composed of sticks, usually of the pine and hemlock, and lined with smaller twigs and strips of bark. The eggs are usually laid by the 10th or 25th of May. They are 4 or 5 in number, oval or short ovate in shape, averaging 1.47 by 1.16 inches in size, and bluish white or greenish white in ground color, more or less heavily blotched and spotted with brown of different shades mingled with marblings of drab or lavender and clay color. These markings are sometimes uniformly distributed over the

surface of the egg, sometimes in a heavy wreath near the larger end, and at other times shading down from heaviest at the very tip of the smaller end. There is endless variety in the coloration of the eggs of this species, causing them to be eagerly sought by egg collectors, and I will confess that cabinets filled with eggs of this bloodthirsty little pirate, as well as those of the Cooper hawk, Crow, and Cowbird, have shown me that egg-gather-

ing when indulged in by a discriminating youth may become a strong element in bird protection.

Accipiter cooperi (Bonaparte)

Cooper Hawk

Plates 43, 41 and 46

Falco cooperii Bonaparte. Am. Orn. 1838. 2:1 Pl. 10, fig. 1

Astur cooperi DeKay. Zool. N. Y. 1844. pt 2, p. 18, fig. 10

Accipiter cooperi A. O. U. Check List. Ed. 3. 1910. p. 156. No. 333
cooperi, in honor of William Cooper

Distinctive marks. A medium sized species, *larger* than the Sharpshinned hawk but of the same general shape and color, the *tail more rounded*, the legs shorter and stouter, and the top of the head darker slate or blackish; in high plumage the Cooper hawk is of a clearer and more uniform bluish slate on the upper parts. A large young female of this species resembles closely a young male Goshawk in size and color, but may be surely distinguished by the feathering of the tarsus, which extends only one-third of the way down the front of the slender tarsus in the Cooper hawk, but one-half of the way on the stouter tarsus of the Goshawk.

Length ♂ 15-18 inches, ♀ 18-20; extent ♂ 30, ♀ 36; wing ♂ 9-10, ♀ 10-11; tail ♂ 7-8, ♀ 8-9; tarsus ♂ 2.60, ♀ 2.70; middle toe ♂ 1.60, ♀ 1.75.

Distribution. The Cooper hawk breeds throughout the United States and southern Canada, and winters from southern New England and Illinois southward into Mexico and Costa Rica. In New York it is common during the migrations, March 20 to April 20 and September 15 to October 20, but may be seen at all times of the year except in the northern and more elevated portions of the State, where it is only a summer resident. In the more thickly settled districts it is much less common than formerly, the nesting birds having been killed off on account of their destructiveness to poultry and game birds. In the wilder and more wooded portions of the State it is one of the commonest breeding species but is not seen as

frequently as the Marsh, Red-shouldered and Red-tailed hawks because it remains most of the time silently under cover of the forest.

Habits. This hawk resembles the Sharp-shinned hawk in habits as well as in appearance, being fully as fierce and intrepid as that little pirate and much more destructive to game birds and poultry on account of its greater size and strength. Early in April, before the migration of those individuals that are to breed farther northward has ceased, our summer residents pair and select some old crow's or hawk's nest or the forks of a tree 20 to 50 feet from the ground as the site for their home. The nest when entirely constructed by the hawks themselves is of good size, composed of sticks and twigs and nearly always lined with the outer bark of trees, such as the hemlock, cedar and yellow pine. In New York the eggs are laid from April 25 to May 20. They are 3 to 5 in number, are of a pale bluish white color, occasionally spotted lightly with brownish, resembling those of the Marsh hawk but more broadly ovate, averaging about 1.90 by 1.55 inches. The period of incubation lasts about 24 days, and the young hawks are covered with a whitish down. During the nesting season the old birds occasionally utter a loud rattling or cackling noise similar to the Sharp-shinned hawk's note but louder and also the repeated *tick, tick* call, besides the loud shrill scream uttered by the setting female when disturbed. At other times of the year this bird is mostly silent.

***Astur atricapillus atricapillus* (Wilson)**

Goshawk

Plate 45

Falco atricapillus Wilson. Am. Orn. 1812. 6:80. Pl. 52, fig. 3
Astur atricapillus DeKay. Zool. N. Y. 1844. pt 2, p. 19, fig. 4 and 5
Astur atricapillus atricapillus A. O. U. Check List. Ed. 3. 1910.
 p. 156. No. 334

astur, Lat., a hawk, perhaps from *aster*, star, i. e. spotted; *atricapillus*, Lat., black-haired, i. e. the top of the head black

Description. A large powerful hawk with the general shape of the Cooper hawk; but with the tarsus more robust and more extensively feathered and scutellate. *Upper parts dark bluish slate*, the feathers with

black shaft-lines; tail with 4 or 5 broad blackish bars and tipped with whitish; wings also barred; *top of head* and *broad auricular stripe* blackish; a *whitish stripe over the eyes*, broadening toward the back of head where the bases of the feathers are cottony white as in other true hawks (Accipitrinae); under parts white, thickly barred in fine wavy pattern or vermiculated with slaty brown or dusky except on throat and crissum. All the feathers, even on the throat, with blackish shaft-lines; bill dark bluish, cere and feet yellow, iris red. *Young*: Dark brown above, margined with rusty, and varied, especially on neck and scapulars, with whitish or buffy; wings and tail, barred with blackish and buffy; under parts tawny whitish, with oblong, club-shaped, or drop-shaped streaks; cere and feet duller yellow, iris yellow, bill brownish.

Length, ♂ 21-22 inches, ♀ 22-25; extent ♂ 41-43, ♀ 44-47; wing ♂ 12.50-13, ♀ 13.50-14.50; tail ♂ 9.50-10.50, ♀ 11-13; tarsus ♂ 2.90-3.10, ♀ 2.95-3.17; middle toe ♂ 2.75, ♀ 1.90.

Field marks. Adult hawks of this species can not be mistaken for the Cooper hawk which is our only species approaching it in size and resembling it in form. They are larger, have no rufous markings below, are more blue and gray in general color and have the decided blackish crown and ear-stripe as well as the whitish superciliary stripe. The young males of this species are only slightly larger than the young females of *cooperi* and resemble them in color but are more conspicuously buffy in the ground color of the under parts, and of the tail and scapulars. When the bird is in hand the feathering of the tarsus is, of course, distinctive.

Distribution. The American Goshawk inhabits the boreal region of North America, breeding from central Maine and northern New York northward through the Hudsonian zone and wintering southward to about the 38th parallel. In this State it is chiefly a winter visitor, rather irregular in occurrence, but some years is fairly common, as in 1863, when many were killed on Long Island, and in 1889, 1895-96, 1898-99, and in 1906. On Long Island they usually appear between the 18th and 25th of December and disappear between the 15th and 27th of March; in western New York my dates range between October 21 and November 15 for arrival from the north, Mr Burtch giving one record for September 15; and March 11 to 20 to 28 for last seen in the spring. Mr

George F. Guelf of Brockport has called to my attention that a considerable flight of these hawks often occurs during the third week in March not far from the southern shore of Lake Ontario, the birds moving toward the eastward and recalling the similar flights of Sharp-shinned, Cooper, Marsh and Broad-winged hawks which occur a little later in the season. Audubon, during his visit to western New York, found this hawk nesting near Niagara Falls, but since that time very few evidences of the Goshawk breeding in our State have been recorded. In June 1877, Roosevelt and Minot observed it in Franklin county; Merriam in 1881 ranked it as a rare resident of the Adirondack region; in June 1905, I observed two of these hawks near the Upper Ausable lake in Essex county; and Ralph and Bagg have given us a definite breeding record for the Adirondacks, May 9, 1898. Fortunately, however, this bird is rare as a summer resident, even in the wildest portions of the Adirondack forest.

Habits. This is the most dreaded scourge of our grouse coverts and poultry yards. Fierce, daring and more powerful than the Cooper hawk, it seizes and carries off full-grown fowls with such ease, and makes its attacks so suddenly and unexpectedly that flight by the intended victim and resistance by the outraged farmer are alike useless. Both the examination of the stomach contents of specimens secured and the testimony of hunters and naturalists who have observed this bird and its nesting sites, agree in establishing the Goshawk's unenviable character. Grouse, pheasants, poultry, hares and other larger animals are its usual food. The Goshawk's nest is usually placed in a birch, beech or poplar tree and resembles that of the Cooper hawk in construction. The eggs are from 3 to 5 in number, ovate or elliptical-ovate in shape, and white or pale bluish white in color, about 2.30 by 1.74 inches, and are laid about the 1st of May.

Buteo borealis borealis (Gmelin)*Red-tailed Hawk*

Plates 43, 49 and 47

Falco borealis Gmelin. Syst. Nat. 1788. 1:266

Buteo borealis DeKay. Zool. N. Y. 1844. pt 2, p. 9, fig. 17

Buteo borealis borealis A. O. U. Check List. Ed. 3. 1910. p. 157.
No. 337*buteo*, Lat., a buzzard; *borealis*, Lat., northern

Description. Our typical and commonest buzzard hawk, characterized by heavy build, long and broad wings, wide spreading tail of medium length, 4 primaries notched; a large hawk of high, soaring, circling flight and conspicuous perches, commonly but improperly called Hen hawk. *Adult:* Upper parts dark brown, more or less variegated with whitish and ochreous buff; *tail bright rufous* or brick red with a narrow subterminal band of blackish and tipped with whitish; under parts white more or less tinged with buffy and variegated with blackish, especially across the fore breast and on the flanks and abdominal zone, the throat, middle of breast, crissum, and tibiae being mostly unmarked; iris brown, bill horn color, legs yellow. *Immature:* Tail gray with numerous blackish bands; body colors similar to adult but lacking fulvous markings above and buffy tinge below; the *dark markings below heavier* forming a dark abdominal zone but leaving a *large unmarked whitish area on the breast*; iris yellow.

Length ♂ 19-21 inches, ♀ 22-24; extent ♂ 46-50, ♀ 52-56; wing ♂ 13.50-16, ♀ 15-17.50; tail 8.50-10.50; tarsus 3-3.40; middle toe 1.60-1.85; weight 3-4 pounds.

Distribution. The Red-tailed hawk inhabits eastern North America from the Gulf States to Northern Canada, being partially migratory in the northern states and only a summer resident in the boreal region. It is quite generally distributed in New York, breeding in all parts of the State and wintering sparingly in the warmer counties. During March and October large numbers pass through our State on their migrations, the movement beginning from February 20 to March 10 and ending from April 1 to 20, migrants often being seen in numbers, near Rochester at least, after the summer residents have eggs well advanced in incubation. In our State this hawk nests both in swampy woods and on rugged gullies and hillsides, but on the whole, in western New York, seems to prefer

upland or hilly country, leaving the swamps more exclusively to the Red-shouldered hawk.

Habits. This species is often seen in spring and summer, and again in the fine days of autumn, sweeping in wide circles over the hills and valleys, sometimes soaring upward until, with its broad wings and tail spread, it disappears from sight in the upper air. These evolutions usually occur over its native woods and hunting fields, and in spring are quite sure to mark the neighborhood of its nesting site, when both sexes take part in the performance and wheel about for hours almost out of sight. It chooses a conspicuous perch on the dead top of a tree by the edge of the forest or isolated in broad fields, to watch for its humble prey, and may sit thus for hours apparently asleep, but really continuing a keen scrutiny of its surroundings, and when it discovers a mouse, shrew, squirrel or bird which offers a favorable chance, it swoops down and, gliding low, snatches it up in its heavy talons and bears it away. At other times it may be seen coursing back and forth over old fields and pastures searching for meadow mice and grasshoppers. This hawk, though called "Hen hawk," rarely visits the poultry yard, not more than one chicken being chargeable to this species while ten go to the Cooper hawk and the Goshawk. It captures a few cottontails and Ruffed grouse, but the majority of its food consists of small mammals. "Of 562 stomachs, 54 contained poultry, 51 other birds, 409 mice and small mammals and 47 insects." (Fisher)

The nest of the Red-tail is placed in the fork of a tall tree, a maple, birch, beech, elm, basswood, hemlock or pine, 40 to 80 feet from the ground, and is occupied year after year as long as the owners are not destroyed. If one of the pair is killed, another mate is soon secured and brought back to the long established site. If the eggs are taken, a new nest is built not far from the old one, but the next spring the original nest is almost sure to be occupied again. The birds pair and begin working on the nest early in March, almost immediately after their arrival from the south. It is a bulky structure composed of sticks and lined with small twigs and strips of bark, and usually decorated with green hemlock sprays, fern leaves

and other evergreens. The eggs are laid from April 1 to 25. They are from 2 to 4 in number, dull whitish, often tinged with bluish, and usually spotted or blotched with reddish or yellowish brown and obscurely marked with lavender, about 2.40 by 1.90 inches in dimensions. The call of the Red-tail, when soaring, is "a long drawn squealing whistle" somewhat resembling the syllables *kee-ahrrr-r-r*, and in the nesting woods it utters a sharp scream like *kerr* or *chirr*.

Buteo lineatus lineatus (Gmelin)

Red-shouldered Hawk

Plate 47

Falco lineatus Gmelin. Syst. Nat. 1788. 1:268

Buteo hyemalis DeKay. Zool. N. Y. 1844. pt 2, p. 10, fig. 13

Buteo lineatus lineatus A. O. U. Check List. Ed. 3. 1910. p. 158. No. 339
lineatus, Lat., marked with stripes or bars

Description. Like the Red-tail or common "Hen hawk" of the New York farmer, but slightly smaller and lighter in build. Four outer primaries notched. *Adult: Lesser wing coverts and under parts rufous*, the wing coverts marked with fuscous, and the under parts barred with whitish or ochreous buff; *wings and tail blackish barred with white*; the white tail bars about 4 or 5, of uniform width and narrower than those of the Broad-wing, forming with the rufous under parts good identification marks as the bird flies overhead. Upper parts altogether of a more grayish appearance than those of the Red-tail, being dark grayish brown, more or less striped or edged with whitish and ochreous; throat with black shaft streaks; cere and legs yellow; iris brown. *Immature:* Upper parts similar to adult but more dusky; *lesser wing coverts distinctly rusty* but less so than in adult plumage; *bases of primaries and of outer tail feather mostly ochreous buff* or yellowish red; *tail grayish brown barred with blackish*; *under parts white* or buffy white *streaked and spotted with blackish*; iris yellow.

Length ♂ 17.5-19 inches, ♀ 19.5-21; extent ♂ 40-44, ♀ 44-50; wing 12-14; tail 7.5-9.5; tarsus 2.8-3; middle toe 1.60; weight 2-3 pounds.

Distribution. The Red-shouldered hawk inhabits eastern North America from Manitoba and Nova Scotia southward to Oklahoma and North Carolina, moving slightly southward in winter as far as the Gulf coast. In New York it is a permanent resident in the warmer portions of the State and may be found sparingly in winter throughout central and western New York. It is common during the spring and fall migrations,

especially during March and October, and breeds commonly in all parts of the State, except the Adirondack wilderness, where it is largely replaced by the Broad-winged hawk. In the more thickly inhabited counties it is commoner than the Red-tail.

Habits. This bird is probably the commonest large hawk in the southern, central and western counties of New York, where most of the original forests have been cleared away and small patches of woodland have been left standing along the streams and in swampy tracts. In such



Red-shouldered hawk's nest and eggs

Photo by Verdi Burtch

localities it is often seen in spring, summer and early fall soaring about over its chosen haunts after the manner of the so-called "Hen hawks," uttering its shrill *kee-you, kee-you, kee-you* as it soars upward above the tree-tops, but becoming silent as it reaches a higher altitude, and mounting higher and higher, perhaps accompanied by its mate, almost disappears from view in the upper air. It is less powerful than the Red-tail and its quarry is of a humbler nature, consisting almost entirely of mice, frogs, snakes, insects, spiders and crayfish. This species keeps more under cover of the forest than the Red-tail and though it watches for its prey from

a lofty perch it is less often observed seated upon dead tree-tops and stubs in the open, or on the towering hillside. In the breeding season it is perhaps our noisiest hawk, its oft-repeated cry coming many times each day from the vicinity of the nesting site. The nest is a bulky structure mostly made of sticks and placed in the fork of a lofty tree, an elm, birch, maple, black cherry or beech being commonly selected, rarely an evergreen. The eggs are from 3 to 5 in number, dingy white or bluish white in color, irregularly and usually rather heavily spotted and blotched with dark brown and yellowish brown and obscure shell markings. The nest is often built or repaired as early as the middle of March but the eggs are laid from April 1 to May 10 in this State. The period of incubation is about 4 weeks, and the young remain in the nest from 4 to 6 weeks. Like other hawks this species is much attached to its home, and the same nest or at least the same locality is occupied as long as either of the pair survives.



Swainson hawk. *Buteo swainsoni* (Bonaparte). From specimen in Am. Mus. Nat. Hist. $\frac{1}{2}$ nat. size

***Buteo swainsoni* Bonaparte**

Swainson Hawk

Buteo swainsoni Bonaparte. Geol. & Comp. List. 1838. 3

A. O. U. Check List. Ed. 3. 1910. p. 159. No. 342

Distinctive marks. Only 3 *outer quills emarginate*; tail grayish brown, often tinged with hoary, with about 9 or 10 narrow dusky bands; variable

in color of body; iris brown; cere and feet yellow. *Adult male:* Above grayish brown; *chest* plain *rufous*; *forehead*, *chin* and *throat* *white*; rest of under parts buffy or whitish, usually more or less barred and spotted with brown. *Female:* Similar, but chest grayish brown. *Dark phase:* Whole plumage sooty brown, but specimens show all degrees of melanism from the normal phase to a uniform sooty color. *Young:* Above blackish brown, varied with buffy; head, neck and under parts buff or buffy white, more or less marked with blackish.

Length ♂ 19-20, ♀ 21-22; extent ♂ 48-51, ♀ 51-57; wing ♂ 14.50-16, ♀ 15-17.50; tail 8-10; tarsus 2.30-2.90; middle toe 1.40-1.65; weight 1.6-3.5 pounds.

This species inhabits western America from Alaska to Chili, and occasionally wanders eastward as far as New England. There are at least three records from Massachusetts and two from Maine. It is an accidental visitant in our State, records of only three undoubted New York specimens being before me:

Onondaga co., N. Y., Oct. 1877. Brewster. Auk, 10: 83

Brockport, N. Y., Oct. 1, 1889. Short. Birds of Western N. Y. p. 10

Cornwall, N. Y., Oct. 14, 1892. Dutcher. Auk, 10: 83-84

Buteo platypterus (Vieillot)

Broad-winged Hawk

Plate 48

Sparvius platypterus Vieillot. Tableaux Encycl. Meth. 1823. 3: 1273

Buteo pennsylvanicus DeKay. Zool. N. Y. 1844. pt 2, p. 11, fig. 11

Buteo platypterus A. O. U. Check List. Ed. 3. 1910. p. 159. No. 343

platypterus, Gr., signifying broad-winged

Description. Our *smallest buteo*; *tail* with 2 or more *rather broad bands of white*; only 3 *wing quills emarginate*; upper parts dark grayish brown or slaty gray, more or less edged or marbled with grayish and buffy; under parts brownish or reddish brown, more or less spotted and barred with white, especially posteriorly, the *chest* being *nearly solid ochereous brown*; rather distinct dusky mustachios; cere and legs yellow; iris brown. *Young:* Upper parts dusky, more or less edged with buff and rusty; under parts

buffy white, rather heavily spotted and streaked with blackish; *tail grayish brown with 4-8 narrow blackish bands.*

Length ♂ 13.5-16, ♀ 16.5-17.5; extent 33-38; wing 10-12; tail 6.5-7.3; tarsus 2.2-2.8.

Distribution. The Broad-winged hawk is a fairly common summer resident of the wooded districts of New York. In the Adirondacks it is probably the commonest hawk. On Long Island and in eastern New York generally, it is a summer resident of irregular distribution, but in western and central New York it is almost unknown as a breeding species. Although it breeds from the Gulf States northward to Alberta, Quebec and New Brunswick, it is much more local in distribution than the Red-tailed and Red-shouldered hawks, inhabiting more exclusively the wooded country, either by preference or because its unsuspecting nature has brought about its extirpation in the more cultivated districts. In all parts of New York, however, it is a rather common migrant, at least in the coastal district, the Hudson valley, and in the country immediately south of Lake Ontario, where large flights often occur late in April and early in October, the migrations being accomplished between April 15 and May 25, and between August 10 and October 20. In southeastern New York the Broad-wing often remains throughout the winter as it does in the Ohio and Delaware valleys, but in western New York I have never seen a winter specimen.

This species soars about in the air less than our other buteos and I have never heard it utter such loud and screaming notes. Fisher aptly compares its common note to that of the Wood pewee. It sometimes sits for hours on some high and conspicuous perch, but is more often found in the midst of the forest or silently seated in a low tree beside a stream or swamp, watching for snakes, mice, frogs or insects which constitute the principal part of its food. It shows little fear of man and when approached too closely will usually fly for only a short distance before alighting unconcernedly and continuing its scrutiny of the ground where its humble prey resides.

The Broad-wing places its nest in trees, from 25 to 60 feet from the ground. It is about the size of a crow's nest and composed of sticks, bark

and leaves. The eggs are 3 to 4 in number, dull buffy white in ground color, spotted and blotched with yellowish brown and cinnamon brown, about 2.12 by 1.6 inches in dimensions. Eight sets of eggs in the Smithsonian collection from Hamilton and Herkimer counties, N. Y., were all taken between May 19 and June 15, May 25 being the usual date for northern New York. Chapman gives April 18 as the date for eggs near New York City.

Archibuteo lagopus sancti-johannis (Gmelin)

Rough-legged Hawk

Plates 43 and 48

Falco s. johannis Gmelin. Syst. Nat. 1788. 1:273

Buteo sancti-joannis DeKay. Zool. N. Y. 1844. pt 2, p. 7, fig. 3

Archibuteo lagopus sancti-johannis A. O. U. Check List. Ed. 3. 1910. p. 161. No. 347a

Archibúteo, chief buzzard; *lagópus*, Gr., hare-footed; *sancti-johánnis*, of St John

Description. *Legs feathered to the toes; base of tail white; body color varies from brownish gray above and white or buffy white below streaked with dusky, forming a more or less complete broad abdominal band, to a nearly uniform black; cere and toes yellow; iris brown. Light phase:* Upper parts fuscous or grayish brown, margined with whitish and buffy; under parts varying from white to ochereous buff, spotted and streaked with blackish, forming a dark band in the abdominal region; inner webs of primaries and under surfaces of wing feathers white toward their bases; the tips of the wings black; under wing coverts in the carpal region form a conspicuous black patch; wing and tail feathers barred with gray and whitish. The bird gives the appearance of white and black in large patches, when flying. *Dark phase:* Varies from slightly darker than the normal to a uniform sooty black, except the base of tail, a portion of the bases of the wing feathers, slight marblings or bars on tail and wings, and a small frontlet of whitish. These white markings, however, do not show except when the bird is closely examined or, partly, when flying.

Length 21-23; extent 52-56; wing 15-17; tail 9-10.

Distribution. The Rough-legged hawk inhabits the northern portion of the boreal zone from Newfoundland and central British Columbia to the limit of trees, and wanders southward in winter over most of the United States. In New York it is a winter visitor of irregular occurrence, rather

rare in the eastern and southern highland regions, but common, some winters, in the larger river valleys, the Lake Ontario lowlands, and the central lake region, and sometimes on eastern Long Island. At intervals of a few years there appear large flights of these hawks in western New York, especially in the Genesee valley and the extensive farm lands which lie south of Lake Ontario. This was the case in the winter of 1905-6, when Roughlegs were fairly abundant about Canandaigua, Genesee, Cayuga, and many other localities. The birds begin to arrive from the north late in October, or some years not till the middle of November, and depart for their breeding grounds between March 25 and April 12, except for disabled or delayed stragglers which have been seen as late as May 30.

This species prefers an open country of wide marshes, river bottoms, or rolling plains, with scattered trees from which to watch for its humble prey. When trees are too few it is often seen coursing back and forth over the fields somewhat after the manner of the Marsh hawk, but with heavier flight and, whenever he discovers a luckless mouse, pounces silently upon it. Its flight seems low and labored, even when compared to the Red-tail, although its wings are longer and more pointed. Its habit of hunting largely in the twilight is correlated with its choice of diet, which consists almost exclusively of meadow mice. I have frequently found the remains of 7 to 9 mice in the stomach of one Rough-legged hawk, and never found a beneficial animal on its bill of fare. It therefore must be regarded as the most beneficial of all our Raptores, and the farmer should distinguish it carefully from such injurious species as the Goshawk, and protect it as one of his most valued allies. As recently as twenty years after the publication of Fisher's "Hawks and Owls," one of the most intelligent and extensive landholders in New York State was paying a hunter to rid his fields of dozens of this valuable mouser under the misapprehension that it was destroying his game birds. Thus there is need of spreading further the knowledge of our birds.

Aquila chrysaëtos (Linnaeus)*Golden Eagle*

Plate 49

Falco chrysaetos Linnaeus. Syst. Nat. 1758. Ed. 10. 1:88*Aquila chrysaetos* DeKay. Zool. N. Y. 1844. pt 2, p. 4, fig. 14

A. O. U. Check List. Ed. 3. 1910. p. 162. No. 349

áquila, Lat., eagle; *chrysaëtos*, Gr., 'αετὶς, eagle; χρυσῆς, golden

Description. *Legs feathered to toes, tarsus whitish; basal two-thirds of tail white; back of head and neck ochreous buff or "golden brown"; general plumage dark brown with purplish gloss; the flight feathers and tip of tail darker, the latter forming a conspicuous terminal zone of black; cere and feet yellow; iris brown. Immature birds are darker and have the base of tail only slightly marked with grayish, and the tarsi and under tail coverts buffy. This species is little larger than the Bald eagle and at a distance can hardly be distinguished from immature birds of that species.*

Length ♂ 30-34 inches, ♀ 35-41; extent ♂ 78-84, ♀ 84-92; wing ♂ 23-25, ♀ 25-27.5; tail 14-16; tarsus 3.6-4.3; weight 10 or 12 pounds.

Distribution. This noble eagle inhabits the entire holarctic realm but is mostly confined to mountainous districts. It is rather rare in the eastern United States, and was never common in New York. In early colonial days it undoubtedly nested in the Highlands, Catskills and Adirondacks, but at the present time there seems to be no evidence of its nesting within our borders, although in 1877 Doctor Mearns thought it possible that it still bred in some secluded portion of the Highlands, and in 1900 Mr F. G. Pember of Granville, N. Y., thought it might breed on Pond mountain, Vermont, four miles east of Granville, where two young were taken from a nest several years before. Doctor Ralph is also authority for the statement that its eggs have been taken in the Adirondacks. This species must now be classed as an accidental, or a rare transient visitant. Within the last 60 years specimens have been reported from Schenectady, Putnam, Fulton, Chemung, Steuben, Orange, Westchester, Suffolk, Rensselaer, Herkimer, Columbia, Washington, Madison and Monroe counties. The latest record before me is October 25, 1900, when a golden eagle was captured alive in the city of Rochester, and placed in the local zoo (see Eaton, Birds of Western N. Y. p. 35).

Haliaeetus leucocephalus leucocephalus (Linnaeus)*Bald Eagle*

Plates 43 and 49

Falco leucocephalus Linnaeus. Syst. Nat. 1766. Ed. 12. 1:124*Haliaeetus leucocephalus* DeKay. Zool. N. Y. 1844. pt 2, p. 5, fig. 1*Haliaeetus leucocephalus leucocephalus* A. O. U. Check List. Ed. 3.

1910. p. 162. No. 352

haliaëtus, sea eagle; *leucocéphalus*, white-headed

Description. *Adult:* Head, neck and tail white; rest of plumage brownish black; bill and legs yellow; iris yellow. *Immature:* Nearly uniform brownish black, more or less varied with white spots, mostly on the under parts and tail; bill blackish; legs yellow; iris brown; during the second and third years they show more white on the under parts and tail, but are still of a prevailing blackish color.

Length ♂ 31-34 inches, ♀ 35-37; extent ♂ 80-85, ♀ 85-90; wing ♂ 21-23, ♀ 23-25; tail 11-13; bill 2.3-2.9; weight 8-12 pounds.

Distribution. The Bald eagle, or its larger northern subspecies, inhabits nearly the whole of North America north of Mexico, but prefers the sea coast and regions of lakes and rivers. In New York it is still no unusual sight to see eagles along the shores of Long Island, in the Hudson valley, in the Adirondacks, along the Great Lakes, and in the central lake country. They are commonest in spring and summer, but may be seen at any time of year, mature birds, evidently not breeders, frequenting such localities as Conesus lake, Canandaigua lake and Niagara river throughout the spring and summer months. At latest accounts Bald eagles were nesting near Sodus bay in Wayne county, Constantia in Oswego county, Whelby pond in Dutchess county, and Indian lake and Taylor pond in the Adirondacks. It formerly nested in many places along the shores of Long Island, along the Hudson, the Great Lakes, the central lakes, the Adirondack lakes and Lake Champlain, but constant persecution or the destruction of the nesting site has caused the abandonment of the majority of these localities, and "the eagle tree," or the place where it stood, is gradually passing from the memory of the nearest inhabitants.

Habits. The Bald eagle frequents the shores of lakes and rivers and chooses a slightly perch from which to scan the surface of the water for the dead fish which constitute its principal food in summer time. It is frequently seen also high in air soaring about in search of some dead sheep or other offal, which it seems to prefer next after fish, and I have seen it on several occasions set its wings when at a great height and descend to an ignoble repast of dead calf or other vulturine provender. Its power of sight is justly famous, but it is scarcely probable that it surpasses that of other raptures. Once I watched an eagle that was soaring at a great altitude above me when all at once he caught sight of a dead fish floating on the surface of the lake and, making a direct line for the fish, snatched it from the water and bore it off to shore. The fish I found by subsequent computation was three miles from the spot over which the eagle was soaring and I could not see the fish in the eagle's talons at the time it was picked from the water although I was using a pair of six power field glasses. It is possible, however, that even a man could have seen the fish from the eagle's station in the air as a white spot on the water. When the eagle does not find sufficient supply of dead fish it will rob the Fishhawk of its booty, as is well known by all naturalists, and will even take live fish from the water, but can not be compared with the Osprey as a fisherman, and probably does not even equal the Red-shouldered hawk or Barred owl in this accomplishment. In the winter this eagle often attacks water fowl successfully, but can not easily capture the diving species when they are on the water. I have seen an eagle make repeated attacks upon a Canvasback duck which dove at every swoop of the eagle and finally escaped. Some have objected that the habits of this eagle scarcely entitle it to be chosen as the emblem of our native land, but its appearance, when soaring in the clouds or perched on the tip of a lofty pine tree, is truly majestic. The scream of the eagle resembles somewhat the voice of the seagull; others have likened it to the bark of a fox or of a small dog, and Doctor Ralph called attention to the difference in the notes of the sexes, the male's cry being a high

clear *cac-cac-cac*, and the female's more harsh and broken, a note which, when heard nearby, Doctor Fisher compares to a loud maniacal laugh.

The Bald eagle lays her eggs very early in the season, in February or early March, being the largest resident and earliest breeder of our diurnal birds of prey, as the Great horned owl is of our nocturnal Raptores. The eagle's nest is usually built in a lofty tree, near the top, and the tree dies after a few years leaving the huge nest of sticks a conspicuous object easily seen for a long distance by all who pass by. If undisturbed a pair will occupy the same nest for many years but, although the eagles are quite



Bald eagle's nest with young

Photo by Guy A. Bailey

harmless neighbors and a distinct addition to the picturesqueness of the landscape, and legally protected by the statutes of our State, few eagle eyries have survived the vandalism of thoughtless tourists and fishermen, or of countrymen who shoot the birds for the local taxidermist or trap them for the nearest zoo, or of summer visitors from the city who conceive it a great achievement to lie in wait with a rifle and slaughter the parents or climb to the nest and carry off the young, or of oologists who take the eggs repeatedly. The eggs are 2 or 3 in number, dull white in color,

and measure about 2.85 by 2.2 inches. The period of incubation is 4 weeks or more, and the young do not leave the nest till July or the first of August. When hatched they are covered with whitish down, but before they are able to fly have acquired the brownish black plumage as described above.

Haliaeetus leucocephalus alascanus C. H. Leonard

Northern Bald Eagle

Eagles of the species *leucocephalus* inhabiting the boreal zone of North America are larger than southern birds and equal or surpass the largest dimensions given (wing 25, tail 13, tarsus 4, depth of bill 1.5). Many specimens from this State exhibit these dimensions, and are to be assigned to the northern race. In deciding this question, however, it is well for the amateur to remember that immature eagles have longer wings and tails than old ones.

Family **FALCONIDAE**

The Falcons

Characters. Beak sharply hooked, toothed and notched, the lower mandible truncate and notched near the tip; nostrils circular, high up in the cere, with a central tubercle; bony eye shield projecting, of a single piece; septum of the nose much ossified; palatal bone with a median keel anteriorly; scapular process of the coracoid united to the clavicle; tarsus shorter than tibia, more or less feathered above, its scales reticulate; middle toe long; talons strong and curved; wings long, strong and pointed; tail stiff and rather short; legs stout; general build strong and muscular; the plumage aftershafted; basipterygoid process wanting; eyes brown in color; flight swift and strong, the prey usually pursued and captured in the air; courage great for the size of the birds.

In this family the raptorial nature reaches its highest differentiation. The muscular build, the length and strength of the wings, the curious sculpturing of the sharp cutting edges of the beak, the powerful legs and long, strong, curved talons fit the falcons admirably for their career of rapine. They choose prey which is oftentimes larger and heavier than themselves. Few birds can escape their powerful, sweeping flight. They strike down and slaughter without trouble the swiftest flying ducks, grouse and pigeons, and, with the exception of the smaller members of the family

such as the Kestrel and American sparrow hawk, are usually to be classed as injurious species because of their destructiveness in the feathered kingdom, though they often evade the condemnation of mankind because of the general admiration of their dashing bravery and preeminent fitness for their avocation. In the Orient, members of this family are still employed in the practice of falconry, but in western Europe this occupation has fallen into disuse in recent times.

Falco islandus Brunnich

White Gryfa'con

Plate 51

Distinctive marks. *White*, the head and under parts almost without marks, only slightly streaked on the top and sides of head and on flanks and flags; the back, wings and tail marked with dusky broken bars and arrowheads. Young birds are somewhat more heavily marked than the old ones, and the markings are more lengthwise of the feathers than in bars, but still the predominant impression is of a *white bird*, especially the head, neck and under parts. Size the same as Gyrfalcon.

This Arctic species has been taken in Maine and Ontario. Mr Frederic S. Webster reports one killed near Troy, N. Y., in the winter of 1874, but the specimen has not been traced. Arthur H. Helme writes that he saw a bird near Miller's Place, L. I., which he feels sure belonged to this species, but as he was unable to secure the specimen, can not prove its occurrence beyond a doubt. Mr Helme's experience as a field naturalist and familiarity with all our native birds, and Mr Webster's work as a bird student and taxidermist give credence to these reports, but we still lack a New York specimen of this Gyrfalcon.

Falco rusticolus rusticolus (Linnaeus)

Gray Gyrfalcon

This bird differs from the White gyrfalcon only in coloring. The upper parts barred, arrow-pointed and spotted transversely with grayish fuscous, *whitish prevailing on the head and neck*, dark prevailing on the back and wings, *under parts white*, decidedly lighter than upper parts, *streaked and spotted with dark on the sides, flanks and under tail-coverts*.

Like the preceding this Arctic species has been taken in Wisconsin, Ontario and Maine, and must visit the northern portions of New York at rare intervals, but no specimens from the State as yet have been discovered.

Falco rusticolus gyrfalco (Linnaeus)*Gyrfalcon*

Plate 50

Falco gyrfalco Linnaeus. Syst. Nat. Ed. 10. 1758. 1:91*Falco rusticolus gyrfalco* A. O. U. Check List. Ed. 3. 1910. p. 164.
No. 354a*fálco*, Lat., a falcon, from *falx*, a sickle from the shape of the bill; *rusticolus*, Lat., inhabiting the country; *gyrfálco*, probably=*hierofalco*, divine or noble falcon

Description. Upper parts brownish gray or fuscous, slightly marked with buffy white, the whitish markings in the form of streaks, and edgings on the neck and head, but narrow bars on the tail coverts and tail, and the back only slightly marked. *Under parts heavily streaked with fuscous and dull white.* Heavy blackish "mustaches." Bill bluish horn color, nearly black at tip; legs bluish gray, claws black; iris brown. As in all species of gyrfalcons, the immature birds have a tendency to buffy white in the light markings of the upper parts, and these markings are rather in streakings than in bars.

Length 23-24 inches, extent 50-55; wing 13.50-16; tail 8.5-10; tarsus 2.4, feathered one-half way down on front and sides; middle toe 2.2; weight 5 1/4 pounds.

This Gyrfalcon breeds in the Arctic regions from Ellesmere Land eastward to Franz-Josef Land, and wanders southward in winter to Minnesota, New York and Rhode Island. The New York records are as follows:

Long Island, winter of 1856, ♀ immature, mounted by John Akhurst, now in collection Long Island Historical Society, Brooklyn, N. Y. Lawrence, Ann. Lyc. Nat. Hist. N. Y., 8280. Dutcher, Auk, 10: 274; Chapman, Birds of N. Y., etc., p. 41, no. 171; and Braislin, Birds of L. I., p. 69, no. 182, reported as *Falco islandus*.

Pond Quogue, L. I., 1877, ♂ adult, shot by William Lane, mounted by Knoess of Riverhead, N. Y., secured from John Wallace by Robert Lawrence and presented to the Am. Mus. Nat. Hist. Robert Lawrence, N. O. C. Bul., 5: 117, reported as *Falco sacer*.

Rome, N. Y., winter of 1895, 2 killed, H. L. Bowers.

Auburn, N. Y., March 29, 1902, ♀ immature, shot by Edwin Redman, mounted by L. O. Ashbury. Specimen now in State Museum.

Canandaigua, N. Y., Dec. 25, 1905, ♀ immature, shot by Duel,

obtained by Ernest Watts for the author's collection, original of the painting by Fuertes, plate 50.

The Gyrfalcon is the largest, swiftest and most powerful of our falcons though, according to Saunders, inferior to the Peregrine in dash and spirit. It preys upon waterfowl, ptarmigan, grouse and hares. The Canandaigua specimen mentioned above was feasting on a large Plymouth rock hen when shot, and its gullet and stomach were filled with the breast meat of the fowl, with scarcely a trace of bone and feathers. These birds are very destructive to grouse, pheasants and rabbits but as they are so uncommon in New York, they can not become a great menace to game coverts except in rare instances.

Falco rusticolus obsoletus Gmelin

Black Gyrfalcon

Plate 50

Falco obsoletus Gmelin. Syst. Nat. 1788. I. 1: 268

Falco rusticolus obsoletus A. O. U. Check List. Ed. 3. 1910. p. 164.
No. 354b

obsoletus, Lat., dusky

Distinguishing marks. Uniformly dusky or slaty fuscous, without bars above except obscure broken bars on the tail and with few and inconspicuous streaks below. Size the same as the common Gyrfalcon.

This dark phase of the Gyrfalcon breeds in northern Ungava and Labrador, and spreads southward in winter as far as Ontario, New York and Rhode Island. Four New York specimens are known, the first from Flushing, L. I., fall of 1875, mounted by J. Wallace and now in the collection of George A. Boardman. See Berier N. O. C. Bul. 6: 126 and 247. Through a misunderstanding this bird was reported as from Westchester county. See Rod and Gun, 7: 153. Westchester co., winter of 1879, Sage, Bishop & Bliss, Birds of Conn. State Geol. & Nat. Hist. Surv. bul. 20, p. 83, 1913. The third specimen from this State was killed near Lake Ontario in Monroe county, October 1890, mounted at Ward's Natural Science Establishment, and now in the State Museum at Albany. See Marshall,

Auk, 9: 203. This specimen is a female, and measured "Length 22.5 inches; tail 9.50; wing 15.50, spread 51; cere and feet gray, not so bright a gray as in the Osprey." Another specimen is reported from Bellport, L. I., winter of 1899, by Mr W. A. Babson.

Falco peregrinus anatum Bonaparte

Duck Hawk

Plates 43 and 51

Falco anatum Bonaparte. Geog. and Comp. List. 1838. 4

DeKay. Zool. N. Y. 1844. pt 2, p. 13, fig. 8

Falco peregrinus anatum A. O. U. Check List. Ed. 3. 1910. p. 164.
No. 356a

peregrinus, Lat., wandering; *anatum*, Lat., of ducks

Description. A large powerful falcon. *Adult:* ♂ and ♀ *bluish slate above becoming black on crown* and sides of head; the back and wing-coverts indistinctly barred or spotted with dusky; tail with several blackish bars; *under parts buffy or dull whitish*, the chest sparingly streaked, and the remainder, including the under surfaces of wings and tail, uniformly *barred with blackish; throat white or buffy white, bordered by conspicuous black mustachios*; cere, eyelids and feet yellow; bill bluish; claws black; iris dark brown. *Young:* Brownish or dusky above, under parts more buffy or ochreous, quite heavily streaked with blackish.

Length ♂ about 17 inches; ♀ 19; extent 40-46; wing ♂ 11.5-13, ♀ 13-15; tarsus 1.7-2.1.

Distribution. This noble falcon is found throughout the United States and breeds from North Carolina and Mexico north to the Arctic coasts. It prefers the mountainous districts, occurring in New York along the Palisades, the Highlands, and the Adirondacks. Undoubtedly it is much more generally distributed than is commonly known, its seclusive habits and custom of traveling long distances on its foraging excursions often concealing the location of its home, or even the fact of its residence, from people who live in the immediate vicinity. Several pairs are known to nest in the Palisades and Highlands. I have found its eyrie on a spur of Mt Colvin overlooking the Lower Ausable lake where the guides of the Adirondack Mountain Reserve have known of its nesting for many years; also in a deep gorge near the Massachusetts line in Columbia county;

and at Taughannoek Falls near the shore of Cayuga lake, June 25, 1909. This nest, discovered by Miss Gertrude Yeames and identified by the author, Mr Fuertes tells me, was occupied again in 1910, and undoubtedly has been used for many years. It has been photographed and described by Allen, Knight and Bailey. See *Bird Lore*, Jan. 1913. This hawk possibly breeds in the Montezuma swamps in the cavities of basswoods or sycamores as it does in the Mississippi valley, for the birds are occasionally seen there in the nesting season. Nests of the Duck hawk with eggs have been reported from the Palisades, March 30 (Chapman); from the Helderberg mountains 30 miles from Albany, April 11, 1884 (Lintner, *Auk*, 1: 391); from Morehouse, Hamilton county, May 16, 1896 (Bagg, *Auk*, 14: 226) and from Pond mountain, Vermont, 4 miles from Granville, N. Y., by F. T. Pember. As a transient this falcon is recorded regularly along the Long Island coast, September 17 to October 25 (Dutcher), along the Great Lakes, April and October; and the Montezuma marshes, March 10 to April 20, and August 20 to October 30 (Foster Parker). Mr Batty reported it as a "common fall and winter resident" along the shores of Long Island (*Forest & Stream*, 4: 374). From the interior of the State this hawk has also been mentioned from Seneca lake and Grand island by Ottomar Reinecke; from Lowville by James H. Miller; from Harmony, Chautauqua county, by A. E. Kibbe; from Ithaca, 1899, by Fuertes; from Yates county by James Flahive; from Orleans county by Bruce and Langille; from West River, Canandaigua lake, June 3, 1906, by Maurice Blake; and from Canandaigua, March 15, 1903, a fine male captured by Addison P. Wilbur. But these reports do not represent its actual occurrence, as it is so rarely taken or recognized; it surely occurs regularly, though sparingly, in all parts of the State, but is most often found along the coast, lakes and marshes, where waterfowl and shore birds are common.

Habits. The Duck hawk differs from the Peregrine falcon of the Eastern Hemisphere only in having the throat and upper chest unmarked; its power, swiftness and intrepidity are the same. The Noble falcon, as it is often called, attacks any kind of game from the size of a wild duck

to a sparrow, but usually chooses birds of medium size, such as pigeons, flickers, plover and small ducks. It pursues its chosen quarry with astonishing rapidity, the wing strokes resembling more the flight of a pigeon than that of our common hawks. It rarely soars except for an instant in making a turn, or after it has struck its prey in mid-air, or has made an unsuccessful attack and wheels to reconnoitre. I once saw a Duck hawk come like a descending rocket and snatch a gold finch in the air so suddenly that the poor finch apparently was not aware of its enemy or, if so, had no time to change its course to an appreciable degree. Mr Parker has described the actions of a falcon which came to the Montezuma marshes with the migrating shore birds in August 1908, as particularly cruel and destructive. It would pursue the flocks of sandpipers and plover, striking one after another into the mud or water, but seldom pausing to devour or carry off its plunder. Whenever the falcon appears over the marshes all the ducks within sight exhibit the greatest distress, but when an eagle, Red-tail or Marsh hawk comes over they are not at all concerned. It is not an unusual experience for this daring pirate to carry off a hunter's decoy or a wounded duck so rapidly and unexpectedly that the gun is powerless against him.

The nest of this falcon is almost always placed on a ledge or opening in the rocks of some precipitous cliff, and in this State the eggs are laid from March 30 to April 20. These are 3 or 4 in number, about 2.1 by 1.7 inches in dimensions, of a color ranging from light buff to reddish brown and heavily marked with cinnamon and dark reddish brown. The young nestlings are covered with white down, but soon the brown feathers of the juvenal plumage appear on the wings, tail and scapulars, at the age of about four weeks entirely displacing or concealing the nestling down. Both sexes of the eyas or young falcon, unlike the subgenus *Cerchneis*, are similar in coloration, dark brown above and heavily streaked below, and do not show the ashy or slaty color of the adults nor the barring of the under parts till after the first complete moult. As the nestling falcon approaches the age for leaving the eyry, its restless disposition asserts itself, and it screams and hops and tries its wings about its native

ledge, each day with greater freedom. Sometimes they fall from the nesting-shelf and perish on the rocks below, as was the case with a tiercel in my collection, from the Lower Ausable lake. The unhappy fall of this bird was witnessed by Messrs Achilles, Taylor and Fuller, who were helping me in the Adirondack bird survey. They had watched the eyry for 24 hours from a concealed station to observe the visits of the parent falcons. Food was brought only once in this time, and the young birds became unusually restless. Finally the male fell over the mountain side and was killed on the talus slope. I believe that the old birds in this case were trying to lure the young from the nest by bringing insufficient food to the ledge. As the young begin to fly the parent birds fly by with prey in their talons, and the young rise to snatch it from them in mid-air as they pass. Thus the weaklings are sometimes left to perish, or in their struggles to obtain the prize meet their destruction. The falcon's eyry must needs be a strenuous school to train the fiercest of all our raptors for his murderous career.

Falco columbarius columbarius Linnaeus

Pigeon Hawk

Plate 52

Falco columbarius Linnaeus. Syst. Nat. Ed. 10. 1758. 1:90

DeKay. Zool. N. Y. 1844. pt 2, p. 15, fig. 9

Falco columbarius columbarius A. O. U. Check List. Ed. 3. 1910.
p. 165. No. 357

columba'rius, Lat., pertaining to pigeons

Description. A small but robust, stocky falcon. Tarsus about as long as middle toe. *Male:* Bluish gray above, the shafts black; the tail crossed by about 4 blackish bands; the wings dusky, bar-spotted with whitish. *Under parts* and neck buffy white to ochreous, streaked with blackish. Bill bluish; cere and legs yellow; iris dark brown. *Female and young:* Dusky brown, the tail with about 5 whitish bands; under parts similar to male's but more heavily streaked.

Length. Male 10-11 inches; wing 7.40-7.85; tail 4.65-5.25; tarsus 1.30-1.40; middle toe without claw 1.10-1.25. Female 12.50-13.50; wing 8.30-8.60.

This hawk may be recognized at a distance, first by having the

general build and flight of a falcon (*see* family Falconidae and remarks upon the identification of hawks), second, from the Sparrow hawk by its heavier build and bluish or dusky back, and from the Duck hawk by its inferior size.

Distribution. The Pigeon hawk, Bullet hawk, or Little blue corporal is a fairly common migrant through New York State, arriving in spring from the 1st to the 15th of April and passing northward from the 14th to the 29th of May. Occasionally it remains through the winter, as reported from Long Island and other parts of southern New York. I saw a falcon of this species chasing the pigeons from a belfry in Canandaigua in January 1906. The fall migration takes place principally between September 4 to 15 and October 15 to November 5, but fall records as early as August 10 are not rare. This species undoubtedly breeds within the boundaries of the State, but the evidence is inconclusive. Mr B. S. Bowdish saw a female and her eggs which were taken in 1891 at Phelps, and Mr Short (*Birds of Western N. Y.*, p. 11) reports it as breeding at Naples, on the authority of L. V. Case. Mr Bowdish has told me that he can not remember positively the description of the Phelps bird and her eggs, but thought surely at the time that she was a Pigeon hawk. Mr Gustavus S. Hardy also reports this hawk as breeding at Middleville, N. Y. But still it seems strange that no eggs from New York have found their way into collections. Mr F. T. Pember reports a young bird of this species which was scarcely able to fly, from Indian lake; and the author saw a Pigeon hawk on Skylight mountain in the Adirondacks in July 1905. It will thus be seen that this species belongs principally in the catalog of transients, although its retiring habits during the nesting season may explain in part the scarcity of observations upon it as a summer resident in the Canadian zone of New York.

The flight of the Pigeon hawk is swift and powerful. It preys almost entirely upon birds and fearlessly attacks flickers, doves and quails, seeming to prefer a quarry of nearly its own size. Hence it is not to be regretted that this intrepid little falcon is not common in the State. It inhabits

the whole of North America, breeding chiefly north of the United States as far as Alaska and Ungava.

Falco sparverius sparverius Linnaeus

Sparrow Hawk

Plate 52

Falco sparverius Linnaeus. Syst. Nat. Ed. 10. 1758. 90

DeKay. Zool. N. Y. 1844. pt 2, p. 16, fig. 16

Falco sparverius sparverius A. O. U. Check List. Ed. 3. 1910. p. 166.
No. 360

sparve'rius, quasi-Latin, pertaining to sparrow

Description. Our smallest hawk. Sexes unlike from the nest to maturity. Tail rather long and rounded. Tarsi much longer than the middle toe. Top of head bluish slate to dusky slate, usually with a rusty patch. *Side of head whitish with three black vertical stripes. Back rufous or rusty barred with blackish*, uniformly in the female, but sometimes the bars almost lacking in the male. *Male: Wings largely bluish slate*, the primaries blackish, bar-spotted on the inner webs with whitish. Outer tail feathers barred with black and whitish, *middle feathers rufous*, and all with a broad subterminal band of black and a whitish tip. Under parts buffy white to ochreous, marked more or less, especially on the sides and flanks, with roundish back spots. *Female: Wings and tail rufous, barred with black like the back*; under parts dingy white, streaked with brown. Bill bluish; cere and legs yellow; iris brown.

Length 10-11.5 inches; extent 22-24.5; wing 7-7.5; tail 4.75-5; weight 4 ounces.

This hawk can scarcely be mistaken for any other native species. Its falconine shape and colors distinguish it easily from the Sharp-shinned hawk and its smaller size, lighter proportions, longer tail, and colors are quite unlike the Pigeon hawk.

Distribution. As a summer resident it is found in every part of New York State. Though less numerous during migrations than several other species, and in the wooded districts not so common a summer resident as the Red-tailed, Cooper and Sharp-shinned hawks, it is probable that it is more generally distributed in New York than any other of the family. From Long Island to John Brown's grave and Plattsburg, and from West-

field to Orient this little falcon breeds in nearly every community where it is allowed to remain at peace. In traveling about the State I have found it a fairly common summer resident and in winter have noticed it in many cities and villages, or on their outskirts, where it subsists mostly on "English" sparrows and field mice. In portions of New York City, Poughkeepsie, Albany, Rochester, Buffalo, Canandaigua and Geneva where I have watched it day after day in midwinter it seemed evident that the presence of an abundant supply of sparrows was the determining factor which inhibited migration. During the migration season, March 20 to April 30 and September to October 20, the Sparrow hawk is noticeably commoner, especially near the coast, in the Hudson valley and along the Erie-Ontario lowland. It breeds from Mackenzie, Keewatin and Newfoundland to Texas and Georgia; and winters from Illinois, New York and Massachusetts to Costa Rica.

Habits. The Sparrow hawk frequents wide pastures and fields which have a scattered growth of trees, open groves, "slashes," and half-cleared hillsides, or bottom lands with fringes of trees along the streams. In such localities it is often seen perched on some dead branch or telegraph pole or hovering in the air watching for its humble prey of mice and grasshoppers. Its flight is light and easy. Occasionally it gives voice to a high pitched, rapidly repeated cry resembling the words *killy, killy, killy, killy*. This is probably an alarm note, as it is rapidly reiterated when the nest is in danger or when the young are being led away from their enemies. The nest is in the deserted hole of some large woodpecker, usually the Flicker, or in the hollow of a tree, but rarely in the deserted nest of a crow or hawk. Little, if any, nesting material is placed in the hollow. The eggs are laid from April 25 to May 30 according to locality and nature of the season. They are from 4 to 7 in number, of a white or buff or rufous ground color, variously speckled, blotched and clouded with shades of chocolate, cinnamon, buff, ochreous etc., in different pattern, sometimes confluent on the larger end, sometimes on the smaller, sometimes zoned, and sometimes uniformly covered. They measure about 1.41 by 1.12

inches. The food, as already intimated, consists principally of grasshoppers and mice. Small birds are occasionally taken, but this little falcon is mostly a harmless and certainly an interesting neighbor.

Family **PANDIONIDAE**

Ospreys

Character. Beak inflated except at base and much hooked, without tooth or festoon; nostrils oblique, oval, in the edge of the cere; eye shield rudimentary; scapular process of the coracoid not reaching furculum; tarsus roughly reticulate; the large and powerful feet with rough and spiny scales for holding their finny prey; all the toes free and the outer one versatile; talons extremely large, sharp and much curved; legs long and closely feathered; the tarso-metatarsus contains a bony canal for the extensor tendon of the toes; this and the versatile character of the outer toe, as well as the aftershafted plumage, the blending of the deep plantar tendons and the presence of a *scapula accessoria*, suggesting relationship to the owls; the plumage, however, is close, oily and imbricated, the quills and tail feathers stiff and pointed and the coeca are wanting.

The ospreys or Fish hawks are birds of powerful flight, and their long, curved talons, as well as the granular-spiny palms of their feet, are admirably adapted for seizing and holding their slippery prey. Although they feed almost exclusively upon fish, it is usually considered that they do little harm, as the species which they capture are taken in shallow water and, consequently, consist of varieties least valuable for food. At any rate, they are never so abundant that their depredations are especially annoying and the picturesqueness which they and their nests lend to the landscape is ample reward for the slight toll they take from the finny tribes. This family, or suborder, as some would make it, consists of only three species and is nearly cosmopolitan in range.

Pandion haliaëtus carolinensis (Gmelin)*Osprey; Fish Hawk*

Plate 43

Falco carolinensis Gmelin. Syst. Nat. 1788. 1:263

Pandion carolinensis DeKay. Zool. N. Y. 1844. pt 2, p. 6, fig. 18

Pandion haliaëtus carolinensis A. O. U. Check List. Ed. 3. 1910.
p. 168. No. 364*pandion*, Gr., Πανδίων, the father of Progne and Philomela; *haliaëtus*, Gr., ἁλιετός, sea eagle or osprey; *carolinensis*, of Carolina

Description. *Upper parts dark brown*, nearly black on the flight feathers; head, neck and *under parts white*, but streaks on the crown and a *broad stripe on side of neck blackish*, and the breast more or less marked with brownish; the tail with dusky bars, its tip and bars on the inner webs whitish; bill blackish, its cere and basal portion bluish; *feet bluish gray*, claws black; iris red or sometimes yellow. *Male*: Smaller and clearer white on neck and below. *Female*: With more brownish on breast and tawny tinging the white areas. *Young*: More marked with buffy and brownish on neck and under parts, and the upper parts edged and mottled with whitish or buffy, the tail more barred.

Length 20–24 inches; extent 4 1/2–5 1/2 feet; wing 17–22 inches; tail 8.5–10.5; tarsus 2.25; middle toe without claw 1.75; culmen and claws 1.30.

Field marks. The uninitiated often mistakes a Fish hawk for an eagle, but its lighter build, “crooked wings,” and *white under parts* distinguish it at a great distance from both the young and the mature eagle. In expanse of wings, however, it almost rivals the male eagle and the Turkey buzzard among our native Raptores.

Distribution. The Fish hawk is a regular and not uncommon visitor on all the lakes and rivers of New York State, arriving from March 15 to April 1 along the sea coast, and departing from September 20 to October 15, but is occasionally seen as late as November 17. It breeds in considerable numbers about the eastern end of Long Island, especially on Gardiner’s island, where more than 100 nests were occupied in 1910 (*see* Bird Lore 5, 6, 180 and Wilson Bulletin 50, 18). On Plum and Shelter islands it also nested abundantly in recent years. In the interior counties of New York the Osprey is no longer a summer resident, except in portions

of the Adirondacks, where it continues to breed but yearly becomes rarer and rarer on account of the relentless persecution of thoughtless tourists and campers. Along the Hudson, the Great Lakes, and the Central Chain its history as a breeding species has been the same as that of the Bald eagle. One by one the Fish hawk trees have disappeared until now the author knows of no breeding station in the State except as mentioned above. As a migrant, however, the Fish hawk is frequently seen over all our inland waters from March 25 to May 15 in springtime, and from August 20 to October 25 in autumn.

The food of this species consists almost entirely of fish. Occasionally frogs and other aquatic animals are taken but, although I have watched this unequalled fisherman on numberless occasions, hawking, soaring or hovering over lakes and rivers and flooded marshes, and even mill ponds, and have seen him as often splash feet foremost into the water with almost unerring aim, I have never seen him rise with any prey but a fish in his powerful talons, nor have I ever taken any food but fish from the stomach of an Osprey. Like other fishermen the Osprey prefers fish of large size and, it is said, occasionally fastens its claws into prey of such size that he is unable to rise with it or to loosen his talons, and perishes as the result of his eagerness. Mr Addison P. Wilbur relates an interesting story of his boyhood experience on Barnegat bay. While returning home after a day of unusually bad fortune, just as he was passing over a rise of ground he perceived a Fish hawk coming directly toward him and struggling under a heavy load. Concealing himself behind a low bush he awaited its approach and, just as the hawk was directly overhead, he sprang into the air with a loud shout and threw his hat, when the Osprey dropped its fish in confusion and flew away uttering its shrill, rapidly repeated whistle of complaint. My friend, on picking up the fish, found it a fine squeteague or weakfish weighing nearly 4 pounds.

The evil which the Osprey might do by destroying food fish is minimized by the fact that it can not take fish from deep below the surface and consequently feeds mostly on species which prefer the warmer waters

and shallows, such as carp, suckers, pike (*Esox*), bowfin (*Amia*), alewives etc., or on fish which are sickly and hence swimming near the surface. It does not, however, to my knowledge feed on dead fish. This latter is the province of the eagle.

The nest of the Fish hawk is composed of sticks and rubbish, placed in a large tree, or, when in a safe locality, on a boathouse, a cartwheel on a stake, a telegraph pole, or even on the ground. When it has been occupied for many seasons it becomes a huge affair, visible for a long distance. The eggs, 2 to 4 in number, usually 3, laid from April 20 to June 1, are usually of a creamy or buffy white, heavily blotched with chocolate. But they are very variable and are sometimes nearly a uniform reddish brown, sometimes a plain dull white, and average 2.48 by 1.80 inches in size. The breeding range of this species is from the limit of trees to the Gulf of Mexico, and it winters from the Southern States to South America.

Suborder STRIGES

Owls

Bill and claws much as in Falcones, but the *cere concealed by thick bristly tufts* of feathers, the *feet feathered*, and the *outer toe reversible*; *eyes looking forward*, large, surrounded by disks of radiating feathers; external ear remarkably large; *plumage loose and soft*, the outer webs of the feathers recurved; *oil gland not tufted*; coeca large; no crop developed; *basipterygoids present*; sternum doubly notched on posterior margin except Aluconidae; clavicles weak, as long as sternum; palate desmognathous; skull bones, especially the brain case and maxillo-palatines, spongy; a bony canal in the tarso-metatarsus for the extensor tendon of the toes (except in Aluconidae); *ambiens*, semitendinosus and accessory, accessory femoro-caudal, biceps slip, and expensor of secondaries, all *absent*; femoro-caudal present; *colors blended*; eggs subspherical and immaculate white; nature and regimen as in Accipitres; flight buoyant but wavering.

Owls are a well-marked order of birds both in external appearance and internal structure. Everyone knows an owl, an assertion which scarcely can be made of any other order of birds. Their large, forward-looking eyes, facial disks, soft blended plumage, noiseless flight, nocturnal habits and stridulous or resonant, dismal voices, have established their individuality firmly in the popular mind. There are about 315 species

and subspecies of owls, distributed in all parts of the world, 80 of which belong to the Otus or Screech owl genus.

Family ALUCONIDAE

Barn Owls

These birds have a peculiar physiognomy which has given them the name of *Monkey owls*. Facial disk heart-shaped or triangular instead of rounded; the inner toe is as long as the middle toe; *middle claw pectinate* on its inner edge; tarsus long, closely feathered, the feathers becoming thin and bristly on the toes, and *recurved* on the rear part of tarsus; first quill longer than third; *none of the primaries sinuate* or emarginate; *no bony canal* in tarso-metatarsus for extensor of toes; sternum has a *manubrium*, and is *entire on the rear margin*; *furculum ankylosed with sternum*. This family, which is related to the goatsuckers through *Steatornis*, is represented by the single living genus *Aluco* of 26 species and subspecies, distributed in all warm and temperate regions of the world.

Aluco pratincola (Bonaparte)*Barn Owl*

Plate 53

Strix pratincola Bonaparte. Geog. & Comp. List. 1838. 7

DeKay. Zool. N. Y. 1844. pt 2, p. 31, fig. 28

Aluco pratincola. A. O. U. Check List. Ed. 3. 1910. p. 168. No. 365

aluco, Lat., a kind of hooting owl; *pratincola*, Lat., inhabiting the meadow

Description. *Upper parts ochreous yellow*, overwashed with grayish, and *speckled* and marbled *with dusky and white*; wings and tail bar-spotted with dusky; *under parts* vary from *white to tawny*, *speckled with blackish*; *face white to tawny*; *iris blackish*.

Length 15-18 inches; extent 44; wing 12.5-14; tail 5.5-7.5; tarsus 2.25-3.

Distribution. The American Barn owl, which is closely related to the European species *flammea*, inhabits the warmer portions of North America from the northern limit of the upper Austral zone southward into Mexico. The only New York breeding records before me are from Staten Island, Long Island and the Genesee valley. It has been regarded as a rare bird in this State but, as the accompanying records indicate, is well distributed in the warmer portions of New York, and probably is more

common than the paucity of records would lead us to suppose. Its secretive and nocturnal habits fortunately protect it from vulgar and thoughtless interference in many localities, and it has been known to nest for years in secluded towers, belfries, barn attics and hollow trees without its presence being suspected by neighboring inhabitants. Doctor Fisher has shown, by the examination of hundreds of bone and fur pellets disgorged by these owls, that their food is made up almost entirely of mice, and hence that they should be strictly protected.

Two broods are said to be reared in a season, and eggs in all stages of incubation are frequently found in the same nest. The eggs are from 5 to 11 in number and average 1.73 by 1.28 inches in dimensions. When disturbed, like other owls it hisses at its tormentor. Bendire mentions a querulous note, "æk, æk, somewhat like the call of the nighthawk"; and Chapman has heard it utter "a wild, startling scream, a high rapidly repeated *cr-r-ree, cr-r-ree, cr-r-ree.*"

New York records of the barn owl

La Salle		J. L. Davison
Ossining	January 1873	Fisher, { B. N. O. C., vol. 1, p. 61 "F. & S.," vol. 11, p. 482
Near New York	April 13, 1878	Mearns, Auk, vol. 7, p. 90
New York	April 5, 1878	Bicknell, B. N. O. C., vol. 3, p. 132
Penn Yan		{ Gilbert, Auburn list, p. 26 "F. & S.," vol. 7, p. 325
Flushing	May 30, 1883 (4 young in nest)	{ Dutcher, Auk, vol. 3, p. 439 Beard, Auk, vol. 19, p. 398
Bay Ridge	Collection L. I. Hist. Soc.	
West Hampton	November 20, 1886	Dutcher, Auk, vol. 5, p. 180
Cayuga	About 1886	Foster Parker
Bayport	September 1, 1888	(Hawkins) Dutcher, L. I. Notes
Troy	November 19, 1888	Parke, Auk, vol. 7, p. 400
Hercula Works	Winter 1889	J. S. Allwood
Buffalo	{ July 5, 1890 October 3, 1890	Bergtold, Auk, vol. 7, p. 400
Troy	December 3, 1890	Parke, Auk, vol. 8, p. 114
Parkville	September 10, 1890	Johnson, Auk, vol. 8, p. 114
Islip	February 16, 1891	(Hawkins) Dutcher, L. I. Notes
Pitcher	September 13, 1891	Higgins, Auk, vol. 10, p. 301

Hick's Beach	January 10, 1892	Howell, Auk, vol. 10, p. 90
Jamestown	September 16, 1894 ♂	Kibbe "Oölogist," vol. 23, p. 25
Auburn	About December 13, 1895	Fred J. Stupp,
Blissville	December 1894	(Hendrickson) Dutcher, L. I. Notes
Buffalo	July 18, 1895	Savage, Auk, vol. 12, p. 393
Marcy	September 1898	Bagg, Auk, vol. 17, p. 177
Gardiner's Island	September 30, 1898	Worthington, Auk, vol. 16, p. 85
East Marion	October 12, 1898	Worthington, Auk, vol. 16, p. 85
Gardiner's Island	March 1899	Braislin, Auk, vol. 17, p. 70
Rochester	September 1899	David Bruce
Sennett	September 23, 1900	G. C. Embury
Bellport	<i>Breeds</i> , April 25th, 7 fresh eggs	W. Arthur Babson
Canandaigua	June 18, 1900	Ernest Watts
Montauk Point	September 12, 1900	Braislin, Auk, vol. 19, p. 146
Montauk Point	September 25, 1901	Braislin, Bds. L. I., p. 70
Islip	April 23, 1902	H. M. Burtis, Auk, vol. 20, p. 212
Gasport	September 1903	Garrett, "Oölogist," vol. 23, p. 25
Montauk Point	February 17, 1903	Dwight, jr, Auk, vol. 20, p. 434
South Danby	December 1, 1904	(Erway) H. D. Reed
Medina	June 20, 1905	Possou, "Oölogist," vol. 22, p. 106
Staten Island	1905-7 <i>Breeds</i>	James Chapin
Kenyonville	October 30, 1905	Garrett, "Oölogist," vol. 25, p. 25
Canandaigua	April 1907	Ernest Watts
Livingston county	March 10, <i>Breeds</i>	D. Byron Waite
Wayne and Living- ton counties	} <i>Breeds</i>	A. L. Thorne
Ithaca	1906-7 (Several taken)	L. A. Fuertes
East Schodack	October 1907	(Hall) George L. Richard

Family STRIGIDAE

Horned Owls, etc.

In this family the *sternum* is *notched* on the rear margin, there is *no manubrium* on its front, and the *furculum* is more or less *defective* and *not ankylosed* with the sternum; inner toe shorter than middle; feathers on rear of tarsus not recurved; first quill shorter than third; from one to six of the primary quills emarginate or sinuate.

Here are included the owls with rounded face disks and large external ears. Many have plumicorns or "horns," and those with the largest ears have flaps or lids to cover the opening. There are 290 species and subspecies, some of which are found in every region of the globe.

Asio wilsonianus (Lesson)*Long-eared Owl*

Plate 53

Otus wilsonianus Lesson. *Traité d'Orn.* 1830. 110*Otus americanus* DeKay. *Zool. N. Y.* 1844. pt 2, p. 27, fig. 24*Asio wilsonianus*. A. O. U. Check List. Ed. 3. 1910. p. 169. No. 366*asio*, Lat., a kind of horned owl; *wilsonianus*, in honor of Alexander Wilson

Description. *Ear tufts conspicuous.* Plumage finely mottled and brokenly waved with dusky, grayish white, and buffy, the former predominating on the upper parts, and the buffy overlaid with the dusky and grayish; wings and tail with dusky bars; obscurely defined blotches of dusky on breast and stripes combined with obscure crossbars on the belly; *facial disks reddish brown*; legs buffy; the whole plumage remarkably blended.

Length 13-16 inches; extent 38-40; wing 11-12; tail 5.5-6.50; tarsus 1.20-1.40; whole culmen 1.

Distribution. The American Long-eared owl, closely related to the Palearctic species *Asio otus*, inhabits the temperate portion of North America from Nova Scotia and Saskatchewan to the tablelands of Mexico. It is one of our strictly resident species, and is not very uncommon about dense wooded swamps and hillsides in most parts of the State, but is apparently uncommon in the Adirondack forests. Cedar and hemlock swamps, pine woods and alder thickets are its favorite retreats. In such localities it is frequently observed standing motionless in some evergreen with its ear tufts raised and its feathers drawn close, looking like a weather-worn stub or ragged piece of bark. At other times one is not aware of its presence, until it is startled from its perch and retreats with silent wavering flight, like a great Whippoorwill, to a remoter corner of the swamp. I am not sure that I have ever heard the note of this owl, but Nuttall describes it as a plaintive, hollow moaning, while others compare it to the barking of young dogs or the noise made by kittens.

This species nests in trees, usually in the deserted home of a crow, hawk or squirrel, but rarely constructs its own nest, and lays from 3 to 7 white eggs which average about 1.62 by 1.28 inches in dimensions. The time of nesting varies from March 31 when eggs have been found at Ossining

and Branchport to April 19 and May 11 when its nest was found with eggs at Holland Patent.

The Long-eared owl ranks close to the Barn owl and the Sawwhet owl in its services to agriculture. From an examination of 129 stomach pellets cast by this species, the author found its food to consist of mice (187) and sparrows (5) which agrees very nearly with Doctor Fisher's report from the examination of stomachs sent to the Department of Agriculture.

Asio flammeus (Pontoppidan)

Short-eared Owl

Plate 56

Strix flammea Pontoppidan. Danske Atlas. 1763. 1:617. pl. xxv, figure
Otus palustris DeKay. Zool. N. Y. 1844. pt 2, p. 28, fig. 27
Asio flammeus. A. O. U. Check List. Ed. 3. 1910. p. 169. No. 367
flammeus, Lat., flaming, referring to the general yellowish brown coloration

Description. Ear tufts rudimentary. General ground color *ocherous* to buffy white, *streaked with dark brown*; wing and tail feathers barred with the same; region of the eyes blackish, the eyelids whitish; iris bright yellow; bill bluish black.

Length 13.7-16.5 inches; extent 40-44; wing 11.7-13; tail 5.7-6.2; tarsus 1.75.

This is the "yellowish brown owl" or "Marsh owl" so often seen flying over the marshes early in the evening or on dark days.

Distribution. This is one of our commonest owls, at least in the lowlands and marshy districts far outnumbering all other species, and in the more cultivated portions of the State is more frequently observed than any other owl except the Screech owl. Unfortunately a large percentage is killed early in the winter each year by gunners and thoughtless sportsmen, but where left undisturbed, it must be regarded a common winter visitant on all our extensive marshes and waste fields. During October and November, and again in March and April its numbers are noticeably increased, when the birds from the far north are sojourning with us on their semiannual migrations. As a resident species this owl is quite widely distributed in New York, its presence during the breeding season depending

upon available nesting sites and freedom from persecution. Mr Worthington found a nest on Plum island, Suffolk county, May 7, 1891 (Auk, 10, 301) containing a young bird about half grown, which would give April 1 as the approximate date for eggs. The author photographed a young bird of this species on May 11, 1902, which had recently been taken from a nest near the foot of Canandaigua lake. This nest contained also 8 eggs in various stages of incubation. Mr Savage reports a set of 7 eggs taken near Buffalo by Frank S. Low, April 7, 1898. According to Bruce and Short it breeds quite commonly near Brockport and Chili in Monroe county. But its commonest breeding grounds are on the marshes of the Seneca river above and below Montezuma, and on the wet lands near the eastern end of Lake Ontario.

Habits. The specific names of this bird formerly in vogue — *palustris*, of the marsh, and *accipitrinus*, hawklike, were more appropriate names than Pontoppidan's name which supplants them in accordance with the rules of our Code of Nomenclature; for this is our Marsh owl par excellence and is more hawklike both in appearance and habits than any other of our common species. While traveling about the country I have often seen it sitting on trees and fence posts in broad daylight watching for its favorite prey, or hawking back and forth over the grassy lowlands. It is easily distinguished from the Marsh hawk and other diurnal raptores by its larger head, more wavering flight and the blunter pointed, more "crooked" wings. Mice, mostly field mice, make about 80 per cent of this owl's food, while only 10 or 12 per cent consists of small birds of the open field, mostly sparrows. Its eggs measure about 1.60 by 1.26 inches, of a less shiny white than those of the Long-eared owl. The young are dark brown in color, spotted with ochreous, the face brownish black, and the lower parts dull buff marked with smoky. They remain for 3 or 4 weeks in the vicinity of the nest, which is a rude affair placed on the ground in the midst of the thick marsh grass. This is the most silent of our owls and even when defending itself or its nest, makes only a sharp snapping sound with its beak.

The Short-eared owl is Holarctic in distribution, sharing with the Snowy

owl the distinction of being our only species nonseparable, even by subspecific rank, from the old world forms. It breeds from Alaska and Greenland southward to New Jersey and Kansas, and, in winter, is found from Massachusetts, Ohio and California southward to Cuba and Guatemala.

Strix varia varia Barton

Barred Owl

Plate 54

Strix varius Barton. *Fragm. N. H. Penn.* 1799. 11

Ulula nebulosa DeKay. *Zool. N. Y.* 1844. pt 2, p. 29, fig. 21

Strix varia varia. A. O. U. Check List. Ed. 3. 1910. p. 170. No. 368

strix, Lat., Gr., στρυξ, an owl; *varia*, Lat., variegated

Description. No "horns"; eyes dark brownish black; upper parts umber brown barred with whitish; tail bars 6 to 8; under parts dull white barred on the breast and heavily streaked on the belly with dark brown; face gray with fine dusky concentric rings; bill yellowish. *Young:* More spotted above, barred below.

Length 19.5-24 inches; extent 44-50; wing 13-14; tail 9-10; weight 20-32 ounces.

The absence of ear tufts and the barring of the breast distinguish this species from our other large owls. When I have caught a hurried glimpse of some large owl retreating through the forest or down some ravine, the general grayish brown effect has served to distinguish this species from the more ochereous brown of the Great horned owl; while its superior size, much larger head and grayer tone are sufficiently different from the Long-eared owl, our other woodland species.

Distribution. The Barred owl is found throughout New York State, and breeds wherever it finds swampy woods or forests of sufficient extent to secure it protection from its one great enemy, civilized man. It is undoubtedly the commonest owl in the Adirondacks, and is still common in all the more wooded districts of the State. Although as nearly a strictly resident species as any of our owls, it is most numerous in fall and early winter when the young of the year are scattering in search of hunting grounds, and birds from farther north are seeking a milder climate. The range of our subspecies is from Hudson bay and Newfoundland to Kansas

and Georgia. In New York the nesting season varies from March 12, when fresh eggs have been taken near New York City, to April 1 (Branchport) and May 1 (Herkimer county).

Habits. This is the most vociferous of our owls. Its notes are deep-toned and dismal, usually a combination of *whoos* or *whuas*, sometimes interspersed with sounds like the laughter of demons or "like the horrified shriek of a half-strangled person." The commonest of its performances, which has gained it the name of "eight hooter" among the north woods guides, may be written as follows: *Whoo-who*, *hoo-hoo*; *whoo-who*, *hoo-hooaw*, the last syllable being prolonged and ending in a falling guttural *aw* sound. There can be little doubt that the stories told by pioneers of the blood-curdling shrieks of the "panther" which followed them in the woods are to be attributed to this bird.

The Barred owl, in spite of its size, rarely attacks poultry or the larger game birds, but more than 60 per cent of its food consists of mice and other small mammals, and it is fond of crayfish, frogs and insects. I have known repeated instances of poultry roosting in the trees of a farmyard where these owls were hooting every night about the place without a single fowl being disturbed. About 16 per cent of their food, however, consists of birds.

The nest of the Barred owl is usually in a hollow tree or in the old nest of a crow or large hawk. The eggs are 2 or 3 in number, sometimes 4, and measure about 2 by 1.66 inches.

Scotiaptex nebulosa nebulosa (J. R. Forster)

Great Gray Owl

Plate 34

Strix nebulosa Forster. Philos. Trans. 1772. 62:424

Syrnium cinereum DeKay. Zool. N. Y. 1844. pt 2, p. 26, fig. 29

Scotiaptex nebulosa nebulosa. A. O. U. Check List. Ed. 3. 1910. 171.
No. 370

scotiaptex, Gr. σκοτιξ, darkness, and (probably) πτερόξ, which Prof. D'Arcy Thompson considers equivalent to ἰεραξ, the Eagle owl; *nebulosa*, Lat., cloudy, gray

Description. Very large; no ear tufts; *eyes* and *bill yellow*; upper parts dusky grayish brown, mottled with white in irregular broken bars;

grayish white below with ragged *stripes* of dusky *on the breast*, and *irregular bars on flanks and belly*; face grayish white with narrow dusky concentric rings. This great owl bears only a superficial resemblance to the Barred owl. Though of such large dimensions, its body is smaller than that of the Great-horned owl.

Length 25-30 inches; extent 54-60; wing 16-18; tail 11-12.6.

Distribution. The Great gray owl, closely related to the Lapp owl of Eurasia, inhabits the Boreal forests of North America from Central Alberta and Keewatin northward to the limit of trees. In winter it wanders irregularly southward as far as New York, Ohio, Nebraska and California. In the Adirondacks it is probably more common as a winter visitor than is generally supposed, but throughout the remainder of the State is only of rare and irregular occurrence. The following records, the only ones from this State at my disposal, will indicate the frequency of its visits.

Marcy, Oneida county	February 1875	Ralph and Bagg
Adirondacks	March 1879	Lawrence, N. O. C. Bul. 5, 122
Steuben county	February 10, 1887	Wood, Auk, 5, 110
Watson, Lewis county	December 17, 1889	Miller, Auk, 7, 206
New York State	1889	Bambir, F. & S. 33, 449
White Lake, Oneida county	February 1895	Johnson, Auk, 12, 301
St Lawrence county		Dutcher, Auk, 12:181
Mount Sinai, Suffolk county	(date unknown)	A. H. Helme
Rensselaer county		F. S. Webster
Seneca Castle, Ontario county	January 1907	Ernest Watts

Cryptoglaux funerea richardsoni (Bonaparte)

Richardson Owl

Plate 55

Nyctale richardsoni Bonaparte. Geog. & Comp. List. 1838. 7

Cryptoglaux funerea richardsoni. A. O. U. Check List. Ed. 3. 1910. p. 171. No. 371

cryp'toglaux, Gr. κρυπτός, hidden, and γλαυξ, the little owl of Europe; *funerea*, Lat., funereal; *richardsoni*, to John Richardson

Description. Similar to the next species, but *larger*, fully equaling the Screech owl; the *white spots on head more rounded* and not short streaks

as in *acadica*; *feet buffy, spotted with brown*; under tail-coverts striped with brown; stripes on under parts usually less ruddy than in the next species.

Length 9-12 inches; extent 24; wing 6.6-7.4; tail 4.2-4.7.

Distribution. This boreal species breeds from northern British Columbia, Alberta and the Magdalen islands northward to the limit of trees, being the Nearctic representative of the Palearctic *C. funerea funerea*. In winter it has been taken occasionally as far south as New England, New York, Pennsylvania, Illinois and Nebraska. Only two definite records for New York are before me; the first a specimen taken at Hecla Works (Lowell), Oneida county, February 1893, by J. S. Allwood, and now in the State collection; and the other taken at North Elba, Essex county, about the middle of December 1896, by Ezra Cornell, jr.

***Cryptoglaux acadica acadica* (Gmelin)**

Saw-whet Owl

Plate 55

Strix acadica Gmelin. Syst. Nat. 1788. 1:296

Ulula acadica DeKay. Zool. N. Y. 1844. pt 2, p. 30, fig. 23

Cryptoglaux acadica acadica. A. O. U. Check List. Ed. 3. 1910.
p. 172. No. 372

acadica, of Acadia

Description. The smallest New York owl; no ear tufts; upper parts brown, with *short white streaks on front and top of head*, and larger white spots on back of head, scapulars and back; the wing and tail feathers spotted with white on either web, forming interrupted bars; under parts whitish striped with reddish brown; face whitish with a blackish space around and in front of the eye, border of the disk dark brown spotted with white; *feet plain buffy white*; bill blackish; eyes yellow. *Young:* Upper parts and forward portion of lower parts plain *chocolate brown*; rest of under parts *brownish yellow*; no streaks; *face sooty brown*.

Length 7.25-8.5 inches; extent 17-18; wing 5.2-5.9; tail 2.7-3.2; tarsus .75.

Distribution. This owl has been regarded as rare, or at least uncommon, in nearly all the local lists of New York birds, but its retiring habits are undoubtedly responsible for its not being rated as fairly common in many portions of the State. It is perhaps less common than the Long-

eared owl in southern New York, but more common than that species in the Adirondacks. A rather decided migratory movement has been noticed by various observers. In western New York I have seen evidence of migration in the fact that this bird is often killed by sportsmen in our woodcock coverts during October and early November, and that it is frequently observed by bird enthusiasts during April and early May. Of 13 Long Island records in Mr Dutcher's notes, 11 occur between October 23 and December 31, while the majority of all New York specimens were taken in November and December. Mr Bruce reported it as breeding near Broekport, and Mr Helme has taken 2 sets of 5 eggs at Miller's Place, L. I. Ralph and Bagg record 5 sets of 6 and 7 eggs from Oneida and Herkimer counties, the dates ranging from March 25 (1886) to April 30 (1889). I have seen specimens in nestling plumage from Fourth lake and Honnedaga, but can find no other records of nesting within the State, although Doctor Ralph considered it a fairly common breeder on the borders of the Adirondack forests. The range of the Saw-whet owl is from British Columbia, Manitoba, Quebec and Nova Scotia south to Arizona, Nebraska, Indiana and Maryland; in winter as far south as Louisiana and casually to Guatemala.

Habits. The little Saw-whet or Acadian owl is an inhabitant of the forest, preferring a swampy woods, and remains concealed during the day in a hollow tree, a woodpecker's hole or among dense evergreens. During migrations it is often found in dense swampy coverts of alders and tangles of vines. It is very unsuspecting and will frequently permit itself to be stroked with the hand or captured without resistance. During the mating season its curious notes are heard in the wood which has been selected for a nesting site. "The call is a frequently repeated whistle, sometimes uttered in a high and again in a low key, and given in either a slow or a rapid cadence. Generally it is commenced slowly and gradually becomes faster and faster till it ends quite rapidly. This call, which is the only one I have ever heard them give, sounds not unlike the noise made during the operation of filing a saw and it is easily imitated" (Doctor Ralph

in Bendire's Life Histories). It feeds almost exclusively on mice and insects, rarely attacking birds. It is itself often destroyed by the Barred owl and other carnivorous species, as is shown by the stomach examinations made by the Biological Survey. I have also found the feathers of this little owl on several occasions where it had been devoured by some stronger antagonist, and Mr Dutcher mentions a similar occurrence in his Long Island notes.

The little Saw-whet usually lays her eggs in the deserted hole of a woodpecker. Sometimes an old squirrel nest or a crow's nest is utilized, and it has been known to occupy a hollow log or box artificially constructed. The eggs vary from 4 to 7 in number, oval in shape, pure white without gloss, and measure about 1.20 by 1 inch.

Otus asio asio (Linnaeus)

Screech Owl

Plate 56

Strix asio Linnaeus. Syst. Nat. Ed. 10. 1758. 1:92

Bubo asio DeKay. Zool. N. Y. 1844. pt 2, p. 25, fig. 25 and 26

Otus asio asio. A. O. U. Check List. Ed. 3. 1910. p. 172. No. 373

ótus, Lat., Gr., ὄτις, an eared owl; *a'sio*, Lat., a kind of horned owl

Description. Small; ear tufts conspicuous; coloration dichromatic. *Gray phase:* Upper parts brownish gray, everywhere mottled and dappled with lighter and darker shades and with fine shaft streaks of blackish; spots on scapulars form a whitish or buffy band; wings and tail barred distinctly but not sharply with dusky and whitish; under parts grayish white with fine streaks and fine wavy crossbars of blackish; a few touches of rufous; prevailing color *gray*. *Red phase:* *bright rufous* or rust red where the gray phase is brownish or dusky gray, the fine shaft stripes of the feathers blackish as before. Specimens intermediate between the red and gray phases are quite common. Both red and gray owls may come from the same brood. The particular phase of coloration of each individual shows in the first plumage, but the color may be controlled somewhat by the food given in captivity. In New York my experience would show that the gray phase is at least 10 times as common as the red, and it has happened (perhaps merely happened) that the red owls which I have dissected have been feeding on crayfish. The fact that the red phase is more common in the Mississippi valley might possibly be correlated

with the abundance of crayfish in that region. *Nestlings*: Covered with white down. *Fledglings*: Uniformly and finely crossbarred with dusky and grayish white.

Length 7.5-10 inches; extent 22; wing 6-7.2; tail 3-3.5; weight 4-6 ounces.

Distribution. The Screech owl inhabits eastern North America from Minnesota, Ontario and New Brunswick to Texas and Georgia; represented in the remainder of temperate and tropical America by closely allied forms. In New York it is generally distributed except in the spruce and balsam belt, where it is mostly absent, since it is an austral species, but reaches the northern limit of the Transition zone. It is our commonest owl, averaging from 1 to 3 pairs for each square mile of country, and is as strictly resident as any native species. It prefers orchards, groves and shade trees to the depths of the forest and I have found it nesting within the limits of New York City, Rochester, Buffalo, Geneva and Canandaigua.

Habits. The Screech owl remains concealed during the day in a hollow tree or dense evergreen. I have often discovered him perched within the entrance of some jagged hollow with his ear tufts raggedly elevated and his eyelids drawn obliquely together, apparently watching the progress of events as the day wore by. If approached too closely he seemed to melt away so gradually that no motion was evident. As soon as the dusk of evening comes, he issues forth and utters his



Screech owl Photo by Guy A. Bailey

tremulous, plaintive, mournful whistle. This note seems to be a hunting cry or a sociable halloo as well as a mating call, for it is heard at all times of year. I have often called them to me by imitation of their notes, and have seen them strike mice and crickets and cicadas immediately after they had called. This note sounds mournful, melancholy and dismal to those who are in a mournful state of mind, yet in fact has nothing to do with sorrow or melancholy in the bird's sensorium, but is as much the expression of a healthy, happy, vigorous and sociable personality as the chickadee's cheery note. By watching these little gnomes calling back and forth to each other and plying their helpful trade about my camp, I have come to welcome their notes and their presence as heartily as the Robin and the Phoebe. Their voices are heard not only in the evening but at day-break, and throughout the moonlight nights. Sometimes where mice and insects are scarce, the screech owls become addicted to the bird-killing habit, when the settler must use his best intelligence as judge and executioner.

Like other species, the little Screech owl, when approached, instinctively assumes a curious appearance to escape observation. The upper figure in Mr Fuertes's painting (plate 56) is by no means an extreme illustration of this attitude. While passing through a thicket, I once came upon an old Screech owl and four young just from the nest, all seated in a dense shrub slightly above my reach. They had posed in the most fantastic shapes and resembled jagged strips of bark or torn pieces of a hornet's nest more than birds. One that was captured puffed himself up like a great cat and hissed and opened his eyes and snapped his beak in a fierce and threatening manner.

The Screech owl pairs in March and April. The site chosen for incubation is a hollow tree, a deserted Flicker's hole, or a cavity erected for the owl's accommodation. The eggs are laid on the chips or rubbish in the bottom of the hollow, 4 to 7 in number, usually 4 or 5, white as with all owls, and average about 1.42 by 1.18 inches in size. In this State they are laid from the 1st to the 25th of April.

Bubo virginianus virginianus (Gmelin)*Great Horned Owl*

Plate 57

Strix virginiana Gmelin. Syst. Nat. I. 1788. 1:287*Bubo virginianus* DeKay. Zool. N. Y. 1844. pt 2, p. 24, fig. 22*Bubo virginianus virginianus*. A. O. U. Check List. Ed. 3. 1910. p. 175.
No. 375*bubo*, Lat., the Eagle owl; *virginianus*, of Virginia

Description. Very large, conspicuously "horned." Upper parts *ocherous*, profusely marbled and speckled with blackish; wings and tail barred with dusky; *under parts* lighter *ocherous*, more or less overlaid with whitish, *finely barred with black*; a necklace of black blotches on breast; *throat patch white*; bill blackish; eyes yellow, larger than those of any other native bird. The large size, great head, long ear tufts, and general yellowish brown color effect, distinguish this bird at a distance from any other species.

Length 21-24 inches; extent 50-60; wing 14-16; tail 8-10; tarsus 2-2.3; weight 3-4.5 pounds.

Distribution. The Great horned owl is a permanent resident throughout New York State. It is no longer common, however, except in the wooded districts. The early settlers were too well acquainted with its disastrous raids upon the chicken roost, and it still imposes a heavy toll upon all kinds of poultry in the rural districts. Next to the Screech owl it is the best known member of the family, and the owl cages in every "zoo" are always well supplied with specimens of this feathered pirate. Late in the fall and again in February there seems to be a decided increase in its numbers and several individuals are occasionally found together in thick clusters of evergreens or even in the same tree, which fact is probably to be explained by the partial migration of the species from the northern portion of its range. Our subspecies inhabits eastern North America from Wisconsin, Quebec and Newfoundland southward to Florida and Texas. Other subspecies are found in nearly every other portion of North America and in South America.

Habits. The Great horned owl is even more nocturnal in habit than the Barred owl, but in some portions of the country is said to hunt more

or less on cloudy days, especially when it has young in the nest. It certainly can see well enough to fly with ease through the trees in brightest noonday when driven from its diurnal retreats. If they are occupying the old nest of a hawk or crow for breeding purposes, I have usually found that the mother bird will leave the nest quietly while danger is yet far off, and return stealthily when the intruders are past. Even when in hollow trees they will usually act in the same manner after having been driven once or twice from the nest. The home of this owl is in some extensive wooded swamp, or rugged hillside, or deep ravine, but if undisturbed it will sometimes nest for years in groves or scattered growths of trees near farmhouses or the outskirts of villages. The accompanying photograph is of such a nest near the village of Geneseo. The growing scarcity of hollow trees suitably situated for nesting sites and the almost absolute certainty of the destruction of broods reared in open nests, everywhere except in the wildest districts, has been an important factor in the gradual decline of this species in New York, and the eager warfare of sportsmen and farmers has completed the extirpation of all nesting pairs in the thickly settled districts. The general scarcity of this bird and of the Red fox in the country now occupied by the Ring-neck pheasant has undoubtedly helped materially the introduction of that species, as well as the increase of the Cotton-tail rabbit. This owl kills larger prey than any other of our common Raptores, fully equaling the Gyrfalcon in its prowess as a hunter. Many are the full-grown fowls which I have seen dead from his nightly raids, and I once lost a hen turkey that was attacked while brooding her young, and decapitated with ease. This was the work of a large female owl, as was demonstrated by the steel trap set by the carcass on the ensuing night. They also feed on mice and other small quadrupeds, though not always on small ones, for besides rabbits they are fond of muskrats, woodchucks, and especially of skunks. I have frequently examined specimens which had recently partaken of the savory flesh of *Mephitis*, and have seen the evidences of such feasts in the fields and woods. Mr W. E. Lauderdale has called my attention to their habit of feeding

only the soft parts of mice to the very young nestlings, a habit which is probably practised by most of our birds of prey.

The voice of this owl is deeper toned and more sonorous than that of the Barred owl and uttered with more even intonation though less regular in form and accent, the usual cry consisting of 6 syllables on the same key, which has gained it the name of six hooter in some parts of the State. This cry, which may be written *whoo, hoo-hoo-hoo, whoo, whoo,*



Photo by W. E. Lauderdale, jr
Great horned owl's nest and eggs in hollow tree

I have frequently mistaken for the distant baying of a large dog, or even for the tooting of a freight engine in the distant valley. My early recollections of the "sugar bush," where I was occasionally permitted to watch the boiling sap throughout the moonlight nights of early March, are inseparably associated with the wonderful vocal performances of the Great horned owl, answered and reechoed between the hills, until they seemed at times to pervade the air completely.

This owl nests early in the season, fresh eggs in this State usually

being found from February 20 to March 15. They are 2 or 3 in number, white, subspherical in shape and measure about 2.22 by 1.80 inches. As indicated above, they are commonly laid in a hollow tree on the litter at the bottom, or in an old hawk's nest, and Mr C. F. Stone reports a nest found on the shelf of a precipitous cliff. The nestlings are covered with white down, the fledglings ochereous buff, finely barred with dusky.

Nyctea nyctea (Linnaeus)

Snowy Owl

Plate 54

- Strix nyctea* Linnaeus. Syst. Nat. Ed. 10. 1758. 1:93
Surnia nyctea DeKay. Zool. N. Y. 1844. pt 2, p. 22, fig. 20
Nyctea nyctea. A. O. U. Check List. Ed. 3. 1910. p. 176. No. 376
nyctea, from $\nu\acute{\kappa}\tau\acute{\iota}$, night

Description. *Large, no ear tufts, feet very thickly feathered. White, more or less barred with dusky; face, throat and upper breast without markings; eyes yellow; bill black. Males are much smaller and whiter than females. I have seen a few specimens that were nearly pure white, with only a few inconspicuous dusky spots, but females and young of the year are quite regularly marked with narrow transverse bars below and spotted or brokenly barred above.*

Length 22-25 inches; extent 54-60; wing 16-19; tail 9-10.

Distribution. The home of the Snowy owl is on the barren grounds of the Holarctic realm. In America it breeds as far south as central Ungava and Keewatin and wanders southward in winter as far as the Middle States, rarely to Carolina and Louisiana. A few specimens are taken in New York nearly every winter, but at intervals of several years there is a decided invasion, as in the winters of 1876-77, 1882-83, 1889-90, 1901-2, when dozens of specimens were collected in various parts of the State, notably on Long Island and near the shores of Lake Ontario. My earliest record of arrival is October 20, 1890, a large female captured at Shortsville; and the latest a very white male bird killed at Canandaigua April 11, 1907. The majority of New York records range between November 11 and February 6.

This species hunts by day nearly as well as in the dusk of evening,

and duck hunters are sometimes surprised by its descending upon their decoys while they are concealed in their blinds. It is rarely numerous enough in this State to do much damage, but destroys some grouse, rabbits and pheasants, although field mice are its principal food while with us. As a species it should be ranked as more injurious than the Barred owl, but much less harmful than the Great horned owl. In its native haunts its food consists principally of lemmings, mice, hares, ptarmigan, water-fowl and fish.

***Surnia ulula caparoch* (Muller)**

Hawk Owl

Plate 55

Strix caparoch Muller. *Natursyst. Suppl.* 1776. 60

Surnia funerea DeKay. *Zool. N. Y.* 1844. pt 2, p. 21, fig. 19

Surnia ulula caparoch. A. O. U. Check List. Ed. 3. 1910. p. 177. No. 377^a
surnia, Mod. Gr., σῦρνιον, the European Tawny owl; *ulula*, Lat., a kind of owl, from *ululare*, to howl; *caparoch*, name given by natives of Hudson bay to this bird, applied by Brisson in 1760

Description. No ear tufts; *tail long and rounded*, feet densely feathered, size medium. Upper parts *bistre brown, spotted with white*; wings and tail barred with white; *under parts white, regularly and narrowly barred with reddish brown*; face white bordered with blackish; eyelids, loreal bristles and nuchal band blackish; *eyes and bill yellow*.

Length 15-16; extent 32-34; wing 9; tail 7.

Distribution. This bird, the Neartic subspecies of *S. ulula*, breeds from British Columbia, Montana and Ungava northward to the limit of trees, and winters as far south as Nebraska, Indiana and Rhode Island. In New York, especially in the northern counties, it is not rare as a winter visitant, but not so common as the Snowy owl. Of 23 New York records before me 1 is from Kings county (1863), 1 from Saratoga (1888), 3 from Onondaga, 1 from Oneida (1885), 2 from Monroe (1889), 2 from Orleans, 1 from Ontario, 1 from Yates (1875), 1 from Niagara, 2 from Cayuga, 4 from Lewis, and 4 from St Lawrence. These are nearly all reported as "winter" or "November" specimens. Doctor Merriam records 2 definitely — Lowville, October 24, 1877, and November 16, 1877. Mr Ashbury reports 2 males, Conquest, November 27, 1902.

In habits the Hawk owl is the most diurnal of the family. It is usually seen watching for its prey from some exposed perch and, when disturbed, pitches downward and flies rapidly away over the tops of the grass or bushes, gliding abruptly upward when alighting. Its note is "a shrill cry uttered generally when the bird is on the wing" (Fisher).

Speotyto cunicularia hypogaea (Bonaparte)

Burrowing Owl

Strix hypogaea Bonaparte. Amer. Orn. 1825. 1:72

Speotyto cunicularia hypogaea. A. O. U. Check List. Ed. 3. 1910.
p. 177. No. 378

speotyto, Gr., σπέτος, cave, and τυτώ, a hoot owl; *cunicularia*, Lat., a burrower; *hypogaea*, Lat., = Gr. ὑπόγαιος, underground



Burrowing owl. *Speotyto cunicularia hypogaea* (Bonaparte). From specimen in Am. Mus. Nat. Hist. $\frac{1}{2}$ nat. size

Description. Small; no ear tufts; legs long and scantily feathered; feet bare except for a few bristles. Upper parts grayish brown profusely spotted with white; under parts whitish spotted with brown in broken bars.

Length 9.5 inches; extent 23; wing 6.5-7.

Distribution. The little burrowing owl is purely an accidental visitant in New York. There is only one record of its occurrence, a specimen taken in New York City, and reported in Forest & Stream 5, 4, August 12, 1875. It had wandered far from its home, for the species inhabits the Western States from British Columbia and Manitoba south to Louisiana and Panama. It lives mostly in the burrows of Prairie dogs and other rodents, but the subspecies which lives in southern Florida is said to excavate its own nesting holes.



Carolina paroquet. *Conuropsis carolinensis* (Linnaeus). From Audubon, *Birds of America*

Order **PSITTACI**

Parrots, Macaws, Paroquets etc.

Conuropsis carolinensis (Linnaeus)

Carolina Paroquet

Psittacus carolinensis Linnaeus. Syst. Nat. Ed. 10. 1758. 1:97
Caprimulgus carolinensis DeKay. Zool. N. Y. 1844. pt 2, p. 33. Extralimital
Conuropsis carolinensis. A. O. U. Check List. Ed. 3. 1910. p. 179. No. 382
conuropsis, Gr., κώνος, cone, ὄψις, tail, ὄψις, appearance; *carolinensis*, of Carolina

Description. Tail long and wedge-shaped, the feathers tapering; face more completely feathered than in most parrots; bill very stout and broadly rounded; tarsi very short; wings pointed. Color green; head and neck yellow; face orange red; bill whitish.

Length 12.5-13.5; extent 21-23; wing 7-8; tail 6-7.

Distribution. The Carolina paroquet formerly inhabited the eastern United States from the Great Lakes to the Gulf of Mexico, westward to eastern Colorado and Texas. Now it is restricted to a few localities in Florida, the continued persecution of plumage hunters, bird catchers, fruit growers and "sportsmen" having brought it already to the verge of extermination. In New York State this bird is only of historic interest. Audubon in his *Birds of America* records it "as far northeast as Lake Ontario" (vol. 4, p. 309), and DeKay mentions the appearance of a flock of Paroquets in winter, 1795, about 25 miles northwest of Albany (see reference above).

Order COCCYGES

Cuckoos, Kingfishers etc.

Family CUCULIDAE

Cuckoos

Zygodaetylous, the fourth toe being permanently reversed; palate desmognathous, basipterygoids wanting; two carotids; two intestinal coeca; ambiens, accessory femorocaudal, semitendinosus and its accessory present; oil gland bare; feathers without aftershafting; tail feathers usually 10 in number; spinal feather tract forked in the scapular region.

Cuckoos are famous alike for their migratory habits, loud explosive voices and the custom of depositing their eggs in the nests of other birds. This parasitic nature, however, is strictly characteristic only of several Old World species, especially the European Cuckoo, our native Americans rarely being guilty of the practice. The family is cosmopolitan in distribution, but of the 150 or more species, only 2 are found within the limits of New York State. These cuckoos are quite distinctive in appearance. Their long slim forms and soft unmarked colors, as well as the gently curved beaks and long rounded tails, furnish such an individual appearance that they at once impress even the casual observer as unusual. Our

cuckoos build nests of their own, in tangles or thick bushes near the ground, although their architecture is rather loose and stragging, and the interior of the nest only slightly hollowed, so that the eggs rest upon it as on a small platform. The eggs are usually deposited at intervals, so that young birds and fresh eggs may sometimes be found in the nest at the same time. This practice of laying at intervals might readily be conceived as the beginning of the parasitic habits of some species, and even our native cuckoos occasionally drop their eggs in the nests of other birds, as has been reported by several New York observers. Personally, I have rarely found cuckoos' eggs in other birds' nests, excepting that the eggs of the Yellow-billed species I have found in the nest of the Black-billed cuckoo.

The economic value of cuckoos can not be questioned. Of all our native birds they seem the most addicted to caterpillar diet, even choosing the hairy or spiny species, such as the web worms that are shunned by many of our insectivorous birds. They undoubtedly furnish the best means of holding in check outbreaks of leaf-eating larvae in the thickets and shrubbery which border our orchards and gardens, and so prevent them from spreading to cultivated trees. It is unfortunate that these birds are not more abundant, but their numbers might be increased by offering them suitable tangles and thickets in which to make their nests at the corners of our farms and cultivated fields. An account of the food of cuckoos and their value to agriculture is found in Bulletin 9, Biological Survey, United States Department of Agriculture.

Coccyzus americanus americanus (Linnaeus)

Yellow-billed Cuckoo

Plate 58

- Cuculus americanus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:111
 Coccyzus americanus DeKay. Zool. N. Y. 1844. pt 2, p. 194, fig. 30
 Coccyzus americanus americanus. A. O. U. Check List. Ed. 3. 1910.
 p. 181. No. 387
coccyzus, Gr., $\kappa\omicron\kappa\kappa\upsilon\zeta\omicron\varsigma$, presumable noun corresponding with the verb $\kappa\omicron\kappa\kappa\upsilon\zeta\omega$, to cuckoo

Description. Brownish gray with bronzy luster; under parts dull white, throat and thighs tinged with pale ash; *wing feathers largely rufous*, especially on the inner webs, showing well when wings are spread; *tail feathers black conspicuously tipped with white*, except the central pair which are the color of the back; bill blackish, except the greater portion of *lower mandible* which is *yellow*; feet dark leaden color.

Length 11.5-12.7 inches; extent 15.7-17; wing 5.4-5.8; tail 6-6.25; bill about 1.

The slender form, long tail, soft satiny brown back and white breast of both the cuckoos at once distinguish them from our other birds. The present species differs from the Black-billed cuckoo not only in the color of the bill, but more especially in the cinnamon-rufous color of the wings and the blackish tail feathers broadly tipped with white — marks which serve to identify it conclusively at some distance, particularly when flying.

Distribution. The Yellow-billed cuckoo is a fairly common summer resident of the Carolinian and Transition zones of New York State, more numerous in the southern portion of the State, but entirely absent from the Adirondacks and Catskills, except the outskirts and valleys. It arrives in the spring from the 1st to the 10th of May in the southern counties, and a few days later in the more northern districts, and disappears again between September 20 and October 15 to pass the winter in South America. Soon after its arrival its call is heard from the copses, hedgerows, orchards, swampy thickets and vine-clad hillsides which it chooses to inhabit. This call is not so distinctly enunciated as the note of the European cuckoo, so perfectly imitated by the well-known cuckoo clocks, but, nevertheless, of the unmistakable cuckoo quality, consisting of a series of loud and explosive gutturals resembling the syllables *kuk-kuk*, *kuk-kuk*, repeated many times and ending with the syllables *kyow*, *kyow*, repeated from two to six times. Occasionally it utters a low, somewhat liquid *coo*, *coo*, *coo*, *coo*, resembling the note of the Least bittern. The former call may be heard for a long distance, but it is often very difficult to determine either how far away it really is or in what direction.

Except for its loud call this bird is very unobtrusive in habits. One is rarely aware of its presence except by a passing shadow or the rustle

of a leaf as it alights, or as a slim, soft colored shape glides noiselessly into the tangle beside one, or as it sits sedately among the foliage peering about for some luckless insect. This and the next species are our only birds that seem to be really fond of hairy caterpillars and they may often be found seated beside their tents, or quietly pursuing them among the branches and swallowing them by scores. From 3 to 4 dozens of caterpillars, whether smooth or hairy, seem to be a full meal for a cuckoo, and as they



Photo by Clarence F. Stone

Yellow-billed cuckoo's nest with eggs and young

need at least two meals each day, it is easy to see that they render untold service to the agriculturist.

The Cuckoo's nest is placed among the denser foliage of an apple tree, a small shrub, or a tangle of vines, from 2 to 10 feet from the ground. It is a rude platform of sticks, nearly flat, lined with grasses, leaves and dry catkins. The eggs, varying from 3 to 7 in number, are deposited at intervals of 2 to 4 days, beginning from May 20 to June 15, but occasionally nests with eggs are found as late as the middle of August. Rarely this

Cuckoo lays her eggs in nests of the next species or of the Robin and Cat-bird, thus showing some slight approximation to the notorious habit of the European cuckoo. The eggs are elliptical in shape, pale bluish green in color, and average about 1.20 by .90 inches in size. Frequently nests are found containing at the same time young birds, partially incubated eggs and perfectly fresh ones.

Coccyzus erythrophthalmus (Wilson)

Black-billed Cuckoo

Plate 58

Cuculus ^{erythrophthalmus} Wilson. Amer. Orn. 1811. 4:16. pl. 28, fig. 2

Coccyzus erythrophthalmus DeKay. Zool. N. Y. 1844. pt 2, p. 195, fig. 31

A. O. U. Check List. Ed. 3. 1910. p. 182.
No. 388

erythrophthalmus, Gr., ἔρυθρός, red, ὄφθαλμός, eye, referring to the red eyelids (the eye itself, however, is not red)

Description. *Upper parts soft grayish brown* tinged with bronzy or greenish; *under parts white*, somewhat tinged with buffy on throat; tail feathers narrowly tipped with white, and with a narrow subterminal blackish space; *bill black*, bluish at base of lower mandible; *eyelids red*; iris dark brown; feet leaden bluish.

This species is readily distinguished from the preceding by the color of the bill, wings and tail, both the latter being of the prevailing color of the upper parts.

Length 11.5-12.7 inches; extent 16-17.5; wing 5.2-5.7; tail 6.25-7; bill .97.

Distribution. The Black-billed cuckoo is a fairly common summer resident of New York, and is generally distributed except in the colder portions of the State (Canadian zone), which it does not penetrate, but is commoner than the preceding species about the borders and in the valleys of the Adirondack district. In western New York also it is slightly commoner than the Yellow-billed cuckoo, but in the Carolinian zone scarcely outnumbers that species. It arrives from the 1st to the 10th of May in the lower Hudson valley, and from the 10th to the 20th in the

colder districts. In the fall it disappears between the 10th of September and the 12th of October, to pass the winter in South America.

Habits. In habits it is very similar to the preceding species, but its voice is much softer, "less wooden," and its long call is introduced by a bubbling or gurgling note, and the *cow* or *kyow* notes are connected; while the short call sounds more like *kuk, kuk, kuk* than like the corresponding *coo, coo, coo* of the Yellow-bill. Around the author's camp on Canandaigua lake the call of this bird is commonly heard at night, especially when the moon is up, and Mr Gerald H. Thayer writes that near Mt Monadnock he has frequently heard it at night while the bird was flying about in the air at a great elevation.

Its nest is of similar location and construction to that of the Yellow-bill, but is more compactly built and is often lined with moss and pieces of bark. The eggs are similar in number and in manner of deposition, but are smaller, more oval in shape, and of a deeper greenish blue color, measuring from .90 to 1.18 (average 1.15) by .75 to .90 (average .84) in breadth. As in the case of the Yellow-billed cuckoo, they are occasionally found in the nests of other birds.

Family **ALCEDINIDAE**

Kingfishers

Feet small, syndactylous, the third and fourth toes coherent; inner toe short, more or less rudimentary; tarsus very short; tibia small, bare near the lower extremity; bill long, deeply cleft; wings long; primaries 10, fifth cubital present; tail feathers 12; no ambiens muscle; notches of the sternum 4 in number; 2 carotids; tongue rudimentary; oil gland tufted; no aftershaft; no coeca.

This large family, like the cuckoos, is cosmopolitan in distribution, consisting of about 200 species, mostly found in the eastern hemisphere, especially in Australia. They are largely birds of bright or conspicuous plumage, harsh voice, solitary habits, piscivorous or insectivorous diet, and nest in holes, the insectivorous species often nesting in hollow trees. The eggs are several in number, white and broadly oval in shape. The

young are bare when hatched and long cared for in the nest like those of perching birds.

In economic value, kingfishers can not compare with the cuckoos, to which they are somewhat related. They destroy a few aquatic insects which are unquestionably injurious in habits, like the water tiger or larvae of the *Dytiscus* and the larvae of other carnivorous insects, which do injury to the young of fish and frogs; but the principal portion of the Kingfisher's diet consists of small fishes, not only the more sluggish varieties like the common minnows and chubs of our warmer waters, but even brook trout and young bass often fall victims to the skill of this unrivaled fisherman. Only one species is known in the eastern United States, although the Texas Kingfisher has been reported from the vicinity of New York City. The latter was undoubtedly an escape from captivity.

Ceryle alcyon (Linnaeus)

Belted Kingfisher

Plate 58

- Alcedo alcyon* Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 115
 DeKay. Zool. of N. Y. 1844. pt 2, p. 45, fig. 40 and 41
Ceryle alcyon A. O. U. Check List. Ed. 3. 1910. p. 183. No. 390
céryle, Gr., κηφέλιος, kingfisher; *alcyon*, ἄλκυων, halcyon or kingfisher

Description. *Head crested, bill very long and stout, tail short and broad, wings long and pointed, tarsus very short, front toes partially united to form a fleshy sole. Upper parts and a broad band across upper breast and the sides bluish gray; rest of under parts white; a broad white collar; wing and tail feathers blackish, spotted or broken-barred with white; a white spot in front of eye; the female has a rufous band across upper belly and along the sides.*

Length 12.5-14.75 inches; extent 22-23; wing 6-6.5; tail 3.6-4.2; tarsus .44; bill 2; weight 5-6 ounces.

Distribution. The Belted kingfisher is a common summer resident, and breeds in every county of New York State. Both along the coast, in the Hudson valley and in western New York it is also a winter resident in localities where there is open water, though much less common than in the summer. The migratory birds arrive in different parts of the State

from March 20 to April 10, and the greater number disappear from October 20 to November 20. The species winters from Massachusetts, Illinois and British Columbia southward to Northern South America; and breeds from the gulf coast northward to about the limit of trees.

The haunts of the Kingfisher are the lake shore, the river, the pond and brook. Wherever there is water with finny inhabitants this solitary fisherman makes his appearance with the advent of springtime, and seldom is found far from these localities except when crossing from one stream to another or when going to and from the nesting site which is frequently in the side of some gravel pit or stone quarry half a mile or more from the fishing grounds. His favorite perch is on a dead limb, spile or boathouse overlooking some pool well stocked with minnows, whence he darts with sudden plunge after his unsuspecting prey as it approaches the surface. Frequently he hovers in the air until he sights a favorable mark for his skill. I have examined hundreds of fishes taken by this bird, and can not find that it prefers any special species, except that the various kinds of minnows, chubs, dace, young suckers, trout and perch are taken oftener than such spiny species as sunfish and bullheads. It also feeds to some extent on aquatic insects, small frogs, crayfish and salamanders. When the Kingfisher rises from the water with his catch he utters a triumphant rattle and shaking the water from his plumage seeks his favorite stand, erects his crest, tilts his tail, proceeds to stun or beat the life out of his squirming victim against the perch, and then swallows it head first. Most of the fish captured by the Kingfisher do not exceed 3 or 4 inches in length, but on a few occasions I have seen them try to devour brook trout 6 inches long. One of the duties entrusted to me at the age of 10 to 15 years was to free my father's trout pond from the scourge of kingfishers. It was supposed that the Kingfisher had an insatiable appetite, for he was always at the pond devouring the fingerling trout or the minnows which were useful as food for the larger fish. But I soon found that, although the Kingfisher has a good appetite, it is not the appetite of the Kingfisher that is inexhaustible, but the stock of kingfishers. For, no matter how

unerringly I did my duty as public executioner, there was always a Kingfisher carrying on the war against the fingerlings whenever I arose from my night's rest or returned from a day's excursion. Sometimes two kingfishers were on the pond at the same time, but they were always more or less hostile to each other except in the case of parent Kingfisher and young which often came together just after the young were out of the nest. Many a time I have been near this trout pond when a new Kingfisher arrived. They came mostly by two routes, either up the brook at a moderate elevation,



Young kingfishers

Photo by James H. Miller

or flying overland at a height of 100 to 300 feet. When coming in from the overland journey they rushed down in a wide, sweeping course, uttering an unusually loud, shrill, rattling scream, settled on some elevated perch, erected to the utmost their long crests, repeated *sotto voce* the announcement of arrival or discovery, tilted the short tail to its utmost, bowed with a rather ungainly sweep at the pond, and forthwith began to consider the prospects of fishing.

Soon after arrival from the south kingfishers pair and begin to excavate a burrow in the bank of some stream, sandpit, gravel pit or stone quarry. The opening is about $3\frac{1}{2}$ inches in diameter and is commonly placed well up toward the top of the bank. From the opening the hole rises slightly as it passes backward, and after penetrating the bank to a depth varying from 4 to 8 feet the end is enlarged into a roomy chamber of oval shape, about 8 or 10 inches in diameter. Here the Kingfisher forms her nest of fish bones and scales ejected from her stomach. The eggs are usually 5 to 8 in number, similar to those of a domestic pigeon in size and shape, averaging 1.34 by 1.05 inches. When the old Kingfisher has commenced to incubate the eggs, she will usually defend them against intruders, as many a small boy who has tried to unearth her treasures can testify from the wounds which her daggerlike bill has inflicted.

Order **PIC1**

Family **PICIDAE**

Woodpeckers

Bill chisel-shaped; tongue very long and extensible, usually barbed at the tip and the base prolonged along the hyoid bone, 2 long rope-like extensions of which reach upward and forward over the skull to near the base of the bill; tail feathers stiff and 12 in number; tarsi scutellate in front and reticulate on the sides and rear; toes scutellate on top, their basal joints short; 2 anterior toes; 2 posterior toes; the claws long, curved and sharp; scansorial in habit; flight undulating; voice usually sharp and loud; food mostly boring insects, fruits and nuts; nest excavated in trees; eggs pure white, rather broadly ovate; young bare and helpless.

New York woodpeckers are so clearly distinguishable from any birds to which they are related that everyone knows this family, although in other parts of the world they are more closely related to other picarian families. It is safe to say that more people can distinguish woodpeckers than the members of any other family unless it be the Owl.

The following summary of the food of woodpeckers is collected from Bulletin 37 of the Biological Survey, United States Department of Agriculture.

Food of woodpeckers

	Larvae of beetles—wood borers	Other beetles, mostly m-jurons	Beneficial beetles, ground beetles and tiger beetles	Caterpillars, mostly wood-boring	Ants	(Other hymenoptera)	Bugs, including scales and plant lice	Grasshoppers, crickets, cockroaches etc.	(Other insects, spiders and millipeds)	Total animal food	Cultivated fruit	Poison sumac and poison ivy	Other wild fruits	Wax and seeds	Corn and other grain	Cambium; inner bark and rubbish	Total vegetable food
Hairy woodpecker.....	31+	9+	.60	19	17	1+	2 41	2	3.5	77.07	0	some	5.25	4.5	1.37	trace	22.33
Downy woodpecker.....	11+	7.2	.80	16.5	21.36	1.18	8.57	2	6.8	76.05	0	5.93	5.85	8.2	1.06	2.31	23.95
Arctic three-toed woodpecker.....	64.25	3.41	..	12.88	6.35	..	..	..	1	88.69	0	..	+	..	..	10	11.31
American three-toed woodpecker.....	60.66	10.39	..	14.45	8.29	..	..	..	1	94.66	0	..	+	..	..	8	5.94
Pileated woodpecker.....	22.01	..	..	some	39.41	..	..	..	10.96	72.88	0	+	22.56	+	..	+	27.12
Red-headed woodpecker.....	some	11.66	7.34	1.63	5.17	1.63	1.89	3.58	1	33.83	3.3	+	16.90	23.26	4.25	+	66.17
Red-bellied woodpecker.....	some	8.46	.86	2.88	6.45	1.45	1.86	5.83	2.29	30.94	+	2.45	27.28	30.70	3.99	..	69.06
Flicker.....	some	3.52	1.62	1.28	49.75	.04	85	2.39	1.49	60.62	+	9.25	20.28	1.79	1.12	+	39.08
Yellow-bellied sapsucker.....	..	4.54	01	..	34.31	2.64	some	..	5.44	49.31	..	..	28.06	6.99	..	16.54	50.69

Dryobates villosus villosus (Linnaeus)*Hairy Woodpecker*

Plate 50

Picus villosus Linnaeus. Syst. Nat. Ed. 12. 1766. 1:175

DeKay. Zool. of N. Y. 1844. pt 2, p. 186, fig. 32

Dryobates villosus villosus A. O. U. Check List. Ed. 3. 1910. p. 185.
No. 393*dryobates*, Gr. δρῶξ, oak or tree, and βῆ-της, treader; *villosus*, Lat., hairy, villous

Description. Colors almost exactly like the Downy woodpecker, but the *outer tail feathers plain white*, without spots; *larger*, nearly the size of a Robin.

Length 9-9.75 inches; extent 15-16; wing 4.5-5; tail 3-3.6; bill 1.2-1.35; weight 3 ounces.

Distribution. The Hairy woodpecker is a resident and breeds throughout New York State. In the wooded districts it is as common, or even commoner, than the Downy woodpecker, but in the thickly settled country is uncommon through the summer months, and very rarely breeds except in woodlands. In the fall, winter and early spring this species frequently appears in the orchards and shade trees, doing efficient service against borers, beetles, cocoons and other enemies of the trees. At this season, like his smaller relative, he partakes to some extent of wild fruits and nuts. The call of this woodpecker is much louder and heavier than the Downy's, though similar in other respects; but more like the syllables "*huip, huip*" (Bendire). Its "whinney" or rattling call is written *trriii, trriii*. The drumming of this species is "shorter and louder with a greater interval between the strokes" (Brewster). Its flight is deeply undulating and strong, but rarely protracted. When he alights on a tree infested with boring larvae, the vigor with which he hammers the trunk and hitches in short hops up the trunk or sideways or downward, examining every cranny and making the chips fly with tireless energy, impresses one with his being, excepting the Pileated woodpecker, our most competent woodchopper of the family.

The Hairy woodpecker begins to excavate its nesting hole early in the season, both sexes taking part in the operation. The hole is placed

rather high, usually from 30 to 60 feet, and is sometimes excavated in living trees. The opening is perfectly circular, about 2 inches in diameter, leading backward 2 or 3 inches through the solid wood, then downward for 8 to 16 inches, where the cavity is enlarged and a few chips left on the bottom as a bed for the eggs. These vary from 3 to 5 in number, usually 4, pure white, and average .95 by .73 inches. In this State fresh sets have been taken from April 25 to May 30. Like all our woodpeckers, this species rears only one brood in a season, but if the first set of eggs is destroyed she will lay again.

Dryobates villosus leucomelas (Boddacrt)

Northern Hairy Woodpecker

Larger and lighter colored than *villosus*.

Length 10.3-11; wing 5-5.4; tail 3.8; bill 1.3-1.5.

This subspecies breeds in the Boreal Zone; in winter entering the northern border of the United States. Many specimens of Hairy woodpecker taken in Northern New York, especially winter birds, are on the border line between this form and typical *villosus*, some being well within the limits of *leucomelas*.

Dryobates pubescens medianus (Swainson)

Downy Woodpecker

Plate 59

Picus (*Dendrocoopus*) *medianus* Swainson. Fauna Bor. Am. 1831 (1832). 2: 308

Picus pubescens DeKay. Zool. of N. Y. 1844. pt 2, p. 187, fig. 35

Dryobates pubescens medianus A. O. U. Check List. Ed. 3. 1910. p. 187. No. 394c

pubescens, Lat., downy, pubescent; *mediānus*, middle

Description. Our smallest woodpecker. Color *black and white*; white stripes on side of the head and a median white band down the back; wings and wing coverts spotted with white; crown of the head plain black; *outer tail feathers white* slightly spotted or *barred with black*; under parts plain dull white; *male* has scarlet occipital patch.

Length 6.5-7 inches; extent 12-12.4; wing 3.5-4; tail 2.2-2.9; bill .7-.8; weight 1.5 ounces.

Distribution. This species is generally distributed in New York State, being a permanent resident in all counties, our commonest woodpecker,

or, in some sections, perhaps, surpassed in numbers by the Flicker. In the more thickly settled portions of the State it is at least seven times more numerous than the Hairy woodpecker in summer and three times as numerous in fall and winter. In the Adirondaeks, however, it barely equals that species in numbers. In the nesting season it is found in orchards, shade trees and fringes of trees along streams and fence rows as well as in the woods, and breeds oftentimes within the limits of our villages and cities.

Habits. The little Downy is the least suspicious of our woodpeckers, coming fearlessly to the suet or bag of scraps placed on "the birds' lunch counter" or nailed to the tree or window sill for his accommodation. He can even be taught to take food from the hand. When one approaches him while at work, he merely hitches a few feet farther up the tree or edges around the trunk, occasionally stealing a glance at the intruder to satisfy himself that no harm is intended. When startled he flies away with undulating flight, uttering a sharp metallic *peck* "resembling the clink of a stonecutter's chisel." Occasionally this note is rapidly repeated in a long rattling call, suggesting the "whinney of a diminutive horse." The industrious *tap, tap*, or *peck, peck* of his bill as he searches the bark or rotten wood for grubs and beetles is heard more continuously than his vocal performances, and even in the mating season he attracts his mate and announces his supremacy over some chosen sphere of influence by drumming with his beak on some hard dry limb or resonant piece of bark rather than by trusting his fortunes to the allurements of his voice. This instrumental music of the Downy woodpecker is a long, rolling tattoo of considerable carrying power, and by the inexperienced is supposed to arise from some creature much larger than this little bird, but it is by no means so big a noise as the corresponding performance of the Hairy woodpecker, the Sapsucker, or the Flicker.

During the winter these woodpeckers do not associate with their own kind but are usually found accompanied by nuthatches, chickadees and Brown creepers. John Burroughs even relates how his nearest Downy neighbor destroyed the sleeping apartment of the companion which tried to make friends with him. This undoubtedly was due, not to Mr Downy's

special aversion to feminine society, but to his selfish desire to keep all the food in the immediate vicinity for his own consumption — a form of rivalry which is very common among birds and is the rule, at least in the nesting season, with those species which do not travel considerable distances in search of food.

This species should not be confused with the Sapsucker, for the farmer who permits its destruction is sacrificing one of his best friends. The Downy destroys immense numbers of bark-boring beetles and their larvae, the cocoons of moths, the larvae of gall insects, ants and wood borers of all kinds. On several occasions I have noted them destroying the cocoons of *Cecropia* and *Prometheus* moths. In fall and winter he varies his diet to some extent with nuts and wild fruits, but he never has been found a nuisance by the fruit grower and does not injure trees by tapping them for sap and the inner bark, as he has been accused by mistake for the Sapsucker.

The nesting hole of the Downy woodpecker is excavated in a stub or a dead limb anywhere in orchards, shade trees and woodlands. I have found them at heights varying from 8 to 50 feet from the ground. The opening is about $1\frac{1}{2}$ inches in diameter and the excavation from 6 to 8 inches in depth. These nesting holes are begun from late in April to the middle of May in different parts of the State, and fresh sets of eggs are found from May 2 to June 10. These are 4 to 6 in number and pure shiny white in color, of a pinkish tinge when fresh owing to the contents showing through the shell, oval in shape, and measure about .78 by .60 inches.

Picoides arcticus (Swainson)

Arctic Three-toed Woodpecker

Plate 60

Picus (*Apternus*) *arcticus* Swainson. *Fauna Bor. Am.* 1831 (1832). 2:313

Picus arcticus DeKay. *Zool. of N. Y.* 1844. pt 2, p. 190, fig. 36

Picoides arcticus A. O. U. Check List. Ed. 3. 1910. p. 189. No. 400

picoides, Lat., *picus*, woodpecker, and Gr., εἰδός, likeness; *arcticus*, arctic

Description. *Upper parts black*, with steel blue gloss; wing feathers bar-spotted with white; outer 2 pairs of tail feathers mostly white; white

stripe from nostril down sides of head and neck; *throat, breast and belly white; sides and flanks barred with black; crown patch bright yellow; only 3 toes, 2 in front and 1 behind. Female lacks the yellow crown patch, but young males, even fledglings, have it.*

Length 9.5-10.2 inches; extent 14-15; wing 4.9-5.3; tail 3.4-3.6; bill 1.2-1.3.

Distribution. This species is confined to the spruce and balsam belt of the Canadian zone during the breeding season and is permanently resident, but during the late fall and winter wanders some distance from its normal habitat. It has been recorded from Tully, Syracuse, Chautauqua county, Sag Harbor, Ithaca, Sennett, Cattaraugus county, Orleans county, Saratoga, Bridgehampton and Poestenkill, the dates ranging from October 6 to February 22. It seems to be of commonest occurrence in November and December. The only breeding records which are substantiated by actual specimens are from the Adirondack wilderness, but it has been reported also as breeding in Tioga county near Smithborough, and in the higher portions of the Catskills. Throughout the year it is fairly common in all portions of the spruce and balsam belt of the Adirondacks, there ranking next to the Sapsucker and Hairy woodpecker in abundance and probably much more plentiful than the American three-toed woodpecker and the Downy woodpecker.

Haunts and habits. The Arctic three-toed woodpecker prefers the dark shades of the spruce forests and seldom wanders far from their coverts. Its habits resemble those of the Hairy woodpecker, but it is less sprightly and to me its voice less sharp, loud and penetrating, a shrill *chirk, chirk*. It seeks its food on the tamarack, spruce and balsam, devouring the larvae of the boring beetles which are found just beneath the dead bark and in the decaying wood. Of all the specimens which I have examined, none contained any vegetable food; but in the fall and winter it subsists, to a certain extent, on berries and seeds, the reports of the Biological Survey showing that less than 10 per cent of its food consists of small wild fruit. It unquestionably keeps in check the boring beetles which attack all dying timber and so, by reducing their numbers, protects the trees which are

still vigorous, as well as the dead timber which is still standing. This species begins to mate in April and early May. The nesting hole is excavated in tamarack, balsam or spruce about 20 to 40 feet from the ground and is completed about the 10th of May. Doctor Merriam found them from 4 to 15 feet above water in the flooded swamps of the Fulton chain. From specimens in the Smithsonian Institution collected by Doctor Ralph and Egbert Bagg, it is evident that the eggs are usually laid from May 18 to June 2. They are white like those of the Hairy woodpecker and measure about .96 by .73 inches. The nests which our party found in Essex county were situated both in swampy tracts and on the summits of wooded ridges. One nest found by Messrs Achilles and Fuller on the summit of the Bartlett ridge was carefully measured. The external diameter of the hole was 2 by $1\frac{5}{8}$ inches; its greatest depth, $9\frac{1}{8}$ inches. The distance straight back from the entrance to the rear wall, $5\frac{3}{4}$; the diameter of the enlargement at the bottom, $4\frac{3}{4}$; the opening faced north by northeast. There were three young birds in the nest and the remains of a fourth at the bottom, a curious circumstance which seemed to be true of all the nests of the three-toed woodpecker which we examined.

Picoides americanus americanus Brehm

Three-toed Woodpecker

Plate 61

Picoides americanus Brehm. Handbuch Vögel Deutschl. 1831. p. 195

Picus hirsutus DeKay. Zool. of N. Y. 1844. pt 2, p. 191

Picoides americanus americanus Brehm. A. O. U. Check List. Ed. 3. 1910. p. 189. No. 401

Description. Similar to the Black-backed three-toed woodpecker, but slightly smaller and the *back barred or bar-spotted with white* and the crown of the female as well as the male spotted or streaked with white, the male's crown with yellow patch as in *arcticus*.

Length 8.4-9 inches; extent 13-14; wing 4.4-4.6; tail 3-3.7; bill 1-1.25.

Distribution. This species inhabits the boreal forests of North America from Maine, northern New York and northern Minnesota northward to central Ungava. In New York it is evidently confined to the Adirondack

forests. I have heard of no specimen taken farther from the spruce belt than Waterville, Oneida county. It therefore shares with the Spruce grouse, the Canada jay and the Hudsonian chickadee the distinction of being one of our perfectly nonmigratory species. Within the spruce and balsam forests it is quite uniformly distributed, but is less common than the Black-backed woodpecker, evidently about one-half as common as that species. It inhabits both the spruce swamps and the mountain sides. While making the bird survey of the Mt Marcy district we found this species breeding on the slopes of Marcy just above Skylight camp, an altitude of 4000 feet, and in the swamp at the Upper Ausable lake at an altitude of 2000 feet. In our experience the birds are even less noisy than the black-backed species. We could scarcely distinguish them from that species by their call, but Turner (Bendire's Life Histories) mentions only a squealing note like the Sapsucker's. At that season of the year (July 1) the old birds were either feeding the young in the nest or leading them from tree to tree. They confined their attention almost entirely to tamarack, spruce and fir trees and evidently feed principally, if not entirely, upon the beetles and their larvae found beneath the dead bark. The nests which we found were situated in tamaracks and spruces from 25 to 40 feet from the ground and could not be distinguished from nesting holes of the black-backed woodpeckers except that on careful measurement they were about one-fourth of an inch less in diameter. From the experience of Doctor Merriam, their nests are found in spruce, tamarack, pine, balsam and cedar in order of preference, about 6 or 7 feet above the water line. In the swamps about Sixth and Seventh lakes in Hamilton county, he found them mating on the 18th of May at Woodhull, Oneida county, but found the 2nd of June too early for eggs at Sixth lake. In the Smithsonian collection I find several sets of eggs taken at Moose river and Sixth lake from the 4th to the 10th of June. Evidently this is the usual nesting time in the Adirondacks. The eggs are 4 in number, slightly smaller than those of the black-backed woodpecker, averaging .92 by .70 inches in dimensions.

Sphyrapicus varius varius (Linnaeus)*Yellow-bellied Sapsucker*

Plate 62

Picus varius Linnaeus. Syst. Nat. Ed. 12. 1766. 1:176

DeKay. Zool. of N. Y. 1844. pt 2, p. 188, fig. 38

Sphyrapicus varius varius A. O. U. Check List. Ed. 3. 1910. p. 190.
No. 402*sphyrapicus*, Gr. σφῦρα, a hammer, and Lat. *picus*, a woodpecker; *varius*, Lat., variegated

Description. *Male:* Crown and throat bright red bordered with black; a broad black crescent on the upper breast; upper parts variegated with black and yellowish white; a broad stripe of white on the wing formed by the white ends of the wing coverts; wing feathers black, bar-spotted with white; tail feathers black, except inner webs of middle pair; upper tail coverts mostly white; under parts more or less heavily tinged with yellow, especially around the margin of the black breast shield, and the center of the belly; sides dingy brownish white, variegated with blackish. *Female:* Throat white instead of scarlet; crown scarlet in old females but black in young ones, even through the second summer in many specimens; otherwise like male. *Young:* Similar to adult, but browner, and lacking the black breast shield, and the scarlet on crown not showing till late in the first autumn.



Photo by James H. Miller

Yellow-bellied sapsucker *Sphyrapicus varius varius* (Linnaeus)

Length 8-8.8 inches; extent 15-16; wing 5; tail 3; bill 1.

Distribution. The Yellow-bellied sapsucker breeds throughout the boreal life zone of eastern America from the highlands of Pennsylvania, Michigan and Minnesota northward to Quebec, Ungava and Mackenzie.

and winters from southern New York and Illinois southward to the gulf coast and eastern Mexico. In New York its breeding range is chiefly confined to the Catskills and Adirondacks, but a few breed along the southern border of western New York on the highlands near the Pennsylvania line and in some of the swamps of central and western New York, as near Peterboro, Oneida, Potter, Auburn and Boston, but it is rarely seen during the nesting season outside the Adirondack and Catskill districts. During the migration season, from April 1 to May 15, this species is one of the commonest woodpeckers throughout the greater portion of the State. Its arrival from the south, near New York City, dates from April 1 to 15; in western New York, from April 6 to 18. At this season it is frequently seen about the shade trees of cities and villages as well as in all groves and forests, being ranked as a common transient visitant in nearly every station from which we have exhaustive reports. During the migration it is evident that the male birds arrive first, for during 15 years of continuous records which I have kept with this object in view I have found that male birds are the first to be seen each year and no females are seen for several days after the first males arrive. Then the white-throated females begin to appear and become relatively more numerous until they outnumber the males during the first two weeks of May, and, at the last of the migration season, which usually closes by the 20th of May, only female birds are to be found and frequently these are the black-crowned females referred to in the description above, which are evidently the young females of the preceding season. In the warmer portions of New York the sapsucker often remains throughout the winter, especially in the region immediately surrounding New York City where winter records are not infrequent. The fall migration is mostly accomplished between September 20 or October 10, and November 1, the time of greatest abundance usually being the middle of October.

Haunts and habits. The Sapsucker is the most abundant woodpecker throughout the Adirondack region. While camping in the North Woods it is a common experience to be awakened at daybreak by the loud drumming of this species from some neighboring birch tree. He selects a dry branch,

or better, some hard dry strip of birch bark which has a hollow space beneath, and mounting himself securely upon it, stretches backward to his full extent and lets fly his head and neck with all the force of his concentrated muscles, his beak flying with such rapidity as to be practically invisible. The rolling tattoo produced by this performance resounds across the lake and valley for hundreds of rods. While we were encamped on the shores of the Upper Ausable we could hear at least a dozen sapsuckers from our camping site, all drumming to hurry on the sunrise. This practice seemed to continue well on into the summer, even after the young were nearly ready to leave the nest. While the Sapsucker is migrating through portions of the State which are not within its breeding range, his drumming is rarely heard but he is frequently seen about our evergreens and shade trees, and his snarling or squealing note is often heard, especially when chasing rivals away from the trees which he has selected for sugar-making. At this season of the year he seems to care little for insect fare. He bores numerous rows of holes through the bark of our sap trees, sometimes entirely riddling the trunk and causing the sap to flow in such abundance as to destroy the vigor of the tree. One frequently finds mountain ash trees, pines, black spruces, ironwoods and birches so weakened by the boring of this species that they never recover from his attack. The object of the Sapsucker in boring these holes, as his name signifies, is to secure the resinous or sugar-laden sap and I have frequently watched a Sapsucker which had tapped at least a dozen trees in the same immediate vicinity, each one of which he visited in turn, lapping up the sap from all the holes with his brushy tongue and then passing on to the next by merely casting himself backward from the trunk and soaring with one swoop to the next tree without a stroke of his wing, working up this trunk and passing on to the next in the same way until he had completed the loop. As the spring advances and the weather becomes warm, the sap often begins to ferment. I suspect this is the reason that the Sapsucker is so frequently found stupefied by feeding on too great an abundance of the liquid. On several occasions I have seen a Sapsucker so gorged with fermented sap that he allowed himself to be picked up in the hand and I have seen one

alight on the clothing of a bird student and climb up his outstretched arm without seeming to realize that he was on a man instead of a tree. It is evident they become tipsy on the sap in the same manner that thrushes frequently become stupefied by feeding upon fermented fruit. The Sapsucker devours also the soft cambium layer which lies just beneath the bark of trees and in this way, where its rows of holes are close together, practically girdles the tree and effects its destruction. It may be said in partial defense of the Sapsucker, however, that he feeds also on the insects which are attracted to the sap that is evaporating from the hole and in this way destroys great numbers of forest pests; but, on the whole, he must be regarded as a doubtful, if not even an injurious, species. In the late summer and fall his food consists mostly of wild fruit and nuts, but during the nesting season while he is rearing his young, his food is largely of boring larvae and beetles. The nest of the Sapsucker is usually excavated in a dead tree or stub about 25 feet from the ground. In the Adirondacks I noticed that they seemed to prefer beeches, birches and maples for nesting sites. The nest is almost always built under the shelter of the forest and not in clearings, as is the case with red-headed woodpeckers and fliickers. The hole is 1.5 inches in diameter at the entrance, and 6 to 18 inches deep. The eggs are 4 to 5, sometimes 6, in number, pure white in color and average .88 by .67 inches in dimensions.

Phloeotomus pileatus abieticola (Bangs)

Northern Pileated Woodpecker

Plate 63

Ceophloeus pileatus abieticola Bangs. Auk, April 1898. 15:176
Picus pileatus DeKay. Zool. of N. Y. 1844. pt 2, p. 184, fig. 39
Phloeotomus pileatus abieticola A. O. U. Check List. Ed. 3. 1910.
 p. 192. No. 405a
phloeótomus, Gr., *φλοιοτός*, the inner bark of trees, and *τέμνω*, to hew; *piléatus*, Lat., wearing a cap (the *píleus*, shaped like the half of an egg)

Description. Very large, bill long and heavy, head crested; colors chiefly black and white; upper parts in general and all the under parts of body dull black; throat and line from bill on each side of the neck and

breast, lining of the wings and the base of the larger wing feathers, white more or less tinged with yellowish. *Male*: Entire upper part of the head, including the pointed occipital crest and the "mustaches," bright red. *Female and young* have only the rear portion of the head red, the frontlet and the mustaches being blackish.

Length 18-19.5 inches; extent 29-30.5; wing 9-10; tail 7-7.5; bill 2.25-2.65.

Distribution. The Northern pileated woodpecker is found throughout the forested regions of North America from northeastern British Columbia, southern Mackenzie, central Quebec and Newfoundland, southward along the mountain ranges as far as New Mexico and Carolina.

In New York it was formerly rather generally distributed throughout the State, but at the present time it is almost entirely confined to the evergreen forests of the Adirondacks and Catskills. A few are still found in the highlands along the Pennsylvania border and in various localities throughout central and western New York where there are mixed forests of unusual extent. During 25 years at Springville in southern Erie county, I have met with only 4 specimens of this bird. Mr Savage and Mr Reinecke of Buffalo have had a similar experience with it in Erie, Chautauqua and Cattaraugus counties. Mr Higgins reports that it still breeds in the wilder portions of Cortland county and there seems to be some evidence that it is tending to reestablish itself in various localities where it had disappeared for many years. It is by no means common in the Adirondacks or the Catskills, but every day's journey of 10 to 15 miles through the Adirondack wilderness will almost surely bring one past the native haunts of one or more pairs of these birds. More than any of our native species, with the possible exception of the Spruce grouse and some of the larger hawks, this bird disappears with the destruction of the forests, and it probably will never be reestablished in the State except in the larger evergreen forests of the Canadian zone. It is a strictly resident species, no north and south migration being manifest, but, like all species of woodpeckers, it wanders about more or less in the fall and winter in search of favorable food supply.

Habits. The Pileated woodpecker when undisturbed in his native haunts of the hemlock, spruce and balsam forests, is a very conspicuous bird. Almost as large as a crow, but with the usual deeply undulating flight of the woodpecker, he darts from tree to tree seeking for dead branches and dead stubs, beneath the bark of which are concealed the wood-boring larvae which constitute his principal food. A dead stub of hemlock or spruce is frequently seen which has been peeled by the heavy strokes of this giant woodpecker's bill, the strips of bark 6 to 8 inches in length, or even longer, lying scattered about the tree for several rods, and with cavities in the stub frequently dug in search of grubs 2 or 3 feet in length and several inches in depth. As a woodchopper he is unsurpassed among the members of this family. During the fall and winter he resorts to a partial diet of mast and wild fruit, but he can not be said to do the least harm to the fruitgrower or the agriculturist but, on the contrary, is beneficial by destroying immense quantities of ants as well as the larger grubs which enter the dead wood and destroy the standing timber.

While flying from tree to tree he frequently gives voice to a loud *cac-cac-cac*, and during the mating season, like most members of the family, he is rather noisy, frequently drumming on dead limbs and uttering a variety of flickerlike notes.

The nesting hole is from 3 to 3½ inches in diameter at the entrance and extends downward through the solid wood from 12 to 30 inches in depth. It is usually constructed in a dead stub from 30 to 60 feet from the ground, the height averaging greater than that of any other of our native woodpeckers. The eggs are 4 to 5 in number, pure white, and average 1.28 by .95 inches in dimensions. New York nesting dates range from May 5 to 25.

It is unfortunate that the large size, loud note, conspicuous black and white coloration, and flaming scarlet crest of this bird attract the attention of all hunters that visit the forest to such an extent that its numbers are continually diminished almost to the point of extermination. This calamity, together with the fact already stated that it disappears

with the destruction of the forest, is gradually depriving us of one of the most interesting of our native birds.

Melanerpes erythrocephalus (Linnaeus)

Red-headed Woodpecker

Plate 62

Picus erythrocephalus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:113

DeKay. Zool. N. Y. 1844. pt 2, p. 185, fig. 34

Melanerpes erythrocephalus A. O. U. Check List. Ed. 3. 1910. p. 192.

No. 406

melanérpes, Gr., μέλας, black, and ἔρπηξ, creeper; *erythrocéphalus*, ἐρυθρόκεφαλος, red, and κεφαλή, head

Description. The *head and neck deep red* or crimson; *body, wings and tail blue-black and white* in large areas, as the bird flies the white seeming to predominate, but as it clings to the trunk of a tree the back seems mostly black, but still gives the appearance of the three principal colors, red, bluish black and white; bill, bluish horn color; iris, brown; feet, bluish gray; sexes alike. *Young:* Grayish where the adults are black and red, during the first winter, the grayish of the head gradually replaced by the crimson, and the grayish of the back, wings and tail by the black.

Length 9.3-10 inches; extent 17-18; wing 5.3-5.7; tail 3.21-3.7; bill 1.2.

Distribution. The Red-headed woodpecker is found throughout the greater portion of the austral region of North America. Although it was formerly common in New England and eastern New York, it is now rare in those districts, but still locally plentiful in western New York, as it is throughout the Mississippi valley. It must be ranked primarily as a summer resident in New York, but in seasons when beech mast and chestnuts are abundant this species remains throughout the winter as was explained in 1883 by Doctor Merriam. I have noticed the same principle to obtain in western New York since the year 1878, but in ordinary seasons the Redhead disappears late in October and is not seen again until the 1st to the 10th of May when he arrives from the southern states whither he had withdrawn to pass the winter. Even in central and western New York this bird is not so uniformly distributed as is the

Downy woodpecker and unfortunately is becoming less and less common, because there are fewer and fewer dead branches for its accommodation; but the advent of the telegraph pole has partly saved him in some districts where he otherwise would have disappeared, by furnishing him at the same time an outlook from which to pursue winged prey — a habit which is rather uncommon in this order of birds — and also a site for a nest. In general, one must conclude that this species is decidedly less numerous even in western New York than the Flicker or the Downy woodpecker and in eastern New York about as rare as the Hairy woodpecker. In 1905 our party found it on the outskirts of the Adirondaeks and in the region of the Black river, so one might say that it is fairly distributed throughout the Alleghanian faunal area of New York with the exception of the greater portion of the coastal district and the lower Hudson valley.

Haunts and habits. The Red-headed woodpecker is, more than any of our other woodpeckers except the Flicker, a bird of the open. He is frequently seen on the dead tops of stubs and trees and on fence posts and telegraph poles far from the shelter of the forest, but he is not at home upon the ground as the Flicker is and when he alights there in pursuit of grasshoppers or other prey he does not hop around like the Flicker but immediately flies up again to his station on the fence post or dead stub. The preferred home of this woodpecker is in open groves and “ slashings ” and “ old burns ” and tracts of half-dead forest where the live trees are scattered and dead stubs are in abundance. In such places as these he is sometimes quite common but never rivals the Flicker in abundance about our orchards, villages and farmyards. He is not seen chiseling away at dead wood or prying behind the bark for wood-boring insects so often as the Hairy and Downy woodpeckers, but frequently engages in this kind of foraging during the fall and winter, and at this season is also fond of nuts and dried fruits and, when they are not to be found, usually wanders to a milder climate or to a locality where they are plentiful. Next to the Robin and Cherry bird this species is the most complained of by the grower of small fruits. On many occasions I have been surprised to see

the Red-headed woodpecker appear in a cherry tree when the first cherries began to turn, although I had not seen a Redhead in the neighborhood for weeks before. I never could determine whether he remembered that at this season of the year ripe cherries were to be found in that particular locality, or whether he saw them from a distance and noticed the robins going and coming from the trees; but, however that may be, he always found the first ripe cherries in the orchard and would carry them all day long to his young in the grove three-fourths of a mile away. My early harvest, sweet bough and red astrachan apples were also eagerly sought. In spite of this small thieving, and his occasional attacks upon the young of other birds, the Red-headed woodpecker must be regarded as a beneficial species. He destroys immense numbers of grasshoppers, ants and boring beetles of all kinds which are to be found about the branches and trunks of trees, and the principal portion of his vegetable diet consists of wild nuts and fruit. Furthermore, he is one of the most enlivening objects in the landscape and furnishes an added pleasure to any stroll across the fields or drive along the country road, for he is a bird that everyone will see and recognize at a considerable distance. The nest of the Red-headed woodpecker is excavated in the dead limb of a tree or in a stub, usually at a height of from 15 to 50 feet from the ground. The opening is about 2 inches in diameter and the depth of the hole from 10 to 14 inches. The eggs are from 4 to 6 in number and deposited on the fine, clean chips at the bottom of the hole. The eggs are white like those of all woodpeckers, and measure 1 by .76 inches in dimensions. In the different portions of the State they are deposited from May 10 to June 15.

Centurus carolinus (Linnaeus)*Red-bellied Woodpecker*

Plate 64

Picus carolinus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:113

DeKay. Zool. of N. Y. 1844. pt 2, p. 189, fig. 37

Centurus carolinus A. O. U. Check List. Ed. 3. 1910. p. 193. No. 409*centúrus*, Gr., ζέντερον, prickle or spine, and οὐρζ, tail, referring to the bristly tail feathers, which, as Doctor Coues has remarked, are not sharper than those of other woodpeckers

Description. About the size of the Red-headed woodpecker. Upper part regularly barred with black and white; top of head and neck bright scarlet in the male; in the female, only the occiput is red, the crown being ashy gray. Under parts dull grayish white, more or less tinged, especially on the center of the belly, with red; tuft of bristles at the base of the bill also reddish.

Length 9.3-10.5 inches; extent 17-18; wing 4.8-5.5; tail 3.5-4; bill 1-1.2.

Distribution. This species inhabits the austral zone of eastern North America from Delaware, western New York and southern Minnesota southward to the gulf coast. In New York State it evidently was common on Long Island and in the lower Hudson valley fifty years ago, but now has entirely deserted that region. There are only one or two records for Long Island and the Hudson valley during the last 30 years. In western New York there are numerous records, mostly during the fall and winter, for all the counties from Oneida, Madison and Cortland, westward to Erie and Chautauqua, the species being commoner farther west in the State. It seems to be more abundant in the wintertime, a curious fact, considering that it is an austral species. I have seen numerous specimens in the taxidermists' shops of Rochester, Buffalo and Niagara Falls which were taken in winter. It is not entirely a straggler, however, for there are several breeding records for the western part of the State, especially at Springville in June 1895; near Buffalo in 1898 and in Yates county 1910-1912. I have also seen it in the vicinity of Geneva during the breeding season and Miss Agnes Paul of East Bloomfield reports it as a per-

manent resident near her home. It must be regarded, however, as uncommon and local in western New York and is likely to be extirpated as a breeding species unless strictly protected in the few localities where it is found.

Habits. The Red-bellied woodpecker is a conspicuous bird both on account of its color, its actions, and its vociferousness. It is almost impossible for one of these birds to escape attention if it is in the same woods with a bird observer. It is seldom still for any length of time, but ascends one tree after another with a peculiar jerky motion uttering at every hitch its noisy *chawh-chawh* which immediately attracts attention as an unusual sound. When he has reached the higher portions of one tree he flies off to another and begins the same routine. If alarmed he gives voice to a *cha-cha-cha*, and frequently, when perched on a lofty limb of a tree or immediately after alighting, utters a call somewhat similar to that of the Red-headed woodpecker's "*tchurr-tchurr*." The food of this species is much like that of the Redhead, but it does not seem to be so fond of garden fruits. A large portion of its food in the fall consists of nuts and wild fruit. The nest is excavated in some dead or partially dead tree at a height of from 5 to 70 feet from the ground. The opening is about $1\frac{3}{4}$ inches in diameter and the excavation 12 inches in depth. The eggs, which are from 4 to 6 in number, are pure white, slightly less glossy than those of the Red-headed woodpecker, and average 1 inch in length by .75 in diameter.

Colaptes auratus luteus Bangs

Northern Flicker

Plate 64

Colaptes auratus luteus Bangs. Auk, April 1898. 15:177

Picus auratus DeKay. Zool. of N. Y. 1844. pt 2, p. 192, fig. 33

Colaptes auratus luteus Bangs. A. O. U. Check List. Ed 3. 1910. p. 194.

No. 412a

coláptes, Gr., *κόλαπτής*, chisel; *aurátus*, Lat., golden, gilded

Description. Somewhat larger than the Robin; upper parts brown, barred with black; *rump white*; crown of head ashy gray; *bright scarlet*

crescent on the occiput; under surface of wings and shafts of the wing feathers bright yellow; under surface of tail and shafts of tail feathers yellow except the tip which is black; under parts grayish white, nearly uniformly spotted with black; throat, upper breast and sides of the head and neck light



Flicker at nesting hole

Photo by Ralph S. Paddock

vinaceous; *black crescent on the breast*; male with *black mustachios*. The undulating flight, conspicuous white patch on the rump and the yellow of the wings which shows in flight are field marks which distinguish this species at a considerable distance.

Length 12-12.8 inches; extent 19.3-21.3; wing 5.5-6.5; tail 4-4.8; bill 1.3-1.5.

Distribution. The Northern flicker inhabits eastern North America from the limit of trees in Alaska, Ungava and Newfoundland southward to Texas and North Carolina. In New York it is uniformly distributed in every county of the State, being one of our dominant species. While not so common as the Robin, it is one of the dozen birds well known to every country boy. It must be considered primarily a summer resident, arriving from the South between the 20th of March and the 10th of April and gradually disappearing again between the 15th and the 30th of October. Dates of earliest appearance and departure, however, are obscured by the fact that many individuals of this species remain throughout the winter in southern New York and even in the central and northern counties winter specimens are by no means rare. A decided migratory movement at about the dates mentioned is, however, of usual occurrence. The Flicker or "High hole," as the countryman usually calls it, is a common or abundant summer resident of our orchards, groves, shade trees, pastures and forests. He is much more versatile in his propensities than the other woodpeckers and is frequently seen far from groves and orchards, on the open field or lawn and along the fences and telegraph poles. He is at home in the midst of our villages and city parks as well as in the farm lands and wildernesses. He perches on the twigs of trees more commonly than any of the other woodpeckers and digs in the ground for grubs and worms and tears open the ant hills in search of his favorite food. His notes are as varied as his perching and feeding habits and three or four dozen different names have been ascribed to him in different parts of the country, mostly in imitation of his different calls or notes. In this State he is commonly spoken of as the high hole or high holder, wake-up, yarrup, yucker, clape, flicker, golden-winged woodpecker, yellow jay, yellow hammer or pigeon woodpecker. In the spring while courting or endeavoring to surpass his rivals in displaying his charms, spreading his wings and tail and bobbing around before the admiring gaze of the female, he is often

heard to utter notes resembling "wake up, wake up, wake up," or "yarrup, yarrup, yarrup," or "yucker, yucker, yucker," in subdued tones. In the fall while visiting black cherry trees, poke weed and pepperidge to feed on the berries, they are generally to be found in small companies and often indulge in odd gesticulations with tails spread, bowing and bobbing about before each other and giving voice to the yarrup or flicker notes which Chapman compared to "the quick swish of a willow wand." It may be imitated by whistling sharply the syllables "kee-yer" two or three times repeated. When the flicker flies up from the ground and alights on a stub or fence post, he frequently bobs and bows to an imaginary audience and immediately thereafter jerks his head high upward giving voice to a sharp note like the syllable "clape." In the springtime one of the most familiar sounds of the field and grove is the long-drawn, rolling call which is unquestionably the mating song of the Flicker. It may be heard for more than half a mile and has been variously syllabized, usually written as "*cuh-cuh-cuh-cuh-cuh-cuh-cuh-cuh-cuh-cuh-cuh*." Others have written it "*wick-wick-wick-wick-wick-wick-wick-wick-wick-wick-wick*"; and others, "*yuch-yuch-yuch-yuch-yuch-yuch-yuch-yuch-yuch-yuch-yuch*." The young imitate the parents in the matter of vociferous habits, a nestful of young flickers keeping up a continual jangling, jarring note almost throughout the whole day. The flicker, like other woodpeckers, is also a good drummer, especially in the springtime. He selects some dry limb or thin conductor pipe or old stove pipe and mounting thereon at least fifty times a day batters away with his quick-rolling tattoo to the utter despair of his nearest neighbors. When a Flicker is suddenly surprised, he usually utters a low chuckling note and then flies away; and sometimes when flying about among the trees produces a whining or winnowing note, suggesting the sound of pigeons' wings about the dovecote. I imagine that this habit as well, perhaps, as the slighter, more pigeonlike appearance of its head and neck, have given him the name of pigeon woodpecker. The Flicker has a tendency to be gregarious, not only during the fruit season but all through the summer. Small, scattered companies are frequently

seen hopping about the pasture or playing about the shade trees. The economic value of the Flicker can not be disputed for an instant. The number of ants destroyed daily by one of these birds is almost incredible and we must not think merely of the injury which the ants would do directly but of all the plant lice to whose welfare they minister. I have taken as many as seventeen dozen ants from a flicker's stomach on many occasions and of all the flickers' stomachs which I have examined, except for a short period in the fall when wild berries were abundant, not one was without a fair quota of ants. It is a common thing to see the flicker on the ground in front of an ant hill or an ant hole, apparently motionless, but when he is carefully observed with the aid of a glass, one will see that his tongue is darting out and in with lightninglike rapidity, each time carrying into the flicker's ravenous gullet one or more ants which have adhered to its sticky surface. Although he is fond of wild fruits in their season, especially blackberries, poke berries, sheep berries, blueberries and dogwood berries, I have never heard complaint of the Flicker being destructive to cherries, currants or cultivated berries, and although he is fond of wild grapes, I have never yet known of his doing any serious damage to the vineyards in central and western New York. When these facts are considered, it is evident that this bird is one of the best friends which the horticulturist can encourage.

The mating time of flickers is April and early May and they usually begin to excavate their hole between the 20th of April and the 15th of May. Fresh eggs, in this State, are found between May 5th and June 10th, although when the first set has been destroyed they will lay again and again, so that they are frequently found nesting as late as the middle of July. In fact, the Flicker is one of the most persistent layers we have among the wild birds. Instances are on record in which the old bird has laid six dozens of eggs in six dozen and three days. They usually excavate a new nesting hole each season but occasionally utilize an old nest or even natural cavity in a tree. The opening is about $2\frac{1}{4}$ inches in diameter and the hole from 10 to $2\frac{1}{4}$ inches in depth. It is enlarged to a spacious

cavity at the bottom and the eggs are laid on a layer of chips. They are 5 to 8 in number, pure white in color, slightly less glossy than those of the Red-headed woodpecker, and average 1.10 by .85 in dimensions.

Order **MACROCHIRES**

Goatsuckers, Swifts, Hummers etc.

Suborder **CAPRIMULGI**

Famil. **CAPRIMULGIDAE**

Goatsuckers

Palate schizognathous; basipterygoids small; 2 carotids; sternum two or four-notched; plumage aftershafted; oil gland small and bare; 10 primaries; rectrices 10; bill weak, small and deeply fissured; habits more or less nocturnal; eggs 2, laid on the bare ground; young downy but not precocious; wings long and pointed, the elongation being principally beyond the carpal joint and in the feathers; plumage mostly soft and owl-like; colors marbled, mottled and intricately blended; tarsus very short; feet small and weak; the lateral toe very short; the 3 forward toes movable, webbed at the base; middle claw pectinate; hind toe short, elevated and partly lateral; formula of the phalanges or toe joints 2-3-4-4.

The goatsuckers, or nightjars, are largely cosmopolitan in distribution, consisting of about 125 species, only 2 of which are natives of New York. On account of their small, weak feet they are hardly able to alight in trees, and when they do must sit lengthwise of the larger branches. They are mostly nocturnal or crepuscular, the Nighthawk, however, often going out by day. The eggs are always two as in the case of Humming birds, and are almost perfectly elliptical in shape. The Whippoorwill and Nighthawk are among our most valuable birds, feeding on flying insects, the Whippoorwill, especially, on moths which are destructive to trees and vegetation in general, the Nighthawk on all kinds of insects, particularly on ants, beetles, flies and moths. These birds should be protected and encouraged as much as possible for the valuable services they render to the Commonwealth.

Antrostomus vociferus vociferus (Wilson)*Whippoorwill*

Plate 65

Caprimulgus vociferus Wilson. Amer. Orn. 1812. 5:71. pl. 41, figs. 1-3
DeKay. Zool. of N. Y. 1844. pt 2, p. 32, fig. 59

Antrostomus vociferus vociferus A. O. U. Check List. Ed. 3. 1910.
p. 196. No. 417

antrostomus, Gr., ἀντρον, cave, and στόμα, mouth, referring to the tremendously capacious fissirostral gape; *vociferus*, Lat., vociferous, noisy

Description. Bill extremely short and depressed; the gape enormous; corners of the mouth bordered with long, recurved bristles; eyes large; head broad; wings long and pointed; tail long, rounded, of 10 feathers; feet small and weak; the tarsus partly feathered; the plumage blended brownish with brownish gray, black, ochreous and buffy. *Male: Outer 3 tail feathers tipped with white* for half their length; *white band across the throat.* *Female:* The tips of outer tail feathers and neckband ochreous or buffy instead of white. General impression of the Whippoorwill is of a mottled dark brown bird like the color of an old decayed log, and when resting quietly on the leaves or rotten wood in the shady forest it is practically indistinguishable; but when the male bird springs up in flight, the white tips of the outer tail feathers make him very conspicuous.

Length 9.5-10 inches; extent 15-16; wing 5.8-6.9; tail 4.6-5.5; bill .36.

Distribution. The Whippoorwill inhabits eastern North America from Manitoba, Quebec and Nova Scotia south to Louisiana and Georgia, and winters from the Gulf States to Honduras. In New York it is found in all parts of the State, but is local in distribution, preferring the wilder swamps, gulleys and hillsides to the more settled districts. It is a summer resident, however, from Long Island to Chautauqua county and from Westchester county to the northern limits of the State. In the Adirondacks it is confined mostly to the edges of the wilderness and is not found in the depths of the spruce forests, but invades the river valleys and clearings as far as Elk lake, Keene valley, Lake Placid, Saranac and the Fulton chain. The Whippoorwill arrives from the South from April 20th to May 10th and during the migration is frequently heard throughout the State

in localities where it is not found as a summer resident; but these migratory birds have gone on to their nesting grounds by the last of May. In the fall the whippoorwills are last seen and heard from August 25th to September 15th.

The Whippoorwill, though seldom seen even by nature lovers or the country people who live near its favorite haunts, is well known by its voice to all inhabitants of the State. It is one of the few birds that can be



Eggs of Whippoorwill

Photo by Clarence F. Stone

surely recognized by its note even though the listener has never heard it before and knows it only by name. This bird comes from its retreat in the shady forest or the slopes of the glen in the early evening, is seen along the roadsides and about farmyards half a mile or more from its home in the wood, and its shrill cry is frequently heard from the ridge pole of the tent, from the peak of the barn, from the lane fence or from the roadside, as one journeys along in the dusk of evening. When passing through

the dense coverts of the swamp or woods during the migration season, and also during the nesting season, if one is in its summer haunts, the Whippoorwill may frequently be started from its perch on the ground or from some old root or mossy log, but he seldom rises until one is within a few feet of the bird, when he springs suddenly into the air, but with absolute silence, his soft owl-like plumage making his flight as noiseless as a Screech owl's. His course also is low and wavering like an owl's so that he is oft mistaken for one of that family. As Chapman remarks, the silence with which he rises in front of one's face and flies away is fully as startling as the overwhelming whirr of a grouse's wings. The food of the Whippoorwill consists entirely of night-flying insects, principally moths and beetles. I have taken 36 full-grown moths from the stomach of a single Whippoorwill which was killed early in the evening, indicating that within an hour and a half he had killed and devoured these full-grown moths, each one of which contained hundreds of eggs. Thus it is evident that this bird is of untold value to the forester. The call of the Whippoorwill is introduced by a low *cluck* or *chuck*, which is inaudible unless the listener is near the bird, but the sharp vigorous *whip'-poor-will'*, *whip'-poor-will'* which is rapidly reiterated may be heard for the distance of half a mile. This call is heard mostly during two hours after sunset and the hour before sunrise. The nest of the Whippoorwill, or rather its eggs for it makes no nest, is found beneath the dense, low-hanging foliage of the undergrowth in the forest. The eggs are 2 in number, elliptical-ovoid in shape and average 1.16 by .84 inches in dimensions, dull white in color with spots and blotches of brown, drab and lavender.

Chordeiles virginianus virginianus (Gmelin)*Nighthawk*

Plate 65

Caprimulgus virginianus Gmelin. Syst. Nat. 1789. 1:1028

Chordeiles americanus DeKay. Zool. of N. Y. 1844. pt 2, p. 34, fig. 60

Chordeiles virginianus virginianus A. O. U. Check List. Ed. 3.

1910. p. 108. No. 420

chordeiles, formed from Gr., $\chi\omicron\rho\rho\tau\acute{\alpha}$, a stringed instrument, and $\beta\acute{\alpha}\lambda\alpha\tau\acute{\alpha}$, evening

Description. In shape resembling the Whippoorwill, but the *tail forked* instead of rounded; color of the plumage not so intricately blended as in the Whippoorwill and without the fulvous and ochreous; colors blackish and grayish, more or less *barred and spotted with dusky and white*. The *wing feathers* blackish crossed *with a broad white band* which appears like a hole through the wing while the bird is in flight; tail blackish with broken or wavy bars of grayish buff and with a white band near the end except on the middle pair of feathers; *a broad white throat band*; breast and under part barred with blackish and white. The large white spot on the wing, and white band on the tail, as well as its forked tip, are conspicuous marks when the bird is in flight.

Length 9.5-10 inches; extent 24; wing 7.3-8.3; tail 4.3-4.8; bill .25.

Distribution. Breeds from southern Yukon, Keewatin and Newfoundland south to the Gulf States and westward to the edge of the Great Plains, and winters in South America from Brazil to Argentina. In New York it is found in every county of the State as a summer resident, but is somewhat local in its breeding. In the wilder portions of the State it still nests on the rocks and the rugged field, but in the more thickly inhabited districts, on the flat tops of buildings. Dates of spring arrival are rather uncertain, but it is evident that the Nighthawk reaches this State from the 1st to the 15th of May. In the fall it is last seen from the 1st to the 20th of September. During the autumn migrations, especially in the month of August, this species is much more numerous than at any other time of the year, and is seen in all portions of the State, even where it is unknown as a summer resident, often appearing in large flocks. Various observers have reported great scattering troops of thousands and thousands of night-hawks from the vicinity of Oneida lake and from Chautauqua county during

the month of August. These flights usually progress in a southwesterly direction. This would seem to indicate that the principal line of migration extends down the Ohio-Mississippi valley. I have noticed these flights several years in Erie county passing in this same general direction.

Habits. The Nighthawk is much more diurnal in habits than

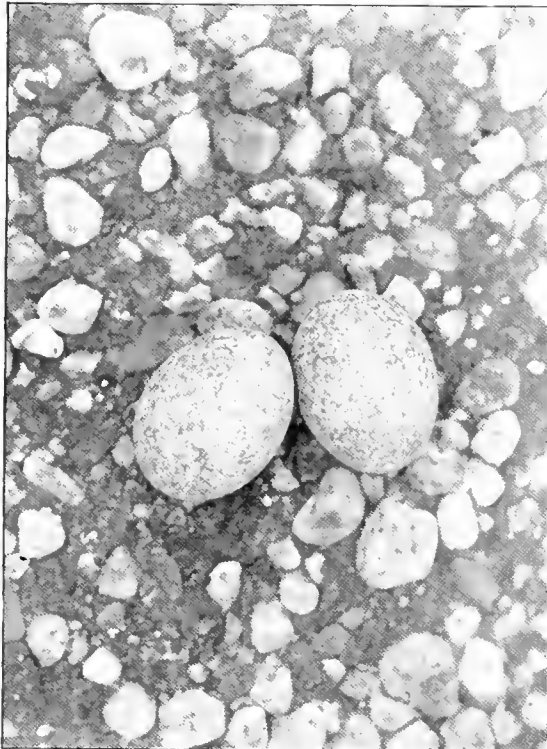


Photo by Guy A. Bailey
Nighthawk's eggs on gravel roof

the Whippoorwill, and frequently is seen flying about in the bright daylight high in the air, with slow, measured wing strokes, occasionally darting swiftly downward; at other times with rapid flapping of the wings succeeded by a graceful soaring. The wings appear extremely long and crooked. As the birds fly about seeking for beetles, flies, moths and other insects, they occasionally give voice to a loud nasal "*peent, peent,*" and sometimes to a squeaky, querulous "*aëk-aëk.*" In the mating season when the Nighthawk is wheeling about high in the air, he suddenly plunges headlong toward the earth but, just before striking the ground, suddenly glides upward again, at

the same time producing a roaring sound by the air rushing through the wing feathers, which has been likened to the noise made by blowing across the mouth of an empty bottle, or the bung-hole of a barrel. Although the Nighthawk is frequently seen in cloudy weather during the middle of the day, he certainly prefers to hunt in the evening and early morning, and his notes are often heard late at night as he hawks about for insects high in the air. Like the Whippoorwill, the Nighthawk

when he perches on a tree, is obliged to alight on the larger branches and to sit lengthwise of the branch, on account of his small, weak feet which are unable to clasp the twigs like those of true perching birds. This species is more often found resting in this manner among forest and shade trees than is the case with the Whippoorwill, but it is evident that he prefers the ground or rocks and the flat tops of buildings. It frequently alights on the ledges of chimneys and the cornices of tall buildings to wait for the bright light of noonday to pass by. Although the Nighthawk, like the Whippoorwill, feeds largely on moths, a much greater percentage of its food consists of beetles and flies, as would be expected from its more diurnal habits, but it is, nevertheless, a very beneficial species and ought to be stringently protected in all localities. In the southern states it is called "bull-bat," and is destroyed in immense numbers by southern "sportsmen," but this habit, I am glad to say, is passing out of vogue through the influence of the Audubon Society. The Nighthawk lays her eggs on a bare rock or the waste field or an open patch of ground in the woods or on the gravel-covered roofs of buildings in our cities and villages. They are 2 in number, almost elliptical in shape, of a grayish white ground color densely spotted and blotched with blackish, grayish and lavender. They average 1.20 by .86 inches in dimensions. The young are covered with a grayish down and are practically invisible as they sit among the gravel or on the rough stones where they are hatched. The old Nighthawk protects them at the risk of her life and tries to draw the intruder away by fluttering along as if with broken wing to lure him from them.

Suborder **CYPSELLI**

Family **MICROPODIDAE**

Swifts

Palate aegithognathous; bill deeply fissirostral; rectrices 10; secondaries only 7 in number; nostrils exposed; wings extremely long, pointed and thin, both the distal joints and the primaries being remarkably elongated; feet weak, small, rather skinny than scaly; tarsus usually naked; lateral and middle toes nearly of the same length; the hind toe more or

less versatile or turned sidewise; the formula of the phalanges is usually abnormal, 2-3-3-3; the claws are very sharp and curved, but none of them pectinate as in the Goatsuckers; plumage compact, hard, somber colored; sternum deeply keeled, broad behind, usually with no notches; there is no ambiens, semitendinosus, accessory semitendinosus or accessory femoro-caudal; the coeca are wanting; oil gland naked; the salivary glands highly developed, furnishing an abundant secretion used in the construction of their nests; the eggs are several, white and narrowly oval in shape; the young are naked and perfectly helpless.

The characteristics of this family are practically those of the suborder, and the 100 members of it are widely distributed in the temperate and tropical regions. The single representative of the family which is found in New York State belongs to the subfamily of Spine-tailed swifts, with mucronate tail feathers, helping it in clinging to upright surfaces like the interior of hollow trees, differing also from the typical swifts in having the joints of the front toes 3-4-5 in number.

Swifts, like the swallows and the goatsuckers, are very beneficial as they are exclusively insectivorous in diet, feeding on flying insects which they destroy in immense numbers. Although some parasitic hymenoptera are devoured, the majority of these insects are destructive to agricultural interests as well as to the peace and comfort of humanity. The swifts have practically abandoned the hollow trees which they occupied both for roosting and nesting sites before the advent of white men in America and, on the whole, have profited by the change to the civilized conditions which prevail over the greater portion of the country; but many people nowadays cover their chimneys with screens so that the swifts can not enter, or inadvertently build fires in those occupied by the swifts and destroy the young birds late in summer. Those who wish to encourage the swifts, but can not furnish them with disused chimneys during the nesting season, can assist them by erecting dummy chimneys (even those constructed of boards will serve the purpose) 6 to 8 feet in depth, which they will appropriate and thus rear their young in comfort and furnish abundant amusement to those nature lovers who wish to observe their nesting operations.

Chaetura pelagica (Linnaeus)*Chimney Swift*

Hirundo pelagica Linnaeus. Syst. Nat. Ed. 10. 1758. 1:192

Chaetura pelagica DeKay. Zool. of N. Y. 1844. pt 2, p. 35, fig. 58

Chaetura pelagica A. O. U. Check List. Ed. 3. 1910. p. 200. No. 423

chaetura, Gr., $\chi\alpha\iota\tau\alpha$, bristle, and $\rho\acute{\epsilon}\lambda\alpha\gamma\alpha$, tail; *pelagica*, Lat., pelagic, marine, (without evident application to this bird's habits)

Description. *Wings very long; tail short, square and the shafts projecting some distance beyond the vanes, as little sharp spines; beak short, but the gape very extensive; feet very short and small but the claws sharp and curved; plumage dark sooty in color; wings and tail darker, throat and breast fading to a dull grayish.*

Length 4.8-5.6 inches; extent 12.5; wing 4.95-5.25; tail 1.9-2.

The Swift or Chimney "swallow" as it is commonly called, is never seen perching on trees or telegraph wires, but always flying through the air. It may be recognized by its general sooty coloration and the rapid wheeling or flickering flight alternating with occasional soaring. His appearance in the air has been aptly likened to a winged cigar or a flying spruce cone.

Distribution. The Chimney swift inhabits eastern North America from Saskatchewan, Quebec and Newfoundland south to the gulf and west to the Great Plains, wintering south of the United States probably in Central America. In New York State it is uniformly distributed and breeds in every county. It is one of the dominant species which are very slightly



Photo by Guy A. Bailey
Chimney swift with young

affected by the advance of civilization, and is even positively benefited by it until people screen their chimneys to prevent the roaring caused by the entrance and exit of birds early in the morning. In the depths of the Adirondack wilderness this species is fairly common, breeding in the gable ends of old deserted lumbermen's shacks or in the settlers' chimneys and possibly, at times, in hollow trees.

Habits. As already stated, the Chimney swift is never observed, as many suppose, ranged along the telegraph wires with our various species of swallows. Near the "Free Bridge," 4 miles below Cayuga, there is a large hollow tree in which swifts still roost after the primeval fashion, and another near Scottsville, within sight of the railroad station, about which thousands of swifts may be seen circling in the evening air before going to rest within the hollow trunk. Nearly every village or city can boast at least one large chimney on church or schoolhouse that harbors multitudes of swifts every night late in summer. It is an interesting sight to watch these swifts as they wheel about such an old chimney in the August and September evenings and, when the magic moment arrives, pour down its capacious mouth in a living cascade. It seems impossible for this species to perch, but it always alights on some perpendicular surface like the inside of a large hollow tree or the inner surface of a chimney or the perpendicular boards at the gable end of a barn or shed. In this position it sleeps, clinging with its sharp claws to the irregular surface and using its spiny tail as a support. The swift is seen abroad early in the morning and late in the afternoon, but in cloudy weather comes out at any time of day and evidently can see well in the bright sunlight, for it frequently hunts or seeks materials for its nest during the brightest weather. They begin to construct the nest in May or early June, the small twigs of which it is formed being broken from the dead branches of some shade tree by the bird flying directly against the tip of the twig and snapping it off. Mr Fuertes asserts that they grasp the twig with their claws as they fly against it and thus bear it away. I will confess that I have been unable to see them execute this performance although I have tried on dozens of occasions.

At any rate, the twigs are carried into the chimney and are cemented to the wall and to each other by a gelatinous substance secreted by the salivary glands of the bird itself. When completed, the nest is like a little semi-circular bracket slightly hollowed downward. The eggs are placed on this framework of twigs without lining. They are 4 to 6 in number, oval-elliptical in shape, pure white in color, and average .82 by .50 inches in diameter. In food the swift is wholly insectivorous, and does an immense amount of good destroying beetles, flies and gnats, which he devours in countless multitudes. The Chimney swift, as he darts by, frequently

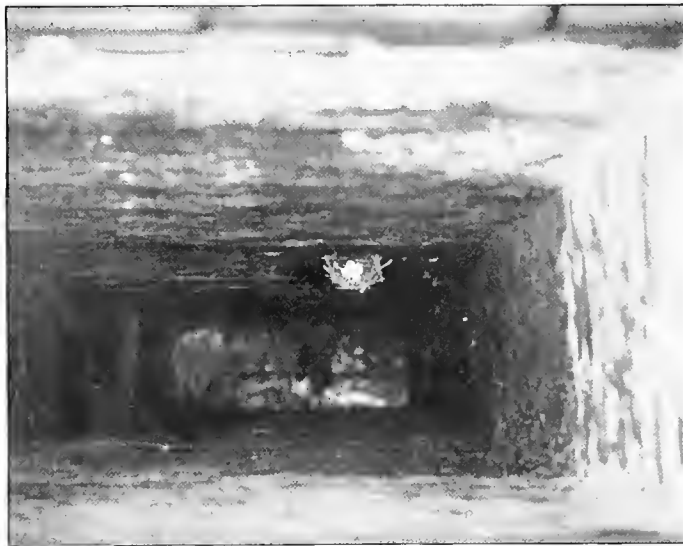


Photo by Clarence F. Stone

Chimney swift's nest and eggs

utters a rapid chipper something like the syllable *chip-chip-chip*, rapidly repeated, and I have heard a loud cheeping in the chimney, evidently uttered by the young birds. One of the earliest impressions of my boyhood was the curious roaring caused by the wings of parent swifts as they came and went from their nests at daybreak. This unfortunate habit of early rising has brought the Chimney swift into bad repute in many civilized communities, too great zeal in the service of the citizens while destroying the gnats, flies and mosquitoes which annoy them, closing even

the chimneys of the village against these beneficent birds whose only offense is to make a little noise by starting too early in the morning in pursuit of our enemies.

Suborder **TROCHILI**

Family **TROCHILIDAE**

Hummingbirds

Bill long and slender; palate schizognathous; the sternum deeply keeled, not notched; no manubrium; ambiens, semitendinosus and its accessory are wanting; femoro-caudal present; the oil gland bare; tail with 10 rectrices; primaries 10; secondaries only 6 and very short; feet very small, the hallux incumbent; radius arched; carpus very much elongated; tongue protrusible like that of woodpeckers; the left carotid artery only is developed; nostrils linear.

This family averages the smallest in size of all the aves. The coloration is usually brilliant with metallic iridescence. The sexes are unlike. Voices harsh or insectlike. Disposition pugnacious. The nest is usually a model of skill, very neatly constructed of fibers or downy substances and usually ornamented, at least in our native species, with various lichens or mosses which render it inconspicuous. The eggs in this family are 2 in number as is the case with goatsuckers, but they are pure white in color and almost elliptical in shape. The young are helpless when hatched, nearly bare, and are fed for some time in the nest by the process of regurgitation, the parent bird forcing the bill well down the youngster's throat and discharging the contents of her crop into the youngster's stomach. The family is evidently of neotropical origin, the 565 species being confined to America, only one inhabiting the eastern United States.

Hummers do not subsist entirely upon nectar or the honey of flowers, as many believe, but are really insectivorous birds, devouring a considerable number of small spiders, ants and various kinds of insects that are attracted to the flowers which they visit. In this way they render a considerable service to the agriculturist and are also valuable servants in cross-pollinating many species of flowers, sharing this important office with the

bees and larger moths. They are also valuable neighbors of the helpless inhabitants of garden and orchard. Although they are so slight in size, they attack fearlessly and effectively marauding crows and hawks which approach their domains, and their brilliant and interesting presence, aside from any service they render, is ample reward for protecting them.

Archilochus colubris (Linnaeus)

Ruby-throated Hummingbird

Plate 65

Trochilus colubris Linnaeus, Syst. Nat. Ed. 10. 1758. 1:120

DeKay, Zool. of N. Y. 1844. pt 2, p. 46, fig. 87

Archilochus colubris A. O. U. Check List. Ed. 3. 1910. p. 202. No. 428

archilochus, perhaps named from the Greek poet; *colubris*, probably from the barbarous name *colibri*

Description. Our smallest bird. Wings long; bill long and slender. *Male:* *Upper parts bright metallic green;* wings and tail fuscous, tinged with purplish; *throat, metallic ruby red* changing to black and burnished gold as the angle of reflection varies, the ruby throat-patch bordered below with whitish; the rest of under parts dusky tinged with greenish on the sides. *Female* has the *throat whitish* instead of ruby. *Young* resemble the female, but *throat feathers spotted* with dusky.

Length ♂ 3.5 inches, ♀ 3.85; extent 4.6; wing ♂ 1.6, ♀ 1.8; tail ♂ 1.25, ♀ 1.2; bill ♂ .55-.65, ♀ .75.

Distribution. The Ruby-throated hummingbird inhabits eastern North America from Saskatchewan and Quebec to the Gulf of Mexico, westward to North Dakota and Texas, and spends the winter from southern Florida and Louisiana to Mexico and Panama. In New York it is a common summer resident in all parts of the State from the more cultivated portions of southern New York to the densest forests of the Adirondack region. While surveying the country about Mt Marcy and the other elevated peaks of the Adirondacks we found this species nearly as common as in the orchards and groves of western New York and noticed several breeding pairs in the forests of the Bartlett range, Boreas pond, Mt Colvin and the slopes of Mt Marcy at an elevation of 3500 feet. The hummingbird arrives in New York from the 5th to the 12th of May in the warmer

portions of the State and a few days later in the northern counties. In the fall the last birds are usually seen from the 1st to the 12th of September in the northern counties and from the 20th to the 30th of September in the warmer portions of the State. As with most species of birds, the males usually precede the females several days in the spring migration, but mated pairs are usually found by the 20th to the 25th of May and the building of the nest often begins as early as the 30th of the month.

Habits. Everyone knows the Ruby-throated hummingbird, which



Photo by Clarence F. Stone

Ruby-throated hummingbird's nest and eggs

is the only species of this family that visits the eastern United States. It comes familiarly to the cultivated flowers on the window sill, the honeysuckles which climb the trellises beside porches, and the trumpet flowers which grow beside the door of the country home. It visits every flower bed when in bloom, and almost all the blossoming trees, especially apple trees—and the red buckeye more than any other species. Frequently as many as a dozen hummingbirds may be seen about a red buckeye when it is in full bloom. In late summer the swamp thistle is a great favorite with the hummers. There is no doubt that hummingbirds visit flowers

for the sake of their nectar, but they also feed upon the small insects which are attracted to the flowers by the honey, and also on the small spiders which are found on both the flowers and the foliage of the plant. Tame hummingbirds will live on sugar solution and honey, but will not thrive for any length of time without the addition of insect food. While watching a hummingbird, one is impressed with the ease and rapidity of its flight and especially with its ability to change its course at an instant's warning. When attacking larger birds to drive them away from its nest—and he is



Photo by James H. Miller

Ruby-throated hummingbird on nest

perfectly capable of driving away the largest hawks, crows and eagles—he flies at the intruder like a bullet; but just before striking, will back off as rapidly as he advanced so as to put his enemy in absolute confusion. I have often seen a hummingbird fly directly at an object so rapidly that he almost crashed into it, and then just before reaching it back off in perfect unconcern. He is at home flying across wide expanses of open fields or across the surface of the lake. I frequently notice them crossing lakes two or more miles in width without any more hesitation than going from flower to flower; and

although they seem to fly much more rapidly on account of their small size, it is perfectly evident to one who studies their flight carefully that they travel at the rate of 30 to 50 miles an hour. The hummingbird is rather pugnacious and rarely permits others of the same species, or any birds, to approach his nesting site. When chasing away intruders, he usually utters a rapid chirping note while making the attack. Many people have maintained that they have never seen a hummingbird at



Photo by Clarence F. Stone
Young of Ruby-throated hummingbird

rest except upon its nest, but it frequently alights on dead twigs and telegraph wires and will often sit for many minutes sunning and preening itself on the lofty twigs of dead trees in the forest. The nest of this species is one of the most beautiful constructed by any of our native birds. It is composed of the fluffy fibers from seed gossamers, the downy covering of young fern leaves, and other soft cottony substances, which are bound together with spiders' webs and the whole carefully covered with green and gray lichens so skilfully that it resembles a small, mossy knot. It

is usually saddled upon a branch about the size of a walking stick or on the horizontal crotch of a limb from 6 to 40 feet from the ground. The eggs are always 2 in number, pure white in color, nearly elliptical in shape, and average .50 by .36 inches in size. The young at first have comparatively short, stubby beaks and are nearly naked, but the feathers rapidly develop and the beaks become longer and slimmer. In 10 days

after hatching the young are about ready to leave the nest. They are fed from the beginning by regurgitation. The old bird, perching on the rim of the nest and directing her beak vertically downward into the young bird's gullet, proceeds to pump the contents of her crop into the greedy youngster. In the case of nearly every nest which I have watched, I became apprehensive lest some harm had overtaken the young birds because they disappeared so suddenly after 9 or 10 days; but I have become convinced that they remain in the nest only 10 days, and then follow the old birds to some secure spot where they are fed for several days longer before they forage for themselves.

Order **PASSERES**

Perching Birds

"Oil gland nude; skull aegithognathous; atlas perforated by the odontoid process; 1 carotid, left; coeca present, small; muscle formula A X Y; no biceps slip or expansor secundariorum" (Beddard). First toe is directed backward and is on a level with the front toe, that is, perfectly incumbent; none of the other toes are ever changed in position; the sternum usually has a forked manubrium and a single pair of notches on the rear; the aftershaft is very weak and downy; the flexor hallucis is wholly independent of the flexor communis; the syrinx is well developed with numerous intrinsic muscles to regulate the voice; the formula of the toe joints is 2-3-4-5; primaries are 9 or 10 in number; the tail usually of 12 rectrices. In reproductive nature they are all psilopaedic and altricial in nature, the young being born weak, helpless and nearly naked, and brooded and cared for by the parents for a long time in the nest.

In this order the high-strung life of bird nature reaches its highest development, the nervous system being acutely sensitive, the special senses keenly developed, at least those of sight and hearing, the circulation and respiration rapid, and the temperature the highest among animals. This is also the largest ordinal group of birds, including nearly all our familiar land birds and over one-half of the entire number of birds. The order is subdivided according to the development of the syrinx and its intrinsic muscles, as well as the condition of the tarsus.

Suborder CLAMATORES

This suborder, which is also called Mesomyodi or Clamatores, includes the so-called screamers or nonmelodious Passeres, in which the syrinx is less fully developed and has less than 4 pairs of intrinsic muscles. These muscles are inserted at the *middle* of the upper bronchial half rings. The tarsus is scutelliplantar; toes scutellate and not laminate; there are 10 fully developed primaries.

This suborder in North America includes only the flycatchers and cotingas, the flycatchers alone being represented in New York. In general appearance, habits and voice they are easily distinguishable from the rest of the Passerine birds, although some of them actually sing as complicated songs as many representatives of the Oscines or true songbirds.

Family TYRANNIDAE

American Flycatchers

Family characters. Tarsi covered with rows of scutella forming cylindrical plates enveloping the tarsus like a segmented scroll; primaries 10, the first well developed and often the longest; tail feathers 12; wing coverts more than half the length of the secondaries; hind claw as long as the middle claw; feet small and weak; tarsus short; the front toes coherent at the base, especially the outer to the middle; bill broad and flattened, gradually tapering to a sharp point, abruptly bent downward near the tip, and notched at the beginning of the bend; bill very light, the upper mandible partly hollow; culmen smooth and transversely arched; commissure nearly straight to the bend; nostrils near the base of the bill, small and round, sparsely concealed by bristles; gape large, reaching nearly beneath the eye, its angles furnished with flaring bristles; wing and tail ample; shoulders broad; short neck; large head; short legs; coloration of our native species mostly somber, without spots or streaks.

In this family about 83 genera are described, all American, being well represented in tropical America. Of the New York species, 3 or 4 resemble each other so closely that it is almost impossible to distinguish them in the field; but they differ individually in habitat, notes, nesting site, structure of the nest, and marking of the eggs, so that these particulars are more diagnostic in field work than the appearance of these species. Our fly-

catchers usually choose exposed perches from which to watch for passing insects, which they pursue and capture on the wing, usually returning to the same station from which they started. In disposition they are rather quarrelsome birds, the family character reaching its climax in the Kingbird which will not tolerate rivals within his sphere of influence, and will even drive eagles, hawks and crows far away from the vicinity of its nest.

The food of our flycatchers is almost entirely composed of insects and all the species are probably beneficial. It is unfortunate that so many of the parasitic Hymenoptera are included in the food of some of the smaller species like the Wood pewee, and that bees are frequently destroyed by the Kingbird, as well as others of the larger flycatchers; but the work of the Biological Survey in investigating this subject has shown that the percentage of bees and beneficial Hymenoptera is so low that it is practically a negligible quantity, and that all the flycatchers, even the Kingbird, should be regarded as beneficial. In the fall, flycatchers, especially the Kingbird, frequently resort to a diet of fruit, but this, even in the fall and winter, amounts to only a small percentage of the entire food and none of the flycatchers has been reported as destructive to the small cultivated fruits grown in this section.

The following table will serve to show in detail, from an examination of stomach contents, exactly of what the food of these birds consists.

Food of New York flycatchers¹

NEW YORK SPECIES	Total animal food	Total vegetable food	Coleoptera (beetles)	Hymenoptera (wasps, bees, ants)	Hemiptera (bugs)	Diptera (flies)	Orthoptera (grasshoppers and crickets)	Lepidoptera (moths and caterpillars)	Miscellaneous insects	Arachnida (spiders and myriapods)	Fruits	Miscellaneous vegetable food
Kingbird	88.93	11.07	25.35	32.39	3.77	3.19	11.83	3.18	7.79	1.52	10.71	.36
Crested flycatcher	93.70	6.30	16.78	13.69	14.26	3.06	15.62	21.38	4.88	4.03	5.30	.94
Phoebe	86.53	10.77	15.33	26.66	10.38	6.89	12.91	8.86	8.17	0	4.99	5.78
Olive-sided flycatcher	99.95	0.05	6.24	82.56	3.25	.88	1.12	4.13	1.77	0	0.4	.01
Wood pewee	98.97	1.93	14.23	28.20	5.99	29.68	3.44	12.31	2.61	2.21	.84	.19
Yellow-bellied flycatcher	97.94	2.99	10.53	40.25	4.16	14.89	0	5.68	.98	8.52	2.51	.48
Acadian flycatcher	97.95	2.95	13.76	39.93	6.03	8.15	6.38	18.87	.99	2.94	2.68	.27
Alder flycatcher	96.95	3.05	17.89	41.37	7.24	14.20	3.91	7.73	2.77	.94	3.88	.07
Least flycatcher	97.83	2.17	21.35	41.10	11.12	11.34	2.59	7.27	.95	2.11	4.83	.39

¹From Bulletin 44, Biological Survey, U. S. Department of Agriculture

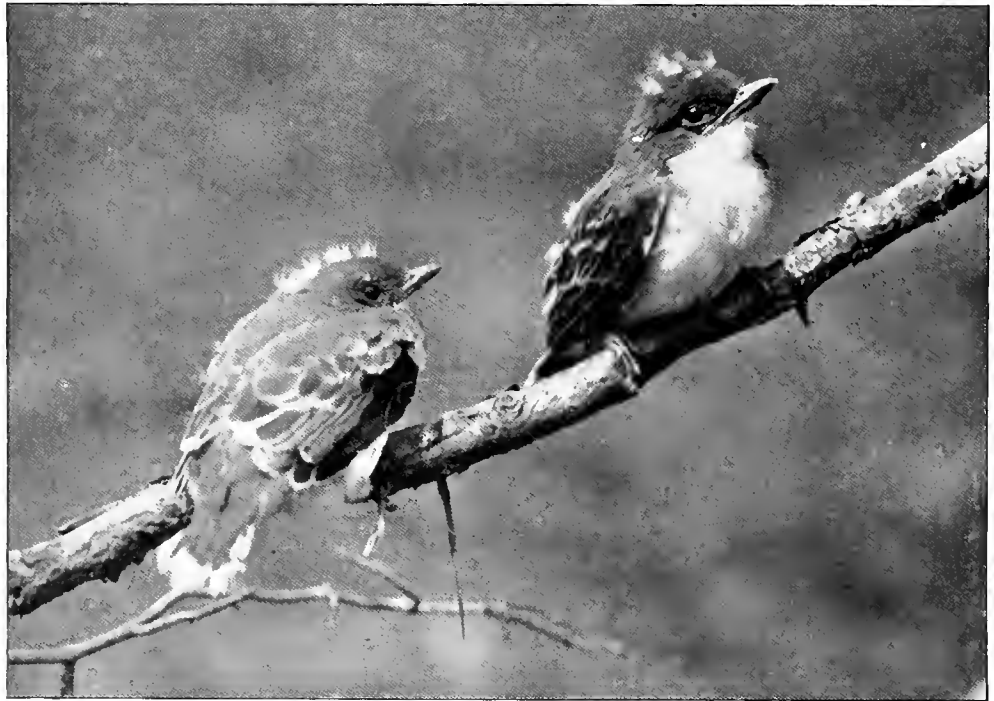
Tyrannus tyrannus (Linnaeus)*Kingbird*

Plate 67

Lanius tyrannus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:94

Tyrannus intrepidus DeKay. Zool. N. Y. 1844. pt 2, p. 117, fig. 72

Tyrannus tyrannus A. O. U. Check List. Ed. 3. 1910. p. 253. No. 444

tyrannus, Lat., a tyrant**Description.** Upper parts *grayish slate color*; the wing feathers

Young kingbirds

Photo by James H. Miller

blackish; *tail black, tipped with white*; *under parts white*, a grayish tinge on the sides of breast; top of the head blackish concealing a brilliant orange patch which flashes into view when the bird is excited; bill blackish.

Length 8.40–8.75 inches; extent 14–15; wing 4.65; tail 3.56; bill .60.

The slaty upper parts of this bird, his white throat and under parts, blackish tail with sharp white tip, combined with his ordinary quivering and soaring flight low over the fields, with tail spread, make him one of the easiest of our common birds for the amateur to recognize.

Distribution. The Kingbird breeds from British Columbia, Maekenzie, Quebec and Newfoundland south to New Mexico and Florida, and spends the winter from southern Mexico to Bolivia and British Guiana. In New York it is a common summer resident in all portions of the State except the interior of the densely forested regions, but it invades the Catskill and Adirondack districts along the clearings and river valleys to the edge of the spruce and balsam forests. In the cultivated portions it is one of the commonest of our dominant species, among the flycatchers ranking next to the Phoebe and the Wood pewee in abundance. It arrives from the south from the 25th of April to the 10th of May and departs for the south from September 15th to 30th.

Habits. The Kingbird inhabits orchards, pastures, hedgerows and roadsides. It is a common sight to see this bird seated on the top of a mullein stalk, fence post, telegraph wire or the peak of an apple tree, on the lookout for beetles, bees, grasshoppers, moths and flying insects of all kinds. Whenever he sees an attractive insect he swoops down and snaps him up with perfect precision. If a hawk or crow approaches the limits of his domain he immediately gives chase. Mounting above the intruder he darts down and striking him on the top of the head or the back drives him rapidly from the neighborhood. In this way he renders efficient service in keeping crows and hawks away from the chicken yard. On the other hand, most beekeepers denounce the Kingbird because of the great number of bees which he destroys. Examination of stomachs, however, has shown repeatedly that he prefers the drones to the worker bees, and consequently does no great damage; but unquestionably at times he becomes too destructive when he makes his home in the immediate vicinity of a beehive. The nest of the Kingbird is usually constructed in an apple tree, thorn bush or shade tree of any species, at a height of from 6 to 20 feet from the ground. I have even known of its being placed on the top of an old fence post and in vines overrunning a stone wall. It is composed of straws, weeds and roots, lined with rootlets, soft bark, fine grasses, hair and wool. The eggs are usually 4 to 5 in number laid from the 25th of May to the 15th of June,

a rich creamy white in color rather coarsely spotted with reddish brown, chocolate and lavender, mostly in a wreath near the larger end. They are oval in shape and measure 1 by .74 inches. The notes of the Kingbird are loud, the commonest being a rapidly repeated rattling call resembling remotely the rattle of a Kingfisher. The researches of the Biological Survey have shown that their food consists principally of beetles, flies, grasshoppers and members of the bee family.

Tyrannus dominicensis (Gmelin)

Gray Kingbird

Lanius dominicensis Gmelin. Syst. Nat. 1788. 1:302

Tyrannus dominicensis A. O. U. Check List. Ed. 3. 1910. p. 208. No. 445
dominicénsis, of St Domingo

Description. Upper parts plumbeous gray. The adults have concealed orange crown patch; lower parts white; *tail emarginate, without a white tip.*

Length 9-9.75 inches; wing 4.5-4.75; tail 3.5-4; bill large, length from nostril .8.

Distribution. The Gray kingbird is an inhabitant of the southeastern United States from South Carolina to the Greater Antilles; winters in the Lesser Antilles, Mexico and Central America. In New York it is only an accidental visitant, a single specimen having been obtained at Seetauket, Long Island, in Suffolk county, 30 miles east of New York and reported in "Forest and Stream," volume 2, 1874, page 373. Specimens of this species have been obtained similarly in Maine and New Jersey, but it rarely wanders north of Carolina.

Tyrannus verticalis Say

Arkansas Kingbird

Tyrannus verticalis Say. Long's Exped. 1823. 2:60 (note)

A. O. U. Check List. Ed. 3. 1910. p. 209. No. 447

verticalis, Lat., pertaining to vertex, the top or head, in allusion to the brilliant crown patch of the adult

Description. Head, neck and back *light ashy gray*; wings dusky brown; *tail black*, the outer feathers with white outer webs; a concealed

orange crown patch; *belly yellow*; young, duller colored, with no crown patch.

Length 8.5-9.5 inches; wing ♂ 4.75-5.25; tail even or slightly emarginate 3.7-4; bill from nostril .5.

Distribution. The Arkansas kingbird, a western species, has been taken accidentally in the eastern part of the United States, in Iowa, New Jersey, Maine and the District of Columbia. A single specimen from New York, taken at Riverdale October 19, 1875, an immature male, is recorded by E. P. Bicknell in the Bulletin of the Nuttall Ornithological Club, volume 4, page 60.

Myiarchus crinitus (Linnaeus)

Crested Flycatcher

Plate 67

Turdus crinitus Linnaeus. Syst. Nat. 1758. Ed. 10. 1:170

Tyrannus crinitus DeKay. Zool. N. Y. 1844. pt 2, p. 119, fig. 70

Myiarchus crinitus A. O. U. Check List. Ed. 3. 1910. p. 210. No. 452

myiárchus, Gr., μῦζ, fly, and ἀγῆς, ruler; *crinitus*, Lat., haired or crested

Description. Upper parts olive; *throat and breast ash gray*; *belly* and under tail coverts *sulphur yellow*; *tail from below* shows all the inner webs *rufous*, many of the wing feathers also rufous on the inner webs; *head* somewhat *crested*.

Length 8.75-9.15 inches; extent 13-14; wing 3.9-4.4; tail 3.6-4.2; bill from nostril .6; tarsus .8.

Distribution. The Crested flycatcher is a summer inhabitant of eastern North America from the gulf coast to New Brunswick and Ontario; winters from southern Florida to Central America. In New York State it is a common summer resident in the warmer districts and fairly common on the uplands above 1000 feet, but is practically absent from the interior of the Catskill and Adirondack forests, although it invades the valleys almost to the heart of those regions. It arrives from the 25th of April to the 12th of May and disappears in the fall between the 1st and the 25th of September. During some seasons this flycatcher rivals the Kingbird and the Wood pewee in abundance, but, in general, is less common

than either the Kingbird, Phoebe, Wood pewee or Least flycatcher, though commoner and more generally distributed than the other members of the family. The Crested flycatcher is more confined to the groves and forests than the Kingbird and though often seen occupying exposed positions on tops of dead trees or fence posts, is rarely observed far from the friendly shelter of abundant foliage. His loud shrill whistle which sounds like the syllable "*wheep*" and resembles somewhat a similar cry of the Red-headed woodpecker may be heard for one-fourth of a mile and serves inevitably to call attention to this bird wherever he has established his home. He is the brightest colored of all our flycatchers and is a bird of great courage and interesting habits. The nest is usually concealed in a hollow tree or old woodpecker's hole at a height of 15 to 50 feet from the ground, composed of grasses, rootlets, hair, pine needles and invariably the cast off skin of a snake is woven among the contents of the nest, to act as some have fancied, as a terrifier of red squirrels and Red-headed woodpeckers which might see fit to attack the eggs or young. The eggs are usually 4 in number, sometimes 5 or 6, the ground color a rich cream, profusely marked with "pen streaks" of chocolate and reddish brown. They average .92 by .68 inches in dimensions. After the mating and breeding season this flycatcher is less noisy and often escapes attention so that he is supposed to depart for the south early in August, but if one searches carefully in his haunts among the foliage and watches for his spirited sallies in quest of flying insects, it is evident that he has not deserted his favorite groves but remains with us to the date stated above. The Kingbird and Crested flycatcher are both valuable on account of their preference for the larger flying insects, especially beetles, like the June beetles and other large Coleoptera which are shunned by our smaller species.

Sayornis phoebe (Latham)*Phoebe*

Plate 97

Muscicapa phoebe Latham. Index Orn. 1790. p. 21480*Muscicapa fusca* DeKay. Zool. N. Y. 1844. pt. 2, p. 115, fig. 67*Sayornis phoebe* A. O. U. Check List. Ed. 3. 1910. p. 212. No. 456*sayornis*, from the name of Thomas Say and Gr., 1794, bird; *phoebe*, in imitation of its note

Description. Upper parts grayish brown; the top of the head noticeably darker, almost blackish; wings and tail fuscous; wing bars almost indistinguishable; under parts dingy white, tinged with brownish gray on the breast and sides, and washed with yellowish on the belly; bill blackish.

Length 7 inches; extent 11.25; wing 3.4; tail 3.5; bill .45.

The Phoebe may be distinguished from the Wood pewee by its blackish under mandible, the whitish outer vane of the outer tail feather and the fuscous crown. It is also slightly larger and more brownish, scarcely showing any olive or greenish tinge on the upper parts. Its note also, a two syllabled call of *pe-wee* or *phoebe* is clearly different from the three syllabled plaintive *pee-a-wee* of its smaller relative.

Distribution. The Phoebe inhabits eastern America from Alberta, Keewatin, Quebec and New Brunswick to New Mexico, Mississippi and Georgia, and winters from latitude 37 southward to Vera Cruz. In New York it is probably the commonest member of the flycatcher family, being a summer resident throughout the State except in the spruce and balsam forests of the Catskills and Adirondacks. It arrives from the south from the 15th of March to the 10th of April and departs for more southern latitudes from October 15th to 30th.

Habits. The Phoebe bird prefers the vicinity of water. It usually constructs its nest on the timbers of a bridge, or on the shaly overhanging bank of some stream, or on the beams of the lakeside cottage or on the veranda post, or beneath the shed or eaves of the barn. In fact, nearly any position which is sheltered from the rain and storm is suitable for this bird. It has adapted itself both to civilized conditions and to the wilderness. Like all flycatchers, the Phoebe chooses a conspicuous lookout from

which it darts upon any passing insect and returns to its chosen perch, always pumping its tail decidedly as soon as it alights, and frequently while seated. The note which is often heard and has given it its common name consists of the two syllables "*Phoe-be*" or "*pee-wee*,"



Photo by Ralph S. Paddock

Phoebe's nest and eggs

which also distinguishes the bird from the Wood peewee whose note consists of three syllables. The Phoebe begins to construct her nest as early as the third week in April and the first sets of eggs are to be found from the 20th of April to the middle of May. The eggs are usually 5 in number,

sometimes 4 or 6; creamy white in color, rather broadly oval in shape, sometimes with a few fine reddish brown spots; average size .79 by .60 inches. Two broods are reared in a season in this State, but rarely in the same nest, for before the young are able to fly they and the whole nesting site usually become infested with innumerable small reddish lice which sometimes kill the young birds and render the nest uninhabitable for the remainder of the season. This pitiful misfortune of the Phoebe bird has made her an unwelcome neighbor about the summer camp, and many nests are destroyed each season by people who might better dust the nests and young with insect powder and thus protect themselves and the birds alike from the unwelcome parasites.

Nuttallornis borealis (Swainson)

Olive-sided Flycatcher

Plate 67

Tyrannus borealis Swainson. Fauna Bor.-Am. 1831 (1832). 2: 141, pl. 35

Tyrannus cooperi DeKay. Zool. N. Y. 1844. pt 2, p. 118, fig. 73

Nuttallornis borealis A. O. U. Check List. Ed. 3. 1910. p. 213. No. 459

nuttallórnis, formed from the surname of Thomas Nuttall and ὄρνις, bird; *boreālis*, northern

Description. Upper parts brownish slate; wings and tail blackish; the indistinct wing bars and edgings of the secondaries grayish; *sides brownish gray*; middle line of all the under parts from throat to tail, whitish; a *conspicuous tuft of silky white feathers on the flank*, usually showing on the sides of the rump when the bird is at rest.

Length 7.2-8 inches; wing 4-4.5; tail emarginate, 2.9-3.5; bill from nostril .54; tarsus .6.

Distribution. The Olive-sided flycatcher inhabits eastern North America, breeding from Massachusetts to Minnesota, and in the Alleghanies from North Carolina northward to the Hudsonian zone; winters in tropical America. In New York State this bird is a rather uncommon transient visitant in the greater portion of the State, arriving from the 12th to the 20th of May and passing on to the north between the 24th and 31st of the month. In the fall they make their appearance in the coastal district

between the 15th and 30th of August and specimens are last seen in southern New York between the 10th and the 30th of September. In the Catskills and Adirondacks the Olive-sided flycatcher is a fairly common summer resident, breeding from an altitude of 1500 feet to the highest portions of the mountains. It inhabits the burned districts, "slashings," partially cleared valleys and mountain slopes, spruce swamps and the borders of flowed lands throughout this spruce and balsam belt. It has been reported by Mr Maxon as breeding in Madison county especially about the eastern end of Oneida lake; and one instance of its nesting not far from the city of Albany has been reported. But aside from this, it is confined as a summer resident to the Canadian zone not even occurring in the colder swamps and uplands of western New York as far as I know. This bird is a conspicuous inhabitant of the burned lands and swamps of the Adirondacks, his loud whistle resembling the syllables "*pi-pee*," being audible at a distance of half a mile. It has also a lower note like the syllable "*chip*," or "*pip-pip-pip*," which he utters when disturbed, and also a chatter somewhat similar to the Kingbird's, uttered when the nest is disturbed. Its nest is placed at a height of 25 to 40 feet, usually on the limb of a spruce tree, and composed of roots, grasses and mosses. The eggs are from 2 to 4 in number, deposited from the 20th to the 30th of June. They are creamy white, spotted, especially about the larger end, with reddish brown and lilac and measure .85 by .63 inches.

Myiochanes virens (Linnaeus)

Wood Pewee

Plate 63

Muscicapa virens Linnaeus. Syst. Nat. 1766. Ed. 12. 1:327

DeKay. Zool. N. Y. 1844. pt 2, p. 114, fig. 69

Myiochanes virens A. O. U. Check List. Ed. 3. 1910. p. 213. No. 461

myiôchanes, Gr., μῦζ, fly, and probably some form of ἔγω, to grasp (cf. ὄχρον); *virens*, Lat., green

Description. Upper parts olive brown; the head somewhat darker; under parts whitish tinged with dull yellow; the breast and sides washed

with gray. Fall specimens have the under parts more heavily tinged with yellow; under mandible light colored toward the base.

Length 6-6.5 inches; extent 10-11; wing 3-3.45; tail 2.5-2.9, slightly emarginate; bill from nostril .4; tarsus .51.

The Wood pewee may be distinguished from the other small flycatchers by its larger size, from the Phoebe by being smaller and less brown, more greenish on the upper parts. Its note, however, a plaintively whistled "pee-a-wee," will distinguish it at a distance better than anything else, both from the Phoebe and its smaller relatives.

Distribution. This species inhabits North America from Manitoba and southern Quebec, south to Texas and central Florida, and winters from Nicaragua to Peru. In New York it is universally distributed as a summer resident and breeds commonly in every county of the State. It arrives from the south from the 3d to the 14th of May, in cold seasons



Photo by Clarence F. Stone

Pewee's nest and eggs

sometimes not appearing in the northern portions till the 20th or 22d of the month. It is last seen in the fall between the 5th and the 25th of September. A few October records, however, have come to my notice. In the southern part of the State it occasionally remains until October 2d and one record of October 19th comes from Long Island.

Habits. The Wood pewee inhabits orchards, shade trees, groves and forests in all parts of the State. I have found it breeding in the shade trees of lawns and in apple trees in the city back yard, as well as in the midst of the Adirondaek wilderness at a distance of only 4 miles from the top of Mt Marcy. It selects a humble perch, usually one of the lower limbs of a forest tree or an apple tree. Here it sits, occasionally whistling its common note and giving chase now and then to the flying insects which pass its station, returning again to the same perch after the usual habit of its family. When slightly disturbed it utters a low "*chit*," and when its nest is in danger flies about uttering a continual "*chitter*." The nest is usually placed on a horizontal limb or a small fork at a height of from 6 to 30 feet from the ground. The outside dimensions are 2.75 by 1.75 inches and the inside dimensions 1.75 by 1.25. It is constructed of small twigs, rootlets and grass stalks neatly matted together, and over the outside a coating of greenish and grayish lichens is invariably affixed. The center of the nest is so loosely constructed that when it is placed in the horizontal fork one may see through it from the ground. In general appearance it resembles the hummingbird's nest, but is less downy and not so deep in proportion to its size. The eggs are from 2 to 4 in number, usually 3, of a creamy white color more or less heavily spotted, usually in a wreath near the large end of the egg, with chestnut, claret brown, rufous and lavender. They average about .72 by .54 inches in dimensions. The period of incubation is usually 12 days and the young remain in the nest for 10 days or 2 weeks after hatching. This flycatcher is not commonly accused, like the Kingbird, of feeding upon the honey bees, but confines its diet largely to injurious insects, although it occasionally takes some of the beneficial Hymenoptera.

Empidonax flaviventris (W. M. & S. F. Baird)*Yellow-bellied Flycatcher*

Plate 68

Tyrannula flaviventris W. M. & S. F. Baird. Proc. Acad. Nat. Sci. Phila. 1843. 1: 283

Muscicapa flaviventris DeKay. Zool. N. Y. 1844. pt 2, p. 113

Empidonax flaviventris A. O. U. Check List. Ed. 3. 1910. p. 214. No. 463
empidonax, Gr., meaning gnat king; *flaviventris*, Lat., yellow-bellied

Description. *Upper parts olive green*, nearly uniform in color, but the wings with lighter bars and edgings; *under parts yellow*; sides of breast somewhat washed with grayish.

This species is one of our four little flycatchers which can be identified unmistakably at sight, its nearly uniform yellow under parts and olive green upper parts being an infallible guide.

Length 5.4-5.8 inches; extent 8.6; wing 2.45-2.75; tail emarginate 2-2.3; bill from nostril .31; width at base .26; tarsus .66.

Distribution. The Yellow-bellied flycatcher inhabits eastern North America from Alberta, northern Quebec and Newfoundland to North Dakota, Michigan, New York and the mountains of Pennsylvania, and winters from southern Mexico to Panama. In New York it is a transient visitant, fairly common in most portions of the State, arriving from the 5th to the 19th of May, usually by the 10th, and passing on to the breeding grounds from May 30th to June 10th. In the fall the southern migration begins from the 4th to the 20th of August and the last have passed us from the 2d to the 18th of September. Our Adirondack party found them nesting in July on the damp slopes of the Geological Cobble, Indian Head, Skylight and Mt Marcy; and after the first week of August we found them more abundant about Elk lake, Boreas pond and similar localities. This flycatcher has also been reported as spending the summer at Tully, N. Y., by Mr J. A. Dakin, and at Peterboro (June 15th) by Mr Gerritt S. Miller; also reported as a summer resident of Granville, Washington county, by Mr F. T. Pember, and near Buffalo by Mr Ottomar Reinecke. In the Canadian zone of New York it is a fairly common summer resident, but is somewhat local in distribution inhabiting mostly the damp

shady slopes and mountains where the rocks and soil are covered with a dense mat of green mosses and the atmosphere is continually laden with moisture. Here it may be found from early in June to the first of August and here it constructs its nest hidden among the moss on some fallen log or thickly covered rock or steeply sloping bank. Its external dimensions are 4 by 4.5 inches and the internal dimensions 2 by 1½ inches, composed of mosses, lichens and liverworts, mostly mosses of various kinds. It is almost impossible to discover the nest except when the bird is driven from it. The eggs are from 3 to 5 in number, usually 4, milky white, finely spotted with rusty or cinnamon brown, and average .67 by .51 inches in dimensions. They are laid from the 15th to the 25th of June and fresh ones are occasionally found as late as the middle of July. The Yellow-bellied flycatcher utters a low plaintive "peeh-peeh" or "pee-a," as some write it, or as it sounds at other times, "pee-wick"; another note might be written "ti-pee-a." After the young are able to care for themselves they commonly descend from the mountainside and are found more about the streams, swamps and lakesides.

Empidonax virescens (Vieillot)

Acadian Flycatcher

Plate 68

Platyrhynchus virescens Vieillot. Nouv. Dict. d'Hist. Nat. 1818.
27: 22

Empidonax virescens A. O. U. Check List. Ed. 3. 1910. p. 215. No. 465
virescens, Lat., greenish (lit. becoming green)

Description. Upper parts olive green, but lighter in shade than that of the Yellow-bellied flycatcher; *under parts white washed with pale yellowish and slightly tinged with greenish on the breast, but the throat and the center of the belly tawny white*; wing bars and edgings of the secondaries tawny.

Length 5.75-6.25 inches; extent 9.50; wing 2.6-3.15; tail 2.25-2.75; bill from nostril .35; width at base .30; tarsus .65.

Distribution. This species inhabits eastern North America from Iowa, southern Ontario, New York and Connecticut south to Texas and northern Florida; winters in northwestern South America. In New York

State it is confined to the Carolinian faunal area, common in the lower Hudson valley as far north as the lower edge of the highlands, fairly common in the western portion of Long Island, but local and uncommon in Suffolk county. In the upper Hudson valley and on the lowlands of western New York it is very irregular in occurrence and must be regarded as rare or certainly uncommon. Mr Bicknell found it breeding at Riverdale from the 10th to the 25th of June; Doctor Fisher called it a common summer resident at Ossining; Mr Brownell found it a fairly common summer resident at Nyaek; Mr Roosevelt and Mr Howell found it fairly common in the vicinity of Oyster Bay, Northport and Wood Haven, Long Island; Mr Helm has taken two nests with eggs at Millers Place in Suffolk county. In the interior of New York the definite records are as follows:

Amsterdam, June 5, 1885; Syracuse, May 29, 1887, Smithsonian Institution collection no. 162,523; Ithaca, June 4, 1899, T. L. Hankinson, Hilton, August 14, 1903, seen by Albert H. Wright. Definite breeding records for the interior are: Fairhaven, July 18, 1876, see Auburn list, page 23; Canandaigua, 1883, nest found by E. J. Durand; Niagara county, June 14, 1887, female with nest and three eggs taken by J. L. Davison; Chili, Monroe county, June 29, 1900, nest found by E. H. Short; Meridian, Cayuga county, July 4, 1891, nest with three eggs, see Bendire, Life Histories, 2:302; Erie, Pa., June 26, 1899, see Todd, Birds of Erie, page 563; Woodlawn, Monroe county, N. Y., May 30, 1909, nest seen by the author. Besides these, reports of its breeding not confirmed by specimens are: Buffalo, O. Reinecke; Onondaga county, A. W. Perrior; Rensselaer county, Dr T. B. Heimstreet; Little Falls, J. R. Benton; Orleans county, O. Reinecke; Jamestown, Mrs R. R. Rogers; West Barry, C. D. Clarkson and G. D. Gillett.

The Acadian or Green-crested flycatcher inhabits the dense woodland, usually of second growth deciduous trees, and seems to prefer dry situations to swampy localities. Its note is usually written "*wick-up*," or "*hick-up*," often followed by a harsh, abrupt "*queep-queep*"; at other times its call sounds like "*whoty-whoty*" (Bendire). The nest is usually

built from 5 to 20 feet from the ground on the horizontal limb of a deciduous shrub or tree, made of fine roots, grass, and catkins, rather loosely constructed in flat saucer shape about 3 inches in outside diameter and 2 inches by 1 inch inside dimensions. The eggs are from 2 to 4 in number, usually 3, of a creamy ground color boldly spotted with dark, reddish brown; average dimensions .74 by .53 inches. They are usually laid from the 30th of May to the 15th or 25th of June.

Empidonax trailli alnorum Brewster

Alder Flycatcher

Plate 63

Empidonax traillii alnorum Brewster. Auk. April 1895. 12:161

Empidonax traillii alnorum A. O. U. Check List. Ed. 3. 1910. p. 216.
No. 466a

trailli, to Thomas S. Traill, a Scotch naturalist

Description. *Upper parts grayish brown tinged with olivaceous; wing bars and edgings of the wing tawny whitish; under parts yellowish white tinged on the breast with grayish; flanks and under tail coverts strongly washed with yellowish. Lower mandible light colored; tail slightly rounded instead of emarginate.*

Length 5.5-6 inches; extent 9; wing 2.6-3; tail 2.3-2.6; bill from nostril .34; width at base .30; tarsus .66.

Distribution. This subspecies inhabits eastern North America from central Alaska, Keewatin, central Quebec and Newfoundland south to Montana, southern Ontario and northern New Jersey, and the mountains as far south as West Virginia, and winters in Central America. In New York it is a summer resident in the greater part of the State, fairly common in the Catskills and Adirondacks and in the colder swamps of central and western New York. It has been found breeding at Buffalo by James Savage; Penn Yan by Verdi Burtch; Branchport by Clarence F. Stone; West Barry by Neil F. Possun; Oneida county by Egbert Bagg; Wilmurt by Doctor Ralph; Phelps by B. S. Bowdish; Nyaack by L. W. Brownell; Gretna by Lispenard Horton; Cortland by H. C. Higgins; Kenwood by W. R. Maxon; Cayuta by L. A. Fuertes; Medina by Dana C. Gillette;

the upper Ausable lake, Elk lake and Boreas pond by the author and his assistants in 1905. This little flycatcher has evidently extended its range within recent years in some parts of the State, for no nests and eggs of this species were collected in the years between 1860 and 1885 in many portions of western New York where it is now known to breed, although during those years the country was very thoroughly worked over by inveterate oologists. Mr Miller (Auk, 20, 68) found it breeding at Plainfield, N. J. It is thus evident that this species is not confined to the Canadian zone, but is found both in the transition and the Canadian swamps. During the migration season it occurs in nearly every portion of the State, arriving from May 8 to 15 and passing on to its breeding grounds between the 20th and the 30th. In the fall the migration is principally accomplished between the 15th and the 30th of August.

The Alder flycatcher prefers swamps more or less thickly covered with a low growth of alders, willows, meadowsweet and other low shrubs, but is rarely found within the depths of the forest. It sometimes occupies a rather lofty perch on a dead tree or top of an alder while singing its peculiar song which is uttered with apparent difficulty with a swelling of the throat and a labored jerk of the head. Doctor Dwight who heard it in the North Woods syllabizes it "*ee-zee-e-up*." Mr F. H. Allen writes it "*wee-zee-up*," the "*up*" very faint. DeWitt Miller writes it "*grea'-deal*" or "*krateel*." Tom Taylor, one of my assistants in the Mt Marcy region, insisted that the birds on the Upper Ausable marshes sang "*bu-te-o*." It is evident that these different attempts to write the song of the Alder flycatcher could not refer to the same note, and in different parts of the country he evidently sings differently. Beside this so-called song he has a little alarm note that sounds like "*pep*" or "*pip*"; and according to Bendire one like "*whuish-whuish*"; and Allen noted an emphatic "*ca-weet*." Like the Green-crested flycatcher this species usually keeps out of sight among the foliage. It is not found in dense woodland growths on the upland, but rather in the swampy tangles. The nest is usually concealed in a low alder or spirea or willow or swamp rose at

a height of from $1\frac{1}{2}$ to 4 feet from the ground, and according to my experience resembles considerably the nest of the Indigo bird, usually some large leaves, grasses and straws forming a substantial foundation and the interior lined with grasses, pine needles and vegetable fibers. The outside dimensions of the nest are about 3 by 2.5 inches; inside dimensions



Photo by James H. Miller

Alder flycatcher's nest and eggs

2 by 1.75; the eggs are 3 or 4 in number, creamy white, sprinkled with brown, more thickly about the larger end and average .73 by .53 inches in diameter. The dates when fresh eggs have been found vary from June 13th to 28th and a few have been taken as late as the 25th of July. The period of incubation, as in most of the small flycatchers, is 12 days.

Empidonax minimus (W. M. & S. F. Baird)*Least Flycatcher*

Plate 68

Tyrannula minima W. M. & S. F. Baird. Proc. Acad. Nat. Sci. Phila. 1843.
1: 284

Empidonax minimus A. O. U. Check List. Ed. 3. 1910. p. 216. No. 467
minimus, Lat., smallest

Description. This is the smallest of all our small flycatchers. Upper parts grayish brown tinged with olivaceous; wing bars and edgings whitish; *under parts dull whitish* tinged across the breast with grayish brown and washed on the flanks with light yellowish, but much whiter in general on the under part than either the Alder or the Green-crested flycatcher.

Length 5-5.5 inches; extent 8; wing 2.2-2.6; tail slightly emarginate 2.1-2.4; bill from nostril .29, width at base .25; tarsus .65.

Distribution. The Least flycatcher or Chebeck, as it is usually called, is a common summer resident of all portions of the State, being almost or quite as common as the Wood pewee both in settled districts and in the wooded hills of the "southern tier" and the outskirts of the Adirondaeks. It arrives from the south from April 25th to the 12th of May, average date being May 3, and departs for the south from the 5th to the 25th of September. Its general distribution is from central Mackenzie, Quebec and Cape Breton southward to Nebraska, Indiana, Pennsylvania and New Jersey, and its winter range from northeastern Mexico to Panama and Peru.

The haunts of the Least flycatcher are the garden, orchard, grove and open woodland. He is more often seen in exposed positions than either the Alder, Green-crested or Yellow-bellied flycatchers and is a rather familiar bird of orchard lands, sitting on the top of the apple tree or the telegraph wire, uttering continually his *chebeck* or *sebic* with a slight jerk of the head. At other times it seems to say "*s-slick-s-slick*" or "*sewick*." It has also a call note which resembles the syllable "*whit*" and is sometimes seen hovering over the trees where the nest is concealed twittering a low "*whit-wee-wee*." The nest is a compactly felted structure, more delicate in appearance than that of any of our other small flycatchers,

and resembles somewhat a Goldfinch's nest, mostly composed of gray plant fibers and cottony down, feathers, hair and a few grasses, placed in the upright crotch of a tall bush or small tree 10 to 25 feet from the ground. The outside dimensions are about 3 by 2.5 inches, the inside dimensions 2 by 1.5. The eggs are 3 or 4 in number, milk white in color, the average size .65 by .50 inches. Fresh eggs are found from May 20 to 30, or in the northern counties from the 5th to the 15th of June.

Suborder **OSCINES**

Songbirds

Syrinx with 4 or 5 pairs of intrinsic muscles. These are inserted at the *ends* of the 3 upper bronchial half rings, thereby producing a greater flexibility and effectiveness of the voice apparatus. The tarsus is bilaminate, each side being covered with a horny plate meeting its mate behind in a sharp ridge. The primaries are 9 or 10, the first often short or spurious.

This suborder includes the greater number of our perching birds which are characterized by the complexity of their song. They all have the bilaminate tarsus, with the exception of the larks described under Family *Alaudidae*, and the thrushes with their relatives, that have a "booted tarsus," the chief characteristic of these highly differentiated birds which are usually considered to represent the acme of avian evolution.

Family **ALAUDIDAE**

Larks

Wings long and pointed, the inner *secondaries conspicuously elongated*; primaries 9 to 10 in number; tail of moderate length, rather broad and squarish; bill stout, short, subconical; nostrils covered with *tufts of bristles*; *tarsus subcylindrical* and *scutellate both before and behind*, a very unusual condition for the passerine foot; the *hind claw long and much straightened*, evidently adapted for walking in the field or snow; moult single; plumage more or less mottled and streaked. This family is holarctic in distribution, numbering about one hundred species. They resemble sparrows in feeding habits. Most, if not all the members of the family, however, seem to be *walkers* instead of hoppers, spending most of their time upon the ground. They are excellent flyers, however, progressing in long, sweeping undulations, and many of the species migrate over vast extents of country. They are musical, several species singing while on the wing, mounting

higher and higher in the air like the famous skylark of Europe. They nest upon the ground. Eggs usually 4, closely mottled with brown. The sexes are nearly alike in coloration. The larks are valuable not only for their interesting habits and song, but the destruction of weed seeds and, during the nesting season, of numerous insects on which the young are fed.

***Alauda arvensis* Linnaeus**

Skylark

Plate 69

Alauda arvensis Linnaeus, Syst. Nat. 1758. Ed. 10. 1:165

A. O. U. Check List. Ed. 3. 1910. p. 218. No. 473

aláuda, Lat., lark (from Celtic, meaning high song); *arvensis*, Lat., of the ploughed field

Description. About the size of the Horned lark but lighter colored; upper parts of 3 different shades; the center of the feathers dark brown, fading to grayish white or yellowish white on the outer margin, giving a general streaky grayish appearance to the upper parts. Under parts dull whitish and yellowish white more or less spotted on the breast with grayish brown. The outer tail feathers whitish.

Length 7.5 inches; extent 14.7; wing 4; tail 2.5; bill .5.

Distribution. This European species has been introduced in New York State, especially on the western end of Long Island and in the southern Hudson valley. In 1887 it had evidently become established near Flatbush, Long Island, and was found breeding there July 2, 1887 (see Dutcher, Auk, 5, 180). It was still breeding near Flatbush in July 1895 (see Proctor, Auk, 12, 390) and Doctor Braislin noticed them at Neck Road, Long Island, in March 1898. John Burroughs speaks of them as occurring at Esopus-on-the-Hudson (see Pepacton, pages 150-53). It is thus evident that this famous songster became definitely established in the southeastern portion of New York and retained its hold for many years. But the latest reports from western Long Island seem to indicate that the birds are not increasing in numbers or barely holding their own. So it is evident that without further introduction of new stock from Europe this bird will not become a widely dispersed species in America as the English sparrow and Starling have done.

Otocoris alpestris alpestris (Linnaeus)*Horned Lark*

Plate 69

Alauda alpestris Linnaeus. Syst. Nat. 1758. Ed. 10. 1:166*Alauda cornuta* DeKay. Zool. N. Y. 1844. pt 2, p. 179, fig. 165*Otocoris alpestris alpestris* A. O. U. Check List. Ed. 3. 1910. p. 219.
No. 474*otocorys*, Gr., earcrest, alluding to the plumicorns; *alpestris*, new Lat., of the Alps

Description. *Upper parts* ochreous brown and grayish brown; the scapulars, back and side of neck and head more or less tinged with vinaceous; *tail square, mostly black*; the central tail coverts almost as long as the tail feathers, colored like the back and mostly concealing the tail when it is closed; a *black maxillary stripe* on each side of the head from the base of bill to below the ear; *black ear tufts* or plumicorns above the eyes rising from the sides of the forehead and connected around the frontlet by a blackish line; a *black breast plate* somewhat crescent shaped in the middle of the breast; the *throat deep sulphur yellow*; *frontlet* near the base of the bill *and line over the eye also decidedly tinged with yellow*. Under parts otherwise grayish white, tinged on the sides with vinaceous and brownish. *Female*: Smaller and less brightly colored.

Length 7.75 inches; wing 4-4.25; tail 2.4-2.9; bill .38-.45.

Distribution. The Horned lark inhabits the boreal region from Boothia peninsula to James bay, Labrador, and Newfoundland, and winters south to the Ohio valley and the Atlantic coast to Georgia. In New York it is a common winter resident of Long Island and the coastal region of the State in general, but in the interior and western portion of the State it has not been taken in recent years to my knowledge. Thirty or 40 years ago it was considered a winter resident of the lake shore region of western New York, but for 15 years I have failed to secure any specimens on the shores of Lake Ontario or Lake Erie although it unquestionably does occur there in the winter or during the migration time in the late fall. In general, however, we must say that this species is confined principally to the coastal districts, and that the Prairie horned lark is the subspecies commonly found in the western portion of the State both in summer and in winter. The horned lark arrives from the north on Long Island from October 20 to November 15 and is last seen in the spring from the 1st to the 20th of March.

Otocoris alpestris praticola Henshaw*Prairie Horned Lark*

Plate 69

Otocorys alpestris praticola Henshaw. Auk. July 1884. 1:264*Otocoris alpestris praticola* A. O. U. Check List. Ed. 3. 1910. p. 219.
No. 474b*praticola*, Lat., *pratium*, meadow, and *colere*, to inhabit

Description. This species resembles the Horned lark in color, but is paler; *throat not so deep a yellow and often white* without a tinge of sulphur; the *forehead and line over the eye a dull white* without any decided tinge of yellow. It is also *smaller* than the Horned lark.

Length 7.25 inches; wing 3.75-4.2; tail 2.4-2.6; bill .38-.40.

Distribution. The Prairie horned lark, which is a subspecies of the preceding, inhabits the interior of North America from southern Manitoba, southern Quebec and southern New Hampshire to eastern Kansas, Ohio, West Virginia and Connecticut. It winters as far south as Texas and Georgia. In New York State the history of this species has been exceedingly interesting. While many of our valuable song and insectivorous birds have been diminishing in numbers, this species has gradually increased year after year, until at the present time it inhabits the greater portion of this State as a summer resident. A perusal of the records before me indicates that in 1876 this species was found breeding in central and western New York. At Canandaigua by Mr Howey (see N. O. C. Bull. 3, 40); at Rochester by Mr Jones (*ibid.*, 3, 89); at Lowville by Doctor Merriam (*ibid.*, 3, 53); in 1877 Mr Rathbun found it breeding at Auburn; in 1881 Mr Park found it breeding at Green Island near Troy. In 1884 it was found breeding first in Niagara county by Davison and in 1885 at Virgil (see Forest and Stream 22, 145). In 1886 a female was taken at Long Island City on July 31 (see Dutcher, Auk, 5, 181). In 1900 Mr Lispenard S. Horton found it breeding at Gretna, and in 1899 Mr Pember at Granville, Washington county. In 1905 the author found it on June 16 feeding its fledglings at Elizabethtown in Essex county. It is evident by a perusal of these records and many others, that there has been a great

increase in the abundance of this species on the grasslands of New York and also of the surrounding states, until at the present time it has invaded not only the eastern part of New York, but Connecticut, Massachusetts Vermont and other New England states. This species having originally been confined to the prairie region has now found conditions favorable to its habitation in the eastern states and has gradually been spreading year after year till now we must call it one of the common birds of the open field. It is almost a permanent resident of New York for it is found, in western New York at least, during every month of the year, although it is decidedly uncommon in most localities from the middle of December until the middle of January. We may safely say, however, that it is the earliest species of passerine birds to migrate. From the 17th to the 23d of January, provided there is fair weather, we are almost sure to see an increase in the number of Prairie horned larks in the fields of western New York, and their number gradually increases until the middle of February when the mating song of the males is distinctly heard and nearly all the birds are paired by the middle of March. They frequently begin to breed, however, as early as the first of March for I have found the nest containing eggs well started in incubation on the 11th of March at Rochester. Nests have also been reported from Erie county in February and early March. It is thus the earliest of our small songbirds to nest in western New York. The Prairie horned lark is a bird of decided personality. He is often seen running along the road in front of the carriage or horseman; when approached too closely he erects the jet black tufts of feathers like devils' horns on the sides of the head, and if more closely pressed flies over the field at a moderate elevation with long gliding strokes of his pointed wings and alights on some stone, clod of earth or possibly on a fence post. If watched for some time the male will be seen gradually to mount in the air higher and higher with continued hovering motion of the wings, uttering his fine, threadlike whistle. He mounts higher and higher, after the manner of the famous Skylark, sometimes reaching a height of several hundred feet, all the while uttering his twittering song

until finally exhausted he drops like a dart to the field to rejoin his mate. This flight song is almost sure to be heard several times a day over the field in which the nest is concealed. The Prairie horned lark walks and runs instead of hopping like our common sparrows, and his ample square tail, which is black when extended in flight, as well as his long pointed wings and easy gliding flight, distinguish him readily from any of our other field birds. It is evident that two broods are often reared in this latitude, for after the first brood are well fledged, it is a common thing to find nests containing fresh eggs as late as the middle of May or early in June. After the young are reared, they are found about plowed fields and waste lands, in little troops consisting usually of a pair of old birds and their young. Frequently the troop consists of 5 or 6 birds; at other times of 10 or 12, which leads me to believe that the old and their young keep together during the greater part of the season. Late in the fall they gather into larger bands and in the springtime after the migrations are well advanced, it is



Photo by George C. Embody
Prairie horned lark's nest and eggs

not unusual to see flocks of 15 and 20 Prairie horned larks feeding together on the open fields in any part of central or western New York. The nest is concealed in the pasture or meadow beside a clod of earth, a cobblestone, or a tuft of grass, and consists simply of a few grasses lining the hole which the mother bird has scooped out in the earth, or in a depression caused by the foot of a cow or some other domestic animal, which she has rounded and lined with grasses. The eggs are almost invariably 4 in number, grayish white in ground color, very thickly spotted with light brown, resembling closely the eggs of the English sparrow but more thickly and

evenly spotted and of a slightly different shape; average dimensions .85 by .63 inches. Frequently, as will be inferred from what is said above, the eggs are laid before the last severe snow storms of the season. Photographs by Professor Bailey and others which I have seen frequently show the nest through a round hole in the snow which is several inches deep about it. Evidently the old bird by continually sitting on the nest and raising her head keeps it open to the sky and so preserves her eggs from destruction; but frequently, if the snow is deep and the temperature severe, the first brood is destroyed. But as soon as the weather becomes pleasant again they invariably make new nests and continue until the young are successfully reared. This interesting little bird must be called a beneficial species, for its food consists through the winter months almost entirely of weed seeds. In this manner it destroys millions of noxious plants which otherwise would interfere with the proper development of the farmers' crops; and during the breeding season as well as through a large portion of the summer months, feeds to a great extent on the insects which destroy the field vegetation, especially small grasshoppers and leaf-eating beetles and the larvae of all kinds of insects.

Otocoris alpestris hoyti Bishop

Hoyt Horned Lark

Paler than *alpestris*, more grayish brown; throat paler yellow, and superciliary stripe white; size of *alpestris*. (A.O.U. No. 474k)

This subspecies breeds from the western shore of Hudson bay to the mouth of the MacKenzie and the Arctic coast; migrates southward to Utah, Kansas, Ohio, and Long Island in winter. For New York records see Oberholzer, U. S. Nat. Mus. Proc. 24, 845. Dwight, Auk, 7:143. Bishop, Auk, 13:132. It is uncommon in this State, and can be identified only by collecting specimens and comparing them with museum series.

Family **CORVIDAE**

Crows, Jays and Magpies

Primaries 10; tail variable, usually rounded; 12 rectrices; *bill cultrirostral*, stout; nostril covered by *dense tufts of bristles*; rictus also provided

with a few bristles; middle toe joined to the outer as far as the first joint; size medium to large, the family including the Raven and the Crow, our two largest passerine birds. Sexes alike in coloration and size; voice harsh and unmusical, though the syrinx is well developed; subfamilies of Crows or Corvinae, and Jays and Magpies (Garrulinae) are recognized.

These birds are mostly omnivorous in diet, feeding on insects, young birds, small mammals, fish and crayfish, fruits and grains. Thus, as would be expected, they frequently develop injurious habits which are very destructive to song birds and sometimes to the farmers' crops. Undoubtedly, in general, the Crow and the Blue jay are injurious species. A careful study of the food of the Crow by Prof. Walter B. Barrows will be found in Bulletin 6, Biological Survey, United States Department of Agriculture, and of the Blue jay in the Yearbook for 1896, pages 197-206.

Pica pica hudsonia (Sabine)

Magpie

Corvus hudsonius Sabine. *Franklin*, Narr. Journ. Polar Sea. 1823. 671

Pica caudata DeKay. *Zool. N. Y.* 1844. pt 2, p. 131, fig. 53

Pica pica hudsonia A. O. U. Check List. Ed. 3. 1910. p. 221. No. 475

pica, Lat., magpie; *hudsonia*, of Hudson bay

Description. Tail very long, rounded, and the central feathers elongated. Head, neck, back, throat, breast and under tail covers black; secondaries, belly, sides and inner webs of primaries white; wings and tail glossy, metallic greenish blue, the whole varied with bronze and purplish.

Length 17.4-22 inches; wing 7.3-8.5; tail 9.3-12; culmen 1.1-1.4.

Distribution. This species is mostly confined to the western country from the Yukon, Saskatchewan and Winnipeg to New Mexico; and rarely straggles eastward as far as Illinois, Michigan, Ontario, Hudson bay and Quebec. The only record for New York State is on the authority of DeKay who reports its occurrence near Niagara, but there is, as far as I know, no specimen in existence which was taken within the limits of the State. It is not improbable that it may have occurred in the northern and north-western portion of the State, however, for it occurred at Odessa, Ontario, in March 1898 (see Clarke. *Auk*, 15:274).

Cyanocitta cristata cristata (Linnaeus)*Blue Jay*

Plate 70

Corvus cristatus Linnaeus. Syst. Nat. 1758. Ed. 10. 1:106*Garrulus cristatus* DeKay. Zool. N. Y. 1844. pt 2, p. 129, fig. 54*Cyanocitta cristata cristata* A. O. U. Check List. Ed. 3. 1910. p. 222.

No. 477

cyanocitta, Gr., $\chi\upsilon\alpha\chi\omega\varsigma$, blue, and $\chi\lambda\epsilon\tau\tau\alpha$, jay; *cristata*, Lat., crested

Description. Head conspicuously crested; tail and wings rounded; upper parts light purplish blue; wings and tail bright cobalt blue; the secondaries and tail feathers barred with black, the longer wing coverts, secondaries and tail feathers except the central pair conspicuously tipped with white; side of the head and throat purplish white bordered by a black collar running over the nape down the sides of the head and neck and across the forebreast; lores black; breast and sides grayish fading to clear white on the belly and under tail covert.

Length 11-12.5 inches; extent 15.7-17.5; wing 5-5.7; tail 5-5.7; bill 1.25; tarsus 1.25-1.35.

Distribution. The Blue jay inhabits eastern North America from central Alberta, Quebec, Nova Scotia and Newfoundland south to the gulf coast. In New York it is a resident of all portions of the State but is a common species only in the less settled districts, seeming to prefer evergreen or mixed woodlands, and in western New York is confined mostly to the larger forests, swamps and ravines. Although Blue jays may be found in nearly every county of the State at any time of the year, it is perfectly evident to a careful bird student that there is a decided migration of the species, the southward movement occurring in October from about September 20 to October 30. In the spring the northern migration is later than would be expected, migrating individuals often occurring in considerable numbers from the 25th of April to the 25th of May. I have frequently noticed as many as 20 or 30 Blue jays in small patches of woodland near the shore of Lake Ontario and on the shores of Canandaigua and Seneca lakes at this season of the year, evidently migrating northward to their breeding grounds, for whatever specimens were taken were found not to be nearer than three weeks to the breeding period although Blue

jays which nest in the localities mentioned already were incubating their eggs or had young in the nest. In southern and western New York the Blue jay makes its nest in April. It is usually placed in an evergreen, although small deciduous trees are often selected, and is composed of sticks, leaves, bark and plant fibers, and lined with dead twigs of hemlock or strips of bark and other fine materials. The eggs are commonly deposited from the 20th of April to the 15th of May. They are from 3 to 6 in number, pale olive greenish or buffy in ground color, spotted more or less profusely with brown. They average 1.1 by .82 inches in size.

The Blue jay is one of the noisy birds of our woodlands, especially when he sees a man, a hawk or any large object moving through the forest. He seems always to be shouting his high shrill "jay" or "yáh-yáh-yáh"; and also imitates very successfully the scream of the Red-shouldered hawk, and has other notes resembling the tooting of a small bugle. His



Photo by L. S. Horton

Blue jay's nest and eggs

activity is almost incessant and his mischief never ending. Most naturalists consider the Blue jay one of the worst nest robbers we have, and there is little doubt that they are correct, for my own experience shows that he is extremely fond of birds' eggs and young birds; but he also does some

good by destroying many injurious insects, and plants many forest trees. I have seen him carrying acorns and chestnuts near my camp on Canandaigua lake, and hiding them at a considerable distance from the trees where he found them, evidently with the idea of picking them up later. I had heard that the Blue jay was a tree planter but I had always supposed that he planted them simply by dropping the nuts while flying from place to place in the forest; but in this instance, he carried the acorns and placed them under the dead leaves. Going to the spot I uncovered them myself and was surprised to find that sometimes at least, like the gray squirrel, he actually plants the nuts in the ground evidently intending to store them for future use. In the fall and winter the Blue jay frequently attacks the corn standing in the shock and also visits the granaries to peck at the kernels which are exposed between the cracks of the boards. This slight destruction of grain in the fall but more particularly his wanton destruction of young birds, perhaps more than overbalances the good he does.

Perisoreus canadensis canadensis (Linnaeus)

Canada Jay

Plate 71

Corvus canadensis Linnaeus. Syst. Nat. 1766. Ed. 12. 1:158

Garrulus canadensis DeKay. Zool. N. Y. 1844. pt 2, p. 130, fig. 55

Perisoreus canadensis canadensis A. O. U. Check List. Ed. 3. 1910
p. 226. No. 484

perisoreus, derivation uncertain, perhaps from $\pi\epsilon\sigma\iota\tau\omicron\upsilon\zeta\epsilon\iota\omicron$, to heap up around, referring either to the bird's instinct to hoard food, or to the large, high-walled nest; *canadensis*, of Canada

Description. Tail long and rounded; *frontlet*, nasal tufts, sides of the head, *throat* and *forechest* dull white; *occiput* and *back of neck* blackish; *upper parts* dusky gray; tips of the wing feathers and tail feathers indistinctly tipped with whitish; under parts dull grayish. Young similar but darker, without any white about the head and throat.

Length 11-12 inches; wing 5.6-5.9; tail 5.6-6.4.

Distribution. The Canada jay inhabits the boreal region of eastern America from Mackenzie, Keewatin and northern Quebec to Alberta, northern Minnesota, Michigan, New York and Maine. It rarely straggles

southward in the winter, but has been taken in Nebraska, Pennsylvania and Massachusetts. In New York State it is confined to the Adirondack district and is scarcely if ever, seen outside the spruce and balsam belt. In the denser portion of this Adirondack forest it is a fairly common resident, both in the spruce and tamarack swamps and on the wooded mountain slopes. While our party was camping in the Mt Marcy region these birds were found at intervals in all the forests from the Ausable lakes to Skylight camp on the slopes of Mt Marcy.

This jay is known to the northern hunters also under the names of Whiskey jack, Moose bird and Camp robber as well as various other epithets referring to his fearlessness in attacking and devouring any kind of meat or fat which is accessible about the camp. In the winter season it is almost impossible to drive these birds away from the carcasses of deer or other animals which have been killed, and they will enter the camp and hop about the table devouring anything within reach, scarcely giving any attention to the human occupants who are endeavoring to drive them away. This jay is much less noisy than the Blue jay and consequently is a more agreeable attendant of the northern hunter. When following deer through the North Woods I have frequently discovered that these birds were also following me, evidently expecting that I might be successful in bringing down the quarry, but the only evidence that I had of their approach was the silent flitting of shadows behind me as the birds alighted from time to time in the branches not far above my head. The Canada jay breeds very early in the season, in the Adirondack forests evidently making its nest late in February or early in March. This is a bulky affair and is composed of twigs, rotten wood, bark, and catkins, lined with softer materials of the same kind, especially catkins and feathers from the bird itself. It is usually placed in a small conifer close to the trunk. The eggs are 3 to 5 in number, dull gray, profusely speckled with brown and purplish, the average dimensions being about 1.15 by .82 inches. The young are out of the nest and flying about foraging for themselves by the middle of June.

Corvus corax principalis Ridgway*Northern Raven*

Plate 71

Corvus corax principalis Ridgway. Manual N. A. Birds. 1887. 361

Corvus corax DeKay. Zool. N. Y. 1844. pt 2, p. 134, fig. 51

Corvus corax principalis A. O. U. Check List. Ed. 3. 1910. p. 228. No. 486a

córvus, Lat., crow; *córax*, Lat., and Gr., *κόραξ*, raven; *principális*, Lat., chief

Description. Decidedly larger than the crow; bill much heavier and the feathers of the throat long and pointed; color as in the crow.

Length 22-26.5 inches; extent 46-53; bill about 3.05; wing 16.5-18; tail 9.9; tarsus 2.65.

Range. The Northern raven breeds from northwestern Alaska, northern Elsmere Land and northern Greenland south to Washington, central Minnesota and the coast of New Jersey; in the mountains as far as Georgia. In the eastern states it is uncommon in the cultivated districts. In New York the species is confined to the western Adirondack region, although stragglers are sometimes taken in various parts of the State, as follows: Comac hill, Long Island, in 1836; Brooklyn, 1848; Mayville, three seen in 1861 by A. E. Kibbe; Wolcott, 1875 (see Auburn List); Lansingburgh, one seen in 1872 by F. S. Webster; Cayuga, 1880, one seen by Foster Parker; Canandaigua lake, one shot about 1885 by "Quake" Smith; Sandy Creek, about 1890, J. W. Soule; shore of Lake Ontario in Monroe county, about 1885, taken by David Bruce; border of Schoharie county, one seen by John Burroughs; Lake George, October 29, 1897, specimen in the State Museum; Granville, a rare straggler, F. T. Pember; Mt Marcy, October 23, 1875, several seen (see Colvin, seventh report Adirondack Survey, page 96); Oneida lake, October 1878, J. P. Hutchins. All these records are evidently of stragglers, usually seen in the fall or winter. At the present time a few may be seen in the western Adirondack region, especially in the northern portions of Hamilton and Herkimer counties, the southern portion of St Lawrence county and the eastern portion of Lewis county. In this part of the North Woods the Raven

still breeds, but in constantly diminishing numbers. Formerly it was well distributed throughout the State, before the virgin forest was destroyed. In 1810, when Dewitt Clinton visited the western counties, he saw great numbers of ravens on the borders on Seneca lake near the village of Geneva and was told that no crows had made their appearance in that part of the country (see Clinton, Intro. Dis. before the Lit. and Phil. Soc. New York, May 4, 1814). One hundred years from this date, or in 1910, the Raven had been unknown for many years by the inhabitants of Ontario county and the common Crow had been for 50 years an abundant resident of all the surrounding country. Such is the history of the Raven and the Crow in all portions of New York.

Habits. In habits the Raven is more sedate and retiring than the Crow, walks with an easy graceful air, is more deliberate and dignified. On the wing he sails more than the Crow, and the wing stroke is peculiar, at once attracting the eye as decidedly different from the flight of its commoner relative. His notes are a low, gurgling chuckle, or a hoarse rolling *cr-r-r-cruck*, sometimes *cra-ack*, *cra-a-ck*, varied by deep grunting *koe-rr-koerr* (Bendire). This description of its notes enabled me to identify the Raven at once long before it was seen, in the region of Lake Nipissing and in the Adirondaek forest.

The Raven's breeding site is on cliffs or trees. The nest is compact, symmetrical, made of sticks and weed stalks, lined with grasses, hair, wool and other soft materials. It is usually occupied year after year. The eggs have been found to vary from 2 to 7 in number, and resemble those of the Crow, but average 1.75 by 1.2 inches in dimensions.

The food of the Raven is offal or refuse of any kind such as dead fish and other animals. In the North Woods it is a common experience to find ravens about the spot where deer have been killed and "dressed." They feed also on young birds, frogs, mice etc., but there seems to be no likelihood that ravens will ever be common enough in New York to receive economic consideration. There is rather cause to fear that this famous and picturesque bird will disappear entirely from the State domains.

Corvus brachyrhynchos brachyrhynchos Brehm*Crow*

Plate 72

Corvus brachyrhynchos Brehm. Beitr. Vögelkunde. 1822. 2: 56*Corvus americanus* DeKay. Zool. N. Y. 1844. pt 2, p. 132, fig. 52*Corvus brachyrhynchos brachyrhynchos* A. O. U. Check List. Ed. 3
1910. p. 228. No. 488*brachyrhynchos*, Gr., shortbilled

Description. With the exception of the Raven, our largest passerine bird. Plumage entirely shiny black with purplish reflections. The bristly nasal tufts reach halfway to the end of the bill.

Length 17-21 inches; extent 34.5-38; wing 11.9-13.3; tail 7-8; bill 1.8-2; tarsus 2.2-2.4.

Distribution. The Crow inhabits eastern North America from southern Mackenzie, central Quebec and Newfoundland to Texas and the Gulf States. In winter it withdraws from the northern limit of its range, but in New York is an abundant winter resident throughout the coastal district, the Hudson valley, and the lowlands of western New York. It breeds in every county of the State, entering the Catskills and Adirondacks along the cleared land and river valleys to the very centers of those districts. About Mt Marcy we found crows at Boreas pond, Flowed land, Keene valley, and John Brown's grave, but they do not inhabit the depths of the Adirondack forest, being replaced by the Raven in the wildest portion of the western Adirondacks. On the highlands of southwestern New York and in the northern portions of the State, the Crow makes its appearance early in March with the first warm weather, perhaps about the same time as the Robin and Blue bird, sometimes a few days earlier. In all parts of the State the mating season may be said to occur in March and in the warmer portions of the State the nests are repaired, or the construction begun, as early as the third week in March, and the eggs are frequently laid by the 1st of April. But the average date would perhaps be April 15 to 30. The nest of the Crow is usually placed in the fork of a tall tree, either evergreen or deciduous, at a height varying from 10 to 80 feet from

the ground, usually above 30 feet. It is a bulky affair, with a large foundation of sticks, twigs, cornstalks or other similar materials, and a well-formed central cup of the soft inner bark of dead trees, vegetable fibers, or grasses and cow's hair. Typical nests in western New York are lined with the bark of grapevines and *Arbor vitae* or the inner bark of the basswood. It is deeply hollowed, so that the bird can scarcely be seen from the ground except the tip of her tail projecting over the edge of the nest. The eggs are 3 to 5 in number, frequently as many as 7, the ground color varying from a pale bluish green to olive green, rather thickly spotted and blotched with brown and gray. They average 1.7 by 1.18 inches in dimensions. The period of incubation is about 17 or 18 days, and the young remain in the nest about 3 weeks. The habits of the Crow are too well known to require extended comment, with the possible exception of its tendency to gather in roosts during the winter months. There are situated in New York State, on Staten Island, on Long Island, in the Hudson valley and in the lowlands of western New York perhaps one dozen to two dozen large crow roosts. It has been practically impossible to obtain reliable information as to the different roosts. In the vicinity of the author's home there has been for 15 years a large roost just west of the city of Rochester, usually in the town of Gates, and also an immense roost in the vicinity of Niagara Falls, a large roost in Ontario county, and another in Tompkins county near the head of Cayuga lake. I have several times visited the Gates crow roost and as nearly as I could estimate the numbers congregated were between 20,000 and 40,000. During the day they are accustomed to spread over the country about the lower Genesee valley as far north as Scottsville and sometimes to Geneseo and along the shores of Lake Ontario and Irondequoit bay. The Ontario crow roost was formerly just north of the village of Canandaigua. It has been moved several times within the last 12 years. Eleven years ago it was at Paddlefords Station in a small patch of second growth deciduous timber. The number of crows was estimated at 20,000 (see Eaton, *Auk* 20, 57-59). The following year it moved several miles to the eastward and for 5 years at least

has been in the Gainey swamp, $1\frac{1}{2}$ miles south of Phelps, where many thousands of crows—probably 30,000 to 40,000—have been in the habit of roosting from November to March. About the last of December 1911, however, this roost broke up. A small portion, that is, the crows of western Ontario county, still remained to roost to the number of 3,000 or 4,000 just northwest of Melvin hill; the remainder joined the crows of Seneca county roosting near the town of Varick, a few miles southeast of Geneva. Inquiry in different parts of the State indicates that it is customary for the crow roosts to vary both in numbers of crows assembled and in the exact location of the roost from year to year, but it is a fact that during the winter months in all portions of the State the crows congregate in great numbers to roost, whereas, during the summer months, the roosts consist of only a few crows, from 50 to 300 being the usual number of male crows and others which are not engaged about the nest, which meet together to roost at night, and as soon as the young are out of the nest the roosts become larger but rarely more than a few hundred, until the winter season begins, when large roosts are organized, and usually the country covered during the day extends from 20 to 30 miles in various directions from the roost.

The food of the crows at this time of the year consists mostly of grain left in the field, especially unhusked corn, dead animals such as cattle, horses, calves, sheep etc., which are left exposed in the field, dead fish and other animals found along the shores of lakes and streams, crayfish and other aquatic animals taken from the shallow water, thorn apples and other fruits which are searched for under the dead leaves, beetles, cocoons and larvae of insects which are unearthed from rotten wood, dead leaves and sod, and occasionally frozen apples hanging on the trees, and field mice which are hunted in the swamps and meadows. During the summer the food of the Crow consists to a large extent of cutworms and other injurious larvae of insects, but they also feed to a considerable extent upon predaceous beetles and the eggs and young of smaller birds, as well as upon chickens and hens' eggs found at some distance from the farmhouse. They also destroy numbers of grouse and pheasant eggs as well as the young of

these birds. On account of the destruction of eggs and young of beneficial species, I am inclined to think that the Crow in most localities is to be ranked as an injurious species, but we must remember that the injurious insects destroyed by the Crow's victims, while far outnumbering what the Crow himself would destroy of those special insects, would never equal the number of cutworms and white grubs which the Crow destroys on meadows and cultivated land. Consequently, we must take into consideration the fact that the Crow is the principal enemy of cutworms and white grubs, whereas most of the small birds which he destroys, though decidedly beneficial, do not reduce the numbers of cutworms to any great extent. I believe that the Crow's case must be decided independently by each intelligent agriculturist, for in some localities he may be in the main beneficial while in others he should be considered injurious. I am certain that the crows which live on the hillsides back of my camp are injurious from my standpoint in life, because they destroy a large percentage of the eggs and young of the small song birds which are so beneficial and such pleasant neighbors, whereas it is evident that they do very little good in destroying cutworms or other insects, except grasshoppers, in that locality. On the other hand, I have seen wide fields of lowland where cutworms had destroyed perhaps 30 per cent of the corn crop and crows were rendering efficient service in reducing the number of the pest. The Crow is such an active, intelligent and versatile character that it is practically impossible to balance his general account satisfactorily to the agriculturist. At times he appears in a highly beneficent rôle, energetically bent on the wholesale destruction of grasshoppers, cutworms and "Junebugs"; at others, he is the traditional black robber of the cornfield, the orchard, the pea patch and the chicken yard; and again he is the ruthless destroyer and the cannibal, rifling the Thrush's and the Grouse's nest and slaughtering the helpless nestlings of our vireos and warblers. The farmers of New York are more or less at variance in their opinions regarding the Crow's character, according as their individual experiences have been favorable or otherwise. But bird lovers can have no two opinions in their reports if they have followed

the Crow, early and late, through the months of May, June and July and have watched with loving care the nests of their woodland songsters. They will find the Crow among the worst enemies of the bird's nest and the fledgling.

Corvus ossifragus Wilson

Fish Crow

Plate 72

Corvus ossifragus Wilson. Amer. Orn. 1812. 5: 27, pl. 37, fig. 2
 DeKay. Zool. N. Y. 1844. 2: 135
 A. O. U. Check List. Ed. 3. 1910. p. 229. No. 490
ossifragus, Lat., bonebreaking, referring to its piscivorous diet

Description. Distinguished from the common Crow by its smaller size. It is, however, of a more uniform black color, with bright bluish and greenish reflection on the under parts as well as on the upper parts. It may also be distinguished by its call notes which resemble those of a young Crow.

Length 15-17.5 inches; wing 10-11; tail 6-7; bill 1.7; tarsus 1.7-2.

Distribution. This crow inhabits the coastal districts of the eastern United States from Connecticut to Louisiana and Florida. In New York it is confined to the lower Hudson valley as far as West Point and occasionally to Poughkeepsie, very rarely farther up the river, and to the western portion of Long Island. It has been reported from Rockaway, July 1873, by Eagle; Oyster Bay, December 30, 1874, by T. Roosevelt; Riverdale, by Bicknell; West Point, by Mearns; Mt Vernon, by Eames; Sandy Hook, by Zarega; Esopus-on-the-Hudson, as a common summer resident, by Burroughs (see Bicknell, "Birds of the Catskills," page 135); Staten Island, fairly common, and Long Island, fairly common and breeding, by Purdy; Bellport, Long Island, common summer resident, breeding, W. A. Babson; Manhasset, Long Island, 4 specimens, by Dutcher; Parkville, Long Island, nest and eggs taken in 1894 by H. C. Oberholzer; reported from Hudson by Will Richard and Troy by F. S. Webster; also reported as identified by size and note near Geneva, N. Y., by F. H. Hall and Otto McCreary. Although the species may occasionally be found as far inland

as Troy, it is extremely rare to find it far from a tidal river and it is usually confined to the immediate vicinity of the seashore.

Haunts and habits. When there is no Common crow nearby with which to compare the size of the Fish crow, it is very difficult to identify him by size alone, but his notes are very characteristic, consisting of an expressionless croak, resembling, as before said, the note of a young Crow, but a hoarser "car," sometimes a clear "cah" or a "cahk" often repeated.

The breeding site of the Fish crow is usually in cedars, about 25 feet from the ground, near the waterside. The nesting materials are sticks, bark and grasses, lined with inner strips of grapevine bark and fine grasses, the structure resembling very closely the nest of the Common crow. The eggs are from 4 to 6 in number, in color not distinguishable from those of its larger relative, but smaller, averaging 1.46 by 1.06 inches.

Its food consists mostly of fishes, crabs and other small crustaceans and offal washed up on the shore. Occasionally, like its larger relative, it feeds on the young and eggs of smaller birds. It is less sociable in habits than the Common crow, but is often seen in company with that species. It is less suspicious, however, than the Common crow and more easily approached.

Fam. ly STURNIDAE

Starlings

Sturnus vulgaris Linnaeus

Starling

Plate 74

Sturnus vulgaris Linnaeus. Syst. Nat. 1758. Ed. 10. 1:167

A. O. U. Check List. Ed. 3. 1910. p. 230. No. 493

sturnus, Lat., starling; *vulgaris*, Lat., common

Description. Shaped somewhat like the Meadowlark but with a relatively longer bill and shorter tail; general color *black glossed with iridescent purple and greenish, spotted with buff* or brownish white; *bill yellow; winter plumage* with the brownish or buffy of the upper and under parts mostly obscuring the greenish and purple. Sexes almost alike. *Female* slightly more spotted below; *young* plain grayish-brown.

Length 8.5 inches; wing 5.1; tail 2.6; bill 1; tarsus 1.2.

Distribution. The Starling is a native of western and central Europe wintering mostly in southern Europe and northern Africa, now introduced

in the vicinity of New York City. Several attempts were unsuccessful, but the birds liberated by Mr Eugene Schieffelin in 1890 in Central Park, have spread over all the country in the vicinity of New York as far east as central Long Island and up the Connecticut valley as far as Hartford and Springfield; up the Hudson valley to Newburgh and through New Jersey to Princeton. As early as 1900 I noticed hundreds of starlings spending the winter in Morningside Park and the vicinity of Kings Bridge, and in 1905 Mr Robinson reported them as well established at Newburgh. They undoubtedly will continue to spread up the Hudson valley and throughout the State, if not throughout the country, unless their advance is artificially checked. There is scarcely reason to believe that they could ever become the pest that the English sparrow has proved itself in all parts of the country, and yet it is doubtful whether this is a desirable species to introduce in all parts of the State, for, like the sparrow, it occupies the nesting sites of all those birds which naturally breed in boxes or holes in trees, thus crowding out our martins, tree swallows, blue birds, nut-hatches and probably the woodpeckers. Besides this, they are largely frugivorous, being particularly destructive to cherries, currants, berries and other small fruits, and doubtless would become a veritable pest in the grape regions of central and western New York if they ever became abundant in those localities. The Starling, nevertheless, is an interesting bird. It feeds mostly on the ground like our Meadowlark, destroying large numbers of cutworms and grasshoppers. I have noticed it taking the berries from ampelopsis and other vines. It is more arboreal in habits, however, than the Meadowlark, often sitting and singing for hours amongst the foliage of parks and groves. His chatter is rather pleasing although he is scarcely the mimic that he is famed to be. Apparently he takes suggestion from the songs of all birds and utters a confused jargon of notes interspersed with clear whistling sounds and guttural chortlings. The starlings are more closely gregarious than the meadowlarks, the flocks frequently appearing as dense as flocks of rice birds. In England and northern Europe the "clouds of starlings" are justly famous, some-

times practically darkening the sky and appearing in the distance like great storm clouds drifting over the country. The eggs of the Starling number from 4 to 7, usually 5 or 6, of a pale greenish blue to bluish white in color and average 1.16 by .84 in dimensions.

Family ICTERIDAE

Blackbirds and Orioles

Nine primaries; 9 secondaries; tail feathers 12; bill rather stout and more or less conical, with the commissure sharply bent downward as in the sparrow; tarsus scutellate and bilaminate, most of which characteristics they share in common with the sparrows; the bill, however, is typically cultrirostral and shows a decided tendency to taper to a sharp point but in species like the Cowbird and Bobolink approaches very closely the typical sparrow type. There is considerable variability in this family, as in the sparrow family, in the shape of the tail and the wing, but they are both usually more or less rounded. The family is American, consisting of about 130 species, the Oriole branch of the family usually characterized by brilliant plumage, while the Blackbird section shows darker plumage with more or less brilliant iridescence. Many build hanging nests, and the whole family is frequently spoken of as the "hang nests." The eggs are usually 5 or 6 in number and show a tendency to pen-line markings as in our common Oriole and Blackbird. There is usually a distinct sexual differentiation in color, the females being decidedly duller and usually smaller in size. This family, like the sparrows which they resemble, is largely granivorous except the orioles which are more confined to insectivorous and frugivorous diet. The blackbirds and meadowlarks are among the best of the ground gleaners which we possess, feeding largely on worms, white grubs and grasshoppers. Only the Crow blackbird and Red-winged blackbird have been accused of serious depredations in the grain fields and the family in general is beneficial, excepting the Cowbird, which has developed the curious parasitic habit so destructive to our smaller songbirds, and, at times, the Crow blackbird because of its destruction of the eggs and

nestlings of our smaller birds. An account of the food of blackbirds and Grackles, determined by examination of stomach contents, by Prof. F. E. L. Beal, is found in Bulletin 13, Biological Survey, United States Department of Agriculture.

Dolichonyx oryzivorus (Linnaeus)

Bobolink

Plate 73

Fringilla oryzivora Linnaeus. Syst. Nat. 1758. Ed. 10. 1:179

Dolichonyx oryzivorus DeKay. Zool. N. Y. 1844. pt 2, p. 144. fig. 48

A. O. U. Check List. Ed. 3. 1910. p. 231. No. 404

dolichónyx, Gr., *δόλιχός*, long, and *ὄνυξ*, nail; *oryzivorus*, Lat., *oryza*, rice, and *vorare*, to devour

Description. *Male:* Mostly black; the scapulars, rump, and upper tail coverts dull white; the back of the neck buff; except in high plumage the feathers of the back, wings and even the under parts are more or less edged with buffy whitish; the high plumage almost pure black, white and buff. *Female:* Upper parts olive buff streaked with blackish; under parts buffy white; a conspicuous line of buffy through the center of the crown and from the base of the bill over each eye. *Winter plumage:* Both sexes and young similar to female but more olivaceous above and more buffy below. In all plumages the tail feathers are sharp pointed.

Length, ♂ 7.25-8 inches, ♀ 6.5-7; extent 12-12.5; wing 3.75-4; tail 2.6-2.9; bill .6; tarsus 1.1.

Distribution. The Bobolink breeds from southeastern British Columbia, Saskatchewan, central Quebec and Cape Breton to Utah, Illinois, West Virginia and New Jersey, being most abundant in the Alleghanian area; winters in South America as far as Paraguay; migrates mostly through the West Indies and the coast of Central America. In New York State the Bobolink probably breeds in every county. In the Catskills and Adirondacks, however, he only enters as far as civilization has established meadows and open, grassy fields for his accommodation. He is not especially common on Staten Island and Long Island but, nevertheless, breeds in each locality especially near the edge of the salt meadows. In the rocky and dryer portions of the plateau region of New York he is not so common as on the lowlands.

Haunts and habits. The spring migration is accomplished between the 29th of April and the 10th of May. Sometimes he is not noted before the 15th or 20th in the northern portions of the State. In the fall they disappear between the 10th and the 30th of September, but are occasionally found as late as the 5th of October; at least, they have been heard migrating at night as late as the 1st and 5th of October. This species must be regarded as a common summer resident of the State in all the grasslands, but late plowing and early mowing have reduced its members considerably in recent years.

All country people know the Bobolink and nearly all the American poets have celebrated him in song. There certainly is something very entertaining in the abandonment, ecstasy and irrepressible merriment of the Bobolink's melody as he sits in the blossoming apple tree or swaying on a tall spear of grass pouring forth his soul to his mate hidden in the meadow, or to the soul of summer. Frequently he is too much overcome with his feelings to remain in the apple tree and soars about over the meadows with quivering wings and gurgling roundelay. If his mate chances to appear he gives chase and pursues until she darts among the thick grasses to resume her duties of housekeeping.

The bobolinks, even in the nesting season, are somewhat sociable in habits and several males are sometimes found both in the migration season and in the nesting period seated in the same tree trying to drown each other's voices in song, and sometimes several at the same time may be seen in the air circling and singing over the same meadow or swamp-land. Besides the gurgling, bubbling melody of the Bobolink he has a call note, a clear metallic "*chink*," which he utters in migration, evidently to tell his associates where he is flying, and over the meadows as a sign of alarm or as a call to his companions. There is something peculiarly characteristic about this clear "*chink*" which makes it unmistakable even when heard at night as the birds are migrating at a great distance above the ground.

The nest of the Bobolink is hidden under the thick grass of meadows

or clover fields or swamplands, in a slight hollow in the ground, composed of dry leaves, weed stems and coarse grasses, lined with finer grasses. Outside dimensions, 4 by 2 inches; inside dimensions, $2\frac{1}{2}$ by $1\frac{1}{4}$. The eggs are from 4 to 7 in number — in this State usually 5 or 6 — pale drab or pearl gray in color, sometimes pale rufous, rather thickly blotched and spotted with irregular lines and marks of chocolate, claret brown, lavender and deep purplish. They average .84 inches in length by .62 in diameter. The nest is very difficult to discover as the female rarely leaves it directly when disturbed, but almost without exception runs through the grass before taking wing. The surest way is to lie in wait and watch the locality where they disappear with nesting materials or when visiting the nest after the eggs are laid; but even then they usually alight some distance from the nest and considerable strategy is necessary in order to locate it exactly. The young are hatched in about 11 days and develop very rapidly so that they are able to take wing in from 10 to 14 days; but even at this rate, although the fresh sets of eggs are usually found from the 25th of May to the 10th of June, the nest is often uncovered by the mowers and the young destroyed on account of the practice, which is becoming more and more prevalent, of mowing the meadows in June rather than in July, as was formerly the custom. Consequently, the Bobolink is becoming less common in most portions of New York.

By the 20th of July the Bobolink's song has entirely ceased and only a very few males at that date may be found that are still in the black and white coat, and by the first week in August they will be found in the edge of the swamps or in the tall meadows, the males, females and young almost indistinguishable in color. They remain in this State until late in August or early September when they visit the flowed lands of the Delaware and Susquehanna and are known as Reed birds and are slaughtered by thousands for the city market; but when they reach the coast of Carolina, Georgia and Louisiana they become a scourge to the southern planters, descending on the rice fields in such myriads that it is necessary to station many men on every rice field and shoot several pounds of powder for each acre in

order to preserve the crop from their depredations, at least if the grain is still in the milk. It has been estimated by the Biological Survey experts that millions of dollars damage is done every year to the rice crop of the South by the Ricebird, as he is invariably called in the southern states. The Bobolink does not remain in the rice states, but before he has left sometimes a large portion of the planters' income has been destroyed. Therefore, more than any of our native species, he has a double reputation, being perhaps our most favorite songbird in the northern states and the most dreaded of all the small birds of America in the southern states.

Molothrus ater ater (Boddaert)

Cowbird

Plate 71

Oriolus ater Boddaert. Table Pl. Enl. 1783. 37

Molothrus pecoris DeKay. Zool. N. Y. 1844. pt 2, p. 143, fig. 45 (?)

Molothrus ater ater A. O. U. Check List. Ed. 3. 1910. p. 231. No. 495

mólóthrus, Gr., "one who enters others' habitations unbidden" (Swainson); *áter*, Lat., black

Description. *Head and neck* "coffee" or "deep wood" brown with purplish iridescence. *The rest of the plumage glossy black*, lustrous with greenish and bluish reflections. *Female: Dusky brownish gray*, often with dark shaft streaks giving a slightly streaked appearance. *Young* in their first plumage resemble the female, but the belly is whiter, tinged with greenish buff and spotted with dusky. In August and September while changing to the adult plumage, many of the young are seen in pied coloration, large patches of black showing among the grayish or mouse-colored immature plumage.

Length 7.5-8.25 inches; ♀ 7-7.5; extent 11.7-13.5; wing 4-4.6; tail 3-3.35; tarsus 1; bill .68.

Distribution. This species breeds in North America from southern Mackenzie and Keewatin, Quebec and New Brunswick to northern California, northern New Mexico, Texas, Louisiana and North Carolina, and winters from southern New York to the gulf coast and central Mexico. In New York it is altogether too common a summer resident in all portions of the State up to the beginning of the Canadian zone, but it also invades

the valleys and cleared lands of the Adirondacks to the farthest edge of the Alleghanian area in that district. In the southern portion of the State it is frequently found throughout the winter. On several occasions in different cities of central and western New York I have noticed one or more cowbirds that were spending the winter in company with English sparrows, and on the Montezuma marshes, when the sedges and grasses have borne good seed, it is not an uncommon occurrence to meet with flocks of from 100 to 300 cowbirds in the severest part of the winter; but this has not been observed in recent years. Occasionally small flocks are observed during winter in the Hudson valley, and in central and western New York, but they seem to be wandering from place to place. The spring migration of the Cowbird is well started by the middle or the 20th of March, the bulk of birds which have migrated southward arriving before the 30th of March or the 10th of April. In the fall the species becomes scarce or wholly disappears from the 1st to the 10th of November.

Haunts and habits. The Cowbird is so named from its habit of following cattle in the pasture and frequently alighting on their backs in order to secure insects which infest them or which are driven from the grass as they browse along. In this way, of course, the bird accomplishes some good. It also devours immense quantities of weed seeds, not only in the spring and summer, but more particularly in the fall when it frequents grain fields and, as my examinations have shown, feeds not so much upon the waste grain as upon the seeds of pigeon grass, ragweed, smartweed, pigweed and other species which grow in profusion in all cultivated lands. In this way I have reckoned that at least half an ounce of seed a day is, on the average, destroyed by each member of the flock. The flocks of cowbirds found during September in the grain fields and pastures are so large that on one occasion after discharging my gun into a flock which was passing I picked up 64 birds from the two discharges of the gun, which will indicate the density of the flock. My estimate of the flock referred to was that there were between 7000 and 10,000 birds. The usual flock in the fall, however, consists of from 50 to 200 birds. They

fly more densely at this season than the redwings and grackles. In the evening, like these species, they visit the marshes to roost near the ground in the dense reeds and sedges close to the water line.

In spite of all the good the Cowbird does, however, I can not believe that it is a beneficial species to have about the gardens, lawns and orchards, for, as is well known, it parasitizes all our small song and insectivorous species, thereby destroying the whole brood of the foster parent, and in return for a brood of Yellow warblers, vireos, Song sparrows or some other interesting and beneficial species we have one Cowbird as the result of the foster parent's work. Consequently, although, as Bendire says in his Life Histories, the Cowbird is beneficial when taking into consideration its food alone, it certainly must be reckoned injurious, because the four song birds which would reasonably represent one Cowbird do much more good than the Cowbird to the agriculturist as well as the nature lover.

The Cowbird begins to deposit her eggs from the 1st to the 15th of May and they are often found as late as the 10th or 20th of June. Every one of our small song birds is more or less frequently chosen as a foster parent. A list of 91 species in whose nests the eggs of the Cowbird have been found was compiled by Bendire. In this State I have noticed at least 35 species parasitized by this bird, the commonest of which in my experience are the Phoebe, Song sparrow, Towhee, Indigo bird, Red-eyed vireo, Yellow warbler, American goldfinch, Vesper sparrow, Chipping sparrow, Warbling vireo, Redstart and Chestnut-sided warbler. Frequently as many as 2, 3 or 4 eggs of the parasite are found in one nest, but in this case only 1 or 2 or possibly none of the eggs of the nest owner are found with the Cowbird's eggs. The egg, being usually larger than that of the foster parent, receives the greater amount of heat from the incubating bird and consequently hatches more quickly, usually in 10 days after being laid. The young Cowbird, also being larger than the rightful offspring, takes more of the food and so in a short time he is left as the sole occupant of the nest. Of all the hundreds of young cowbirds which I have seen being led about and fed by Indigo birds, Song sparrows,

Yellow warblers and Phoebe birds, as well as many other species, not one in my experience has ever been accompanied at the same time by any of the parent's own offspring, showing that in every instance the Cowbird destroys the rightful inhabitants of the nest. Frequently the mother Cowbird herself assists in this destruction by picking holes in the eggs she finds in the nest, or by casting them out upon the ground; but this is unnecessary as the young Cowbird always will effect this result if left to himself alone. I have noticed in several instances that interesting species as, for instance, the Yellow-breasted chat and the Yellow-throated vireo, which came to the hillside near my camp on Canandaigua lake and were parasitized by the Cowbird, never returned to nest in the locality. I had become enthusiastic over the vireos and the chats that sang to me every morning as I sat by the campside and was counting on a fine brood of young ones which might return the next season and enliven our surroundings; but although I should have been wiser and discovered the nest to see that all was going well, I trusted to nature in each instance and what was my disgust when the young came from the nest to find the Yellow-throated vireos leading around one disgusting Cowbird instead of their brood of young, and the chats deserted the hillside in the middle of July. They evidently were disgusted in their season's occupation or, having been killed during their southward migration, never returned. So these instances, like others of my personal experience, are typical of numberless instances that could be noted of birds which fail to rear their young and consequently never return to the nesting site again. When we consider this influence which the Cowbird exerts on our avifauna, I can not consent to consider him otherwise than as an injurious neighbor.

Cowbirds are not only parasites but polygamists and free lovers in habit. Small troops of several males and a few females are found all through the breeding season flying around together and walking about on the lawns with spritely step, pruning their glossy plumage and exulting in the freedom from family cares, the males occasionally uttering their uncouth guttural notes and the females, when startled or when seated

upon the fence or trees, uttering a shrill note resembling that of the Cedar-bird. The male, when uttering his squeaking chortle, ruffles up the feathers of the breast and extends the wings, somewhat after the manner of the Red-winged blackbird when uttering his "*congaree*," an attitude which is evidently more or less characteristic of the family.

The eggs of the Cowbird are white in color, rather profusely and evenly speckled with various shades of brown and grayish lavender. They average .84 by .65 inches, extremes lying between .7 and 1 inch in length, and .61-.66 in width. They resemble more closely the eggs of the English sparrow than those of any native species.

Xanthocephalus xanthocephalus (Bonaparte)

Yellow-headed Blackbird

Icterus xanthocephalus Bonaparte. Journ. Acad. Nat. Sci. Phila. 1826.
5: 223

Xanthocephalus xanthocephalus A. O. U. Check List. Ed. 3. 1910.
p. 232. No. 497

xanthocéphalus, Gr., *ξανθός*, yellow, and *κεφαλή*, head

Description. *Male:* Head, neck and chest yellow; primary coverts and a portion of the greater coverts white; otherwise uniform black. *Female:* Brownish dusky, throat and chest dingy yellow; breast mixed with white; *young* ♂ similar to the female, larger, darker color.

Length ♂ 10.6-11 inches; ♀ 9-10; wing 4.5-5.8; tail 3.6-4.8.

Distribution. This species inhabits western North America from southern British Columbia, southern Mackenzie and northern Minnesota to southern California, Arizona and the valley of Toluca in Mexico, its eastern limit being southern Wisconsin, central Iowa, northern Indiana; winters from southern California and southwestern Louisiana to Puebla in Mexico; appears accidentally in eastern North America, in Ontario, Quebec, Pennsylvania and Florida, and once in New York State. The specimen now in the State Museum was reported as taken at Irondequoit bay near Rochester in September 1899. Its occurrence was purely accidental, but this species is likely at any time to appear in flocks of Red-winged blackbirds which are coming in from the Northwest.

Agelaius phoeniceus phoeniceus (Linnaeus)*Red-winged Blackbird*

Plate 73

Oriolus phoeniceus Linnaeus. Syst. Nat. 1766. Ed. 12. 1: 161
Icterus phoeniceus DeKay. Zool. N. Y. 1844. pt 2, p. 141, fig. 47
Agelaius phoeniceus phoeniceus A. O. U. Check List. Ed. 3. 1910.
 p. 233. No. 498
agelaius, Gr., gregarious; *phoeniceus*, Lat. and Gr., deep red, Phoenician red,
 referring to the male's epaulets

Description. *Male:* Lustrous black; bend of the wing bright deep scarlet, bordered with creamy buff. *Female:* Considerably smaller, blackish feathers of the back with rusty and buffy edges, giving a rather streaked appearance; under parts blackish heavily streaked with dull white; the throat and bend of the wing more or less tinged with salmon or reddish. *Young males* at first like female; the first winter plumage resembling the male, but the red of the wing much duller and all the feathers broadly margined with rusty and buffy above and buffy or whitish below.

Length ♂ 9.5-9.75 inches, ♀ 7.5-8; extent ♂ 15-16, ♀ 12.5; wing 4.7-8; tail 3.7-3.9; bill .93; tarsus 1.12; weight 2.5-3 ounces.

Distribution. This species inhabits North America east of the plains from Ontario and Quebec to northern Georgia and Louisiana; winters from southern New York and Ohio to the gulf coast.

In this State the Redwing is a common summer resident of all districts, even the marshes of Staten Island and Long Island and the edges of Elk lake and the Flowed land near Mt Marcy. A few spend the winter in the southern portion, but the majority are migratory, making their appearance in the spring from the 15th of February to the 10th of March in the southern portions and from March 5 to 25 in the northern counties. In the fall they disappear from the 1st to the 20th of November, sometimes remaining in numbers till the 1st of December.

Haunts and habits. Everyone who has visited the marshes or river-side is familiar with the Red-winged blackbird and with his gorgeous epaulets and the spritely "*congaree*" which he continually utters when perched on the top of the cat-tails or alders or on the neighboring telegraph wire or when flying along with outspread tail over the tops of the sedges.

The female is a smaller, inconspicuous bird. As far as I have observed, she never utters the clear congaree call so characteristic of the male, but frequently, as she flies up from the marsh and away over the field, shouts out a confused rattling sound or a single clicking call note.



Photo by Ralph S. Paddock

Red-winged blackbird's nest and eggs

These birds are gregarious both in the spring and fall, the first migrants usually coming in flocks of from 30 to 300. Frequently I have been in the marshes during the first warm spring days without seeing the expected redwings, when all at once, late in the afternoon, from the southward,

with measured wing strokes, a scattered company would come over the hill at an elevation of from 50 to 100 feet and make directly for the marsh, alighting on the alders and sedges as if they were perfectly at home. Evidently these birds migrate by day, as I have seen them come into the marshes many times in this manner, making their first appearance late in the afternoon.

The habitat of the Redwing in nesting time is almost without exception in flooded land where sedges, cat-tails and bushes rise from very wet soil or from the water, preferably where the water is from 1 to 3 feet deep. The nests are attached on all sides to the cat-tails, sedge grass or the bushes in which they are constructed, and are usually placed only a few inches above the water, but sometimes at a height of 3 or 4 feet. They are made entirely of grass and sedges woven into a compact structure with the live grass intertwined between the outer and coarser portions of the nesting material. The inner portion is lined with fine rushes, grasses and sedges. The eggs are from 4 to 6 in number, usually 5, of a pale bluish or greenish white with pen lines of blackish and dark brown and claret brown sometimes arranged in a wreath near the large end, on others irregularly and thinly scattered over the surface. The average dimensions are 1.05 by .72 inches.

This species is more or less injurious to the grain fields, especially corn, when it is in the milk. I have seen hundreds of acres of corn land in the vicinity of extensive marshes which had been seriously injured by the attacks of these birds. In the early days of the country the Redwing was called the maize thief from his depredations upon the cornfield, but now when the cornfields are so numerous and the marshes of such comparatively slight extent and, consequently, the redwings are so few in number, the damage they do is so small as scarcely to be noticeable except in a few instances. At other times of the year they are a beneficial species, feeding upon weed seeds, cutworms, grasshoppers and all kinds of insects. Scores of stomachs which I have examined in August, September and October were filled with grasshoppers. About 70 per cent of the food in autumn was weed seeds, occasionally mixed with grasshoppers and cutworms.

Agelaius phoeniceus fortis Ridgway*Thick-billed Red-wing*

Like *phoeniceus* but larger; bill relatively shorter and thicker. ♂ wing 4.0-5.2 inches; tail 3.5-4.1; bill, length .82-1.06, depth .53; ♀ wing 4-4.3; tail 2.8-3.25; bill, length .68-.81, depth .45.

This subspecies breeds from MacKenzie and southern Keewatin to northern Texas; wanders eastward during migrations. Specimens showing the dimensions of this form of Red-wing are occasionally taken in New York during the spring and fall migrations, especially in autumn.

Sturnella magna magna (Linnaeus)*Meadowlark*

Plate 75

Alauda magna Linnaeus. Syst. Nat. 1758. Ed. 10. 1:167

Sturnella ludoviciana DeKay. Zool. N. Y. 1844. pt 2, p. 138, fig 42

Sturnella magna magna A. O. U. Check List. Ed. 3. 1910. p. 235. No. 501
sturnella, Lat., diminutive of *sturnus*, starling; *magna*, Lat., large

Description. Prevailing color of *upper parts brown streaked with blackish*, the ground color really being black, each feather edged and tipped with rufous or brown and ochereous buff; the *head with 3 broad stripes of buffy white*; sides of the head and neck grayish white; 3 or 4 *outer tail feathers mostly white*; spot in front of eye, *throat, breast and belly mostly bright yellow*, the breast with a *large black crescent*; sides grayish white tinged with buff, streaked with black; wing coverts grayish ash mottled with blackish; lower belly white. At a distance the white tail feathers are conspicuous as is also the bright yellow breast when turned toward one, and the black crescent, also the brownish black head striped with buff and the general striped brown and black effect of the upper part. The *female smaller, duller colored*. In fall plumage the yellow and black more or less veiled with buffy or ochereous.

Length ♂ 10.5-11 inches; ♀ 9-10.25; extent 14-16.50; wing 4.7-5; tail 3.16; bill 1.4; tarsus 1.70; weight 4 to 5 ounces.

Distribution. The Meadowlark inhabits eastern North America from eastern Minnesota, southern Quebec and New Brunswick to northern Texas, Missouri, and North Carolina, and winters mostly from southern New York and the Ohio valley to the Gulf of Mexico. In New York it is a common summer resident of all parts of the State except the forested portions of the Catskills, Adirondacks and Allegany highland and in the

southern counties is almost always met with in small numbers throughout the winter. On the Montezuma marshes and other large swamps good sized flocks are also observed in winter when grass seed is abundant. The majority of individuals, however, are migratory. These arrive from the south from the 2d to the 20th of March, sometimes as late as the 30th, and disappear in the fall between the 1st and the 30th of November.

The Meadowlark prefers open grass country, prairies, wide meadows and pasture lands being his favorite haunts. He secures all his food upon the ground, and walks, like all the ground-feeding members of his family, preferring weed seeds and some waste grain in the fall and winter, but in the spring, summer and early fall lives mostly on grasshoppers, crickets, larvae of insects which are found in the meadows, and ground-feeding beetles. He sometimes does harm by destroying tiger beetles and black ground beetles which are predaceous in habit, but secures much less of these on account of their activity than of the species whose larvae feed upon the vegetation of the meadows. In fact, he spends most of his time upon the ground but is frequently seen perching on tree tops, fence posts and other elevated stations, apparently to watch the locality for members of his own company or to utter his clear call note. The Meadowlark's flight is strong and well-sustained. When under way it usually consists of several rapid wing strokes alternating with short periods of sailing. He rises with a buzzing of the wings which reminds one somewhat of a Quail's flight and has given him in many localities the name of "Marsh quail." He was formerly hunted for game throughout most of the north central states, but his flesh is comparatively unpalatable and his beauty, as well as beneficial habits, should place him in the list of song and insectivorous birds rather than among the game birds. The clear, plaintive whistle of the Meadowlark which is heard from the time he arrives in spring till almost the end of the season has been variously described by different authors. Bendire says it is often interpreted "*laze-kill-dee.*" I have frequently heard it interpreted "*spring-most-here.*" At least it consists of about three syllables, a high and plaintive whistle. Beside this note he has a harsh guttural chatter uttered when flying from the

grass or over the meadow, also a nasal " *peent* " as it is written by Chapman, as well as a call frequently uttered when alighting upon a fence post or tree and accompanied with a fluttering of the tail, which may be written " *ceck-ceck.*" The nest of the Meadowlark is hidden among the thick grasses or underneath a tussock of sedge or clover, and consists of weed



Meadowlark's nest and eggs

stems and coarse grasses, lined with finer blades of grass. It is somewhat arched over, both by the construction materials and by the grass among which it is placed so that it is almost impossible to detect its situation unless the bird is flushed from the nest. The eggs are from 4 to 6 or 7 in number, usually 5 in my experience, with a white ground color more or less thickly speckled and spotted with brown, rusty and lavender. They

are rather elongated ovate in shape, sometimes practically elliptical and measure from .85 to 1.21 inches in length by from .72 to .89 in width, the average dimension being 1.1 by .8 inches. The period of incubation is about 16 days. The young after a few days are so covered with down interspersed with brownish and buffy feathering, and remain so silent and motionless, closing their eyes when any unusual sound approaches, that it is practically impossible to distinguish them. I have frequently looked into the nest of a Meadowlark and been unable to tell whether there were 2 or 7 young, without first unraveling the tangle with my fingers. This is undoubtedly a great protection to the young birds as they would not be noticed by their enemies. Nevertheless, great numbers of the young are destroyed by early mowing which is practised so generally throughout the New York meadows. This species which in 1895 was reported by Bendire as decreasing throughout central New York due to this cause seems at present time to be maintaining its numbers by adaptation to the existing conditions, nesting more in waste places, or in localities which are not mowed and raked by machinery, or by nesting so early that the young are out of the way of the mowing machine. Meadowlarks like blackbirds are a sociable species, very rarely an individual being found alone. In the fall they gather into small troops, not simply one pair with their young, but apparently several families, so that from the same meadow or marshland from 30 to 50 or even 100 meadowlarks are frequently flushed and in the southern states where the principal number of the species pass the winter I have frequently seen thousands gathered in the same field.

Icterus spurius (Linnaeus)

Orchard Oriole

Plate 75

Oriolus spurius Linnaeus. Syst. Nat. 1766. Ed. 12. 1:162

Icterus spurius DeKay. Zool. N. Y. 1844. pt 2, p. 140, fig. 46

A. O. U. Check List. Ed. 3. 1910. p. 23. No. 506

icterus, Gr. and Lat. for jaundice, a yellow bird, probably the golden oriole; *spurius*, Lat., spurious, bastard, referring to this bird's former name of "Bastard Baltimore oriole"

Description. *Adult male:* *Head, neck, throat and forward part of the back black; rump, under parts and lesser wing coverts chestnut; wings*

and tail fuscous edged with whitish. *Female: Grayish olive green; wing coverts tipped with whitish; tail bright olive green; under parts dingy yellow. Male of the first year: Similar to female but browner. Male second year: Similar but with occasional patches of chestnut on the under parts.*

Length ♂ 7.25 inches, ♀ 6.5; extent 10.35; wing 2.9-3.25; tail 2.7-3.2; tarsus .88; bill .7.

Distribution. The Orchard oriole inhabits eastern North America from North Dakota, Wisconsin, southern Ontario and coastal Massachusetts to Texas and the gulf coast, and winters from southern Mexico to northwestern South America. In New York it is commonest in the vicinity of New York City, and in the lower Hudson valley, but is fairly common as far north as Albany and also on Long Island as far east as Bellport; also in the Delaware valley; but is decidedly uncommon in western New York although breeding records occur for several stations. On Staten Island and in the lower Hudson valley this species arrives from the 2d to the 10th of May and departs again from the 1st to the 17th of September, the breeding dates ranging from May 25 to June 20. In the interior of the State records of its breeding are as follows: Holley, 1876, Possun, Auk, 16:195; Canandaigua, 1883, E. J. Durand; Granville, 1886, F. T. Pember; Hamilton, May 26, 1899, G. C. Embury; Montezuma, May 27, 1899, Burdette Wright; Saratoga, June 11, 1810, A. S. Brower; Chautauqua county, 1902, Sarah Waite; Niagara county, Davison; Brockport, David Bruce; Orleans county, Davison; Green Island, Parks, June 2, 1880; Esopus-on-the-Hudson, Burroughs; Orleans county, June 1904, E. H. Short; Auburn, 1885, F. S. Wright. Beside these breeding records there are numerous reports of individuals taken, the northernmost among my notes being from North Creek and Port Henry, June 22, and July 5, 1905, by Will Richard. It will thus be seen that this species at least as far as its distribution in New York State would indicate, is nearly confined to the Carolinian faunal area as a breeding species, rarely going beyond this into the lower portions of the Alleghanian zone. The favorite haunts of this species are orchards, shade trees and leafy tangles on the hillside and along a stream. The nest is usually placed nearer the ground than that of the Baltimore oriole, and is not so bag-shaped, but hangs only

about 3 to 4 inches downward from the twigs on which it is suspended. The outside diameter is usually about 4-4.5 inches; the inner cup is usually about 3 inches deep by 2.5-3 inches outer diameter. The upper rim of the nest is, however, somewhat contracted, and it is almost entirely constructed of thin, wiry grass; lined with softer substances like thistledown. The eggs are 4 to 6 in number, ovate in shape, with a pale bluish white ground color, overlaid with grayish or pearly. The markings consist of blotches, spots, scrawls and pen blots of purple, brown and pearl gray, heaviest about the larger end, forming more or less of a wreath, the darker brownish and blackish tints predominating. The average dimensions of the eggs are .82 by .57 inches. The song of the Orchard oriole is decidedly different from that of our commoner Baltimore oriole. It is a more finished effort, the voice rich and flexible with considerable expression. The song, however, is uttered in a rather hurried manner as if the bird were restless and impulsive (Bendire). This bird is even more beneficial than the Baltimore oriole as it rarely, if ever, is known to feed on green peas or small fruits, so far as reported in this State, but subsists almost entirely on caterpillars and rose bugs, beetles and plant lice.

Icterus galbula (Linnaeus)

Baltimore Oriole

Plate 75

- Coracias galbula* Linnaeus. Syst. Nat. 1758. Ed. 10. 1:108
Icterus baltimore DeKay. Zool. N. Y. 1844. pt 2, p. 139, fig. 43 and 44
Icterus galbula A. O. U. Check List. Ed. 3. 1910. p. 238. No. 507
galbula, Lat., name of some yellow bird

Description. *Colors orange and black*; secondaries and greater coverts edged with white, the former producing a rather distinct wing bar, the latter, wing streaks; the head, neck, throat and forward portion of back and greater portion of wings, and the middle portion of tail, *black*; under parts, sides, rump, upper tail coverts, base of the tail, internal portion of all except the middle tail feathers, *orange*, deepest on the forebreast where it is of a decidedly reddish orange. Bill and feet leaden bluish. *Female and young*: Much duller, the upper parts being mostly grayish brown to grayish olive, more or less mottled on the head, sides of neck and back

with blackish; under parts dingy orange. The female has more blackish about the head, especially on the throat which shows more or less blackish, wanting in the young birds of the season.

Length ♂ 7-8.2 inches, ♀ 7-7.6; extent 11.75-12.3; wing 3.6; tail 2.85; bill .7; tarsus .85.

Distribution. The Baltimore oriole inhabits eastern North America from Alberta, Saskatchewan, Ontario and Nova Scotia to northern Texas, Louisiana and northern Georgia; and winters from southern Mexico to northwestern South America. It is a common summer resident of all New York State with the exception of the wooded portions of the Catskills and Adirondacks, but enters the river valleys and cleared lands of the Adirondacks as far as Keene valley, Ausable chasm, Old Forge and similar locations. It is commonest in those portions of the State which lie in the Carolinian and warmer portions of the Alleghanian zone, inhabiting the orchards, shade trees and open groves. It evidently has increased considerably since the greater portion of the State was cleared and settled, and is as common in the streets and yards of our villages and cities as it is in the country districts. In several villages which I have examined, it is easy to make a census of the number of orioles which evidently inhabited the region during the preceding summer. Usually about three nests will be found on each oriole tree, showing three years of habitation, sometimes as many as five in different stages of dilapidation, but the nest of the preceding season is almost always in fairly good condition. By inspecting these trees it will be evident to nearly any bird student that from 3 to 5 pairs of orioles must inhabit each large block of our cities and villages, where shade trees are abundant. Some seasons, however, the orioles seem much less common than in others when late snow storms in May kill large numbers or prevent them from migrating to their old haunts. The beautiful appearance and melodious notes of the Baltimore oriole are justly famous and have been praised by many poets, and every amateur bird student is enthusiastic over this bird which can always be found and heard during the "birding" season. Next to the Scarlet tanager he is probably our most gorgeously colored bird, and his song ranks at

least among the first 20 for melody, but far excels the majority in familiarity, in fact, rivaling the Robin in this respect. The orioles arrive from the 27th of April to the 8th of May in the warmer portions of the State, depending upon the season, in the northern districts sometimes not appearing until the 10th or even the 20th. They immediately pair and begin building. By the 15th or the 20th of May fresh eggs may be found in the southern portions of the State; or from the 25th of May to the 10th of June in cases where the first nest was destroyed; and in the northern portions of the State, sometimes as late as the 20th of June. The period of incubation is about 12 days and the female is an ideal mother, defending her young with great courage and caring for them in all kinds of weather. The young, however, are not such ideal offspring as she ought to expect, for they are, as Mrs Miller has called them, the crybabies of the bird world. From the time they begin to feather out until several days after they have left the nest, they keep up a continual complaining cry for food. In this way they are unquestionably located by many predaceous animals and thereby destroyed. The young orioles are usually out of the nest from the 20th of June to the 5th of July, and are very soon led away by the old birds into the woods, groves and dense hedgerows. Then we hear no more of the oriole's song until the latter days of August or the first week in September, when, after the autumn moult has been completed, the males frequently burst into melody for a few days before departing for their winter home. This departure occurs between the 10th and the 22d of September. The vernal song period almost always ends by the 12th of July, usually several days before then. The Baltimore oriole is especially valuable to the horticulturist and forester on account of its attacks upon the caterpillars of various species which feed upon the foliage of trees. He even feeds upon the hairy caterpillars which are chosen by few birds with the exception of the cuckoo, and destroys large numbers of leaf-eating beetles or their larvae and devours also many aphids, rose bugs and other hemiptera. Occasionally the oriole destroys a few cherries and berries and frequently discovers the green peas of the garden, deftly

opening the pods with his sharp bill and devouring large quantities of the tender seeds. In this way, in my experience, he does much more harm than by depredations upon the berries; but he is so much less destructive than the Robin, Cedar bird, and Red-headed woodpecker that complaints are rarely made against him and there can be no doubt that he is one of the very best friends which the gardener can have about his premises. As everyone knows, the oriole builds a pensile nest, usually suspending it from the drooping branches of an elm tree, soft maple, apple tree or in fact any tree, although his preference seems to be for the elm. I have found this oriole's nest hanging from Norway spruce, hemlock, and horsechestnut which one would naturally expect he never would select. In different villages of western New York the preference seems to be in this order: white elm, silver maple, sugar maple, and apple. The main construction materials used by the oriole are gray plant fibers, especially those from the outside of milkweed stalks, waste packing cord and horsehair; sometimes pieces of rags and paper are discovered in the nest, but it is almost without exception a grayish bag as it appears from the outside, and is lined principally with horsehairs and softer materials, making a thick felted gourd-shaped structure which swells considerably toward the bottom so that there is ample room for the 5 young birds to develop. The eggs, though usually 5, are from 4 to 6 in number. Incubation occupies 12 days. The eggs are ovate in shape but are rather an elongated ovate, colored grayish or bluish white, more or less heavily marked with irregular pen lines and blotches of blackish brown, purplish and pearl gray, usually thickest near the larger end of the egg. The average dimensions of the eggs are .92 by .61. The average external dimensions of the oriole's nest are 6 inches in depth by 4 inches in greatest diameter. I have seen nests which are no more than 4 inches in depth and $3\frac{1}{2}$ in external diameter but I have been unable to verify the observations of those popular writers who claim that orioles build shallower nests in villages or near houses because they are less liable to be visited by predaceous birds. The height of the nest from the ground in my experience varies

from 7 to 60 feet, the average being about 25 to 30 feet. In spite of the skilful placing of the oriole's nest, it is frequently visited by plunderers. I have seen crows on several occasions succeed in getting young birds from the nest and the home of the Screech owl very often shows that the young orioles have been taken and fed to the owlets. Red squirrels also descend to the nest to get the eggs and young birds, and I have seen the gray squirrels do this on one or two occasions. Generally, however, the young are reared successfully and I am inclined to think that dangers in migration and severe weather are the principal checks to the increase of this species.

Icterus bullocki (Swainson)

Bullock Oriole

Xanthornus bullockii Swainson. Philos. Mag. N. S. 1827. 1:436

Icterus bullocki A. O. U. Check List. Ed. 3. 1910. p. 238. No. 508

bullocki, in honor of William Bullock of London

Description. Size of the Baltimore oriole; color somewhat similar but the under parts not so reddish orange; the *head and neck* not black but *yellowish* or orange *spotted on the crown and back of the neck with black*; chin and center of the throat black; *large patch of white on the wing* caused by the white middle and longer coverts. *Female* considerably duller, lower parts a light olive gray and the upper parts bright yellowish olive; where the male is yellowish orange and black, more olive brownish.

Distribution. This species is purely accidental in New York State. A single specimen has been reported by Mr Dakin from Onondaga county on May 17, 1875. Unfortunately, this specimen disappeared from Mr Dakin's collection and I have not been able to trace it, but Mr Dakin's carefulness as a bird student seems ample proof that the bird which he describes was a Bullock oriole and was taken in Onondaga county, although, of course, it may have been an escaped caged bird which gave no evidence of previous confinement. The normal range of this species is in western America, from southern British Columbia and southern Saskatchewan to southern Texas and Sonora; and from California eastward to South Dakota and central Nebraska.

Euphagus carolinus (Müller)*Rusty Blackbird*

Plate 73

Turdus carolinus Müller. *Natursyst. Suppl.* 1776. 140
Quiscalus ferrugineus DeKay. *Zool. N. Y.* 1844. pt 2, p. 137, fig. 50
Euphagus carolinus A. O. U. Check List. Ed. 3. 1910. p. 238. No. 509
euphagus Gr., a "good feeder"; *carolinus*, of Carolina

Description. *Male: Shiny black with greenish metallic iridescence.* In high plumage no rusty showing on the edges of the feathers; but *in the fall the upper parts are more or less extensively edged with rusty and the under parts with ocherous buff and whitish.* In specimens taken late in the spring this rusty has not entirely worn off from the edges of the feathers; but in the very highest plumage the bird is entirely a lustrous black. *Female: Dark slaty gray;* upper parts with more or less greenish reflections, more extensively edged with rusty in the fall than is the case with the male and the under parts sometimes almost a uniform ocherous on the throat and breast. This edging of rusty and ocherous shows in the female as late as April and May in New York specimens. *Iris straw-colored;* feet and legs blackish.

Length 9-9.6 inches; extent 13.5-14.5; wing 4.6-4.8; tail 3.52; bill .91; tarsus 1.06; weight 2-2.5 ounces.

Distribution. This species inhabits eastern North America, breeding in the boreal zone from Alaska, central Keewatin and northern Ungava to central Alberta, central Ontario, northern New York and Maine, and winters from the Ohio river and the Delaware valley to the Gulf of Mexico. In New York this species is a common transient visitant in all parts of the State, arriving from the south from the 1st to the 20th of March in the southern counties; in western New York, from March 10 to March 30, passing on to the north from April 20 to May 10. In the fall it returns from the north in western New York from the 10th to the 20th of September; in the vicinity of New York City, from September 20 to October 10; and departs for the south in November, usually remaining the last of all our blackbirds and going only when the marshes are frozen over. The Rusty blackbird is a summer resident of the wilder portions of the Adirondacks, especially in northern Hamilton and Herkimer counties and the south-eastern portion of St Lawrence county. Its nest has been found on Raquette

river June 5, 1878, by C. J. Pennock; by Ralph and Bagg from the 7th to the 20th of May 1886, at Wilmurt in Herkimer county; by Merriam at Big Moose on the 15th of June; on Second lake and Moose river, June 16th. This species has been called the Thrush blackbird, I suppose on account of its flight and song which resemble somewhat those of the thrushes. The nest also is usually walled with mud or rotten wood after the manner of thrushes, but this habit is shared also by the Crow blackbird. The bill of this bird is slimmer than that of most blackbirds, and superficially shaped like that of a thrush. Its notes are also more liquid, but it seems to me a true blackbird, its guttural chortlings reminding me more of our redwings and grackles than the thrushes. Its flight, however, is more like that of the Wilson thrush, the longer wings and gliding, wavering motion suggesting the thrushes. In the spring and fall it is a pleasant sound to listen to the gurglings of these birds as they pass through the swamp from field to field and tree to tree in long scattered companies, keeping up a continual bubbling note suggestive of gushing springs and wandering waters. The Rusty blackbird is more aquatic in its habits than even the Crow blackbird, and is frequently seen wading in the water hunting for crayfish and larvae of water insects. Whole flocks of these birds are often seen over the beds of chara or rockweed, wading as long as they are able, and then flying to some partly submerged log or projecting bunch of flags and picking up the larvae of dragon flies, may flies, snails etc. from beneath the surface of the water. The nest is placed in a low alder or willow a few feet above the water, sometimes within 18 inches of its surface. It is constructed of leaves and straws, then a layer of mud, and lined with fine grasses; a rather bulky affair thickly lined with bright green grass. The outside dimensions according to Merriam are about 7 inches in diameter, by about 5.5 in depth, the inner cup 3.5 by 2.5. The eggs are 4 to 5 in number, ovate in shape, the ground color light bluish green blotched and spotted rather profusely, especially about the larger end with various shades of chestnut brown, chocolate and drab; but rarely exhibit the pen lines and scrawls so common in other blackbirds. They average about 1 inch in length by .73 in diameter.

Quiscalus quiscula quiscula (Linnaeus)*Purple Grackle*

Plate 74

Gracula quiscula Linnaeus. Syst. Nat. Ed. 10. 1758. 1:109

Quiscalus versicolor DeKay. Zool. N. Y. 1844. pt 2, p. 136. (part)

Quiscalus quiscula quiscula A. O. U. Check List. Ed. 3. 1910. p. 239.
No. 511*quiscalus, quiscula*, forms of the same word, of uncertain origin; perhaps from the Spanish, a worthless fellow (*quisquilla*); perhaps like the common name grackle, an *onomatopoeon*

Description. Tail long and rounded; whole plumage appears *black in the distance* but on a close inspection the *head, neck and upper breast a rich, purplish blue*, with metallic green reflection; *back, rump and a portion of the under parts rich purple* with bronzy and bluish iridescence, *each feather of the back showing rainbows of peacock blue, purplish and bronze*; the *wings and tail bluish purple* with green and brassy iridescence. The *female smaller and much duller*, especially below, the lower breast and belly being greenish brown with purplish and bronzy reflections.

Length ♀ 12 inches; ♂ 12.50–13.50; extent 17–18; wing 5.6–5.8; tail 5.2–5.4; bill 1.2–1.35; tarsus 1.45.

Distribution. The Purple grackle inhabits the Atlantic coastal region from Connecticut, Long Island and the lower Hudson valley to the highlands of Georgia and Alabama and winters in the southern states; not found west of the Alleghanies except in the south. The range of this subspecies in New York overlaps the range of the Bronzed grackle, and, as one would expect, on the border line there are many intermediate forms which can scarcely be assigned with certainty either to the Purple grackle or Bronzed grackle but must be labeled intermediate specimens. Almost all the specimens from Long Island except in migration time are typical of the Purple grackle, but sometimes of "phase 3" as Chapman calls it in his review of the species. In the Hudson valley as far north as Ossining, at least, the residents are fairly typical of the subspecies; further north intermediates become more common. Phase no. 3 is sometimes found as far north as Troy but intermediates and the second or first phase of the Bronzed grackle are more common in the upper Hudson valley, the birds

of Elk lake, in the northern extremity of the Hudson valley, showing only a slight admixture of the Purple grackle coloration, hence ranking as *aeneus*. A specimen taken at Waterford, Saratoga county, now in the State Museum, is evidently intermediate between the two subspecies. At Athens, Pa., Chapman found the third phase intermediate of the Purple grackle and the second phase of the Bronzed grackle. At Port Jarvis he found one intermediate and one *aeneus*. Thus it is evident that in the Susquehanna and Delaware valleys the range of overlapping is about the southern boundary of New York. In western New York north of the Susquehanna divide I have seen nothing but typical Bronzed grackle with an occasional specimen which shows a very slight tendency toward *quiscula*. Thus we must assign the range of this subspecies as southeastern New York below the highlands; but its intermediate forms are found as far north as Saratoga county. On Staten Island, Long Island and the immediate vicinity of New York City practically nothing but typical Purple grackle in one phase or another is found during the breeding season. The Purple grackle arrives in this State from the 15th of February to the 10th of March, and departs from the 10th to the 30th of November. Breeding records range from April 20 to May 25. In habits and economic importance this species does not differ from the Bronzed grackle which is the more abundant subspecies in this State. In voice, however, Mr Ridgway notices a difference, the note of the Purple grackle being less loud and metallic. The nest and eggs are indistinguishable from those of the Bronzed grackle.

***Quiscalus quiscula aeneus* Ridgway**

Bronzed Grackle

Plate 74

- Quiscalus aeneus* Ridgway. Proc. Acad. Nat. Sci. Phila. 1869. 134
Quiscalus versicolor DeKay. Zool. N. Y. 1844. pt 2, p. 136 (part) fig. 49
Quiscalus quiscula aeneus A. O. U. Check List. Ed. 3. 1910. p. 239.
 No. 511b

aeneus. Lat., brassy, referring to the sheen of the body plumage

Description. Longer and a little larger than the Robin; tail long, rounded or wedge-shaped, frequently, especially in the nesting season,

carried in a keeled shape. *Head, neck and upper breast deep purplish, steely blue or peacock blue; wings and tail purplish with metallic reflections, the outer flight feathers almost plain black. The whole body bronzy or brassy with changeable sheen. At a distance, however, the bird appears to be uniform black. Iris straw colored; bill and feet blackish. The body feathers, especially those of the back, are without the purplish and bluish rainbows seen on the feathers of the true purple grackle. Female: Smaller and duller.*

Length ♂ 13-13.50 inches, ♀ 12-12.50; extent 15.75-19; wing 5.63; tail 5.05; bill 1.2; tarsus 1.48; weight 5-6 ounces.

Distribution. The Bronzed grackle inhabits eastern North America from Great Slave lake, Keewatin, Nova Scotia and Newfoundland to Colorado, northern Mississippi, western Pennsylvania, New York and Massachusetts. He is thus to be regarded a bird of the Mississippi valley, and not of the Atlantic coastal plain which is inhabited by the Purple grackle. In New York this subspecies is found throughout all the western portion of the State as well as the northern portion and, in fact, in all the State except the lower Hudson valley, Long Island, Staten Island, Manhattan island and adjacent country. It passes the winter from the Ohio valley to southern Texas. In New York it is a common summer resident, abundant in some localities, arriving from the 26th of February to the 10th or 18th of March and departing for the south from the 1st to the 20th of November. A few specimens are sometimes found throughout the winter in the southern portion of the State, but this occurrence is rarer than with the Red-winged blackbird and Cowbird.

The Bronzed grackle, or Crow blackbird as he is almost universally called in this State, is principally an inhabitant of the cleared lands, but is found as far up in the Adirondacks as Elk lake, Flowed land and Boreas pond, and on the highlands of western New York keeps more particularly to the river valleys and lake shores. He feeds almost entirely on the ground and during the breeding season does a great deal of good by destroying cutworms, wire worms, beetles and caterpillars and later in the summer feeds largely upon grasshoppers. At this season, however, he partakes more or less freely of berries, cherries, green peas, and, in the

early fall, of corn in the milk. In this manner they sometimes do immense damage to fields of corn which are situated near the great marshes where they congregate to spend the night, and about which they spend most of their time after the breeding season is over. During the nesting season they are found about the dooryards, both in the country and in villages and cities, building their nests in the evergreen trees, especially spruces in the thickest part near the top. Frequently, however, they place them in Lombardy poplars and in various kinds of deciduous trees when the spruces and pines are not at their disposal. I have often found them also in deserted nest holes of the flicker and in hollow trees. The nest is a rather bulky affair varying from 5 to 8 inches in height and from 7 to 9 inches in diameter. The base and outer portion are mostly composed of weed stalks, small twigs and coarse grasses, the inner cup of finer materials like dry grass, strings, rags and a few feathers or any suitable soft substance. The eggs vary from 4 to 6 or even 7 in number, usually 5 in this State, elongated oval or ovate in shape, varying from a bluish white or pale greenish to a grayish brown ground color, more or less thickly blotched, spotted, lined and clouded with blackish, brown and lavender. They vary in dimensions from 1 to 1.25 inches in length by from .75 to .86 in diameter. The young are ready to leave the nest about one month after the eggs are laid and are rather noisy at this time, and frequent alarm notes and squabbings of the old birds with their neighbors are heard about the orchards and gardens. The young are led away from the nest as rapidly as possible and seem to disappear entirely from the vicinity of our dooryards late in June or sometimes by the middle of the month. They gradually gather into flocks of dozens, sometimes hundreds, and spend the day foraging about the country in various localities wherever food is most abundant. At this season of the year they are found about the orchards, plowed fields, river banks, swamps, and groves, and almost invariably gather at night to roost in the nearest marsh which is covered with a low growth of bushes or dense sedges and cat-tails. They settle close to the surface of the water among the sedges or in bushes at a height of several

feet. Such a locality is a veritable bedlam at dusk when the birds are coming in and settling for the night. In these localities they are associated to a greater or less extent with Red-winged blackbirds and cowbirds. On the Montezuma marshes, in the spring and fall, I have seen tens of thousands of grackles come in from the migration flights to roost amongst the dead sedges. This grackle has a coarse call note, sounding somewhat like the syllable "*clack*," which he utters when on the migration flight or on the way to and from his roosting grounds, and a similar note though louder serves as his alarm when the nest is approached or when he is suddenly disturbed. In the spring he has also a song which, however, is uttered with great difficulty and when successfully produced is far from melodious. It has a loud metallic squeaky quality which has given this bird the name of "rusty hinge" or "creaky hinge" in various parts of the country. It is commonly uttered while the bird is perched on some tree or fence post, and is accompanied by a puffing out of the plumage, a partial extension of the wings, and a spreading of the tail, until he seems actually to burst with the hoarse squawk. This performance reminds one of the similar actions of the Red-winged blackbird and the Cowbird when uttering their love notes. The grackle has been placed for many years on the black list in this State along with the crows, hawks and English sparrows; and I will confess that my experience leads me to believe that this is a just decision of our lawmakers, not only because of the destructiveness of the Crow blackbird to fields of corn, as well as other grain, green peas and small fruits, but particularly on account of his appetite for the eggs and young of smaller birds which might do much more good than he would if left to grow and multiply. My experience on a single farm will serve to show what my general estimate of this bird would be. This farm had an orchard, pond, brook, patches of willows, meadowland, pasture and a large lawn with shade trees, including several evergreens. It was the happy home of numerous robins, Least flycatchers, Yellow warblers, Chipping sparrows, Song sparrows, Purple finches, Cedar birds, cuckoos and other useful species. As soon as the evergreens grew so tall that the

Crow blackbirds found them suitable for nesting sites, numerous pairs of these sleek grackles built in the dooryard. At first the owner thought all was going well, but he noticed that the robins, sparrows and other birds were not on friendly terms with the grackles, and when I came to investigate the case, about the 20th of June, when the Grackles' young were nearly ready to leave the nests, I found that of 12 pairs of robins which ordinarily would be raising their second brood at that time, only one pair had been able to bring the young to a size able to leave the nest. This pair had built under the edge of the veranda roof and thus had escaped the attacks of the Grackle. All the other pairs of robins up to that time had been unable to accomplish anything and I was also unable to find any nests with young or any old birds caring for their young of more than 2 or 3 of the other species named. I did find numerous nests of warblers, sparrows and flycatchers which had been rifled and showed clearly from their general appearance that they had been visited by grackles or some other nest robbers and the young or eggs destroyed. As soon as the grackles led their young away, however, and the yard was once more in peace, the robins which had been attempting all this time to raise their broods, proceeded to bring up their nestlings unmolested, and the other small birds likewise brought off their broods successfully; but in this instance it meant only one brood instead of two for all those species which raise two broods and undoubtedly a weakened brood for all the others. On the day of my arrival I witnessed the destruction of a Robin's brood which was the only one remaining besides the one mentioned, under the eaves of the veranda. The young were just ready to leave the nest. I heard the battle cry of the robins and came upon the scene just in time to see the grackles attacking the young birds. The robins had already become large enough to flutter their wings, and one of the two remaining young started to fly, succeeded in reaching the garden about three rods distant, but at the moment it landed upon the ground the Grackle was upon him and with one blow demolished the base of his skull. Many naturalists have suggested that some grackles are worse than others in

their propensity for eating eggs and killing young birds, and I have no doubt that this is true, but unfortunately many experiences like the one above recorded have taught me to keep watch on all the grackles wherever I have any regard for the welfare of the other birds nesting in their vicinity.

Family FRINGILLIDAE

Finches, Sparrows etc.

Wing variable in shape, containing only *9 primaries*; tail also variable in shape, containing 12 rectrices; *bill conical*, the cutting edges usually plain, distinguishing them from tanagers; the *commisure bent* more or less *abruptly down* near the base, a characteristic which they share with the Icteridae; nostrils high up, bare in some species, covered with dense tufts of bristles in others; tarsus scutellate in front, plated on the side, with a sharp ridge behind like the characteristic passerine tarsus; in size they range from small to medium; plumage very variable, from almost plain to highly variegated.

The family is *granivorous* in diet, although they all feed to a considerable extent on insects, especially in the summer time and when rearing the young. As a family they are highly melodious, including some of our finest musicians, like the grosbeaks and Purple finch. The family is almost cosmopolitan in distribution, numbering over 600 species. In this country, as in many others, it is likewise the largest of all the families of passerine birds. As would be expected from the variability of the wing and tail, as well as the details in the shape of the bill and in the coloration, several sections of the family are popularly recognized, such as the linnets, represented by our Redpoll, the grosbeaks, finches, buntings and sparrows. These groups merge into each other by such insensible degrees, however, that no division into subfamilies is recognized by the A. O. U.

The economic value of our native sparrows as destroyers of insects and weed seeds is clearly shown by Sylvester D. Judd, Bulletins 15 and 17, Biological Survey, United States Department of Agriculture.

Hesperiphona vespertina vespertina (W. Cooper)*Evening Grosbeak*

Plate 79

Fringilla vespertina W. Cooper. Ann. Lyc. N. H. N. Y. 1825. 1:220
Hesperiphona vespertina vespertina A. O. U. Check List. Ed. 3.
 1910. p. 241. No. 514

hesperiphóna, Gr, ἠσπερῖφος, at evening, φωνή, voice; *vespertina*, of evening

Description. *Adult male:* Forehead and streak over the eye, yellow; crown blackish; rest of the head, neck and back deep olivaceous changing to yellow on scapulars and rump; wings, tail and upper tail coverts black; tertials white; the inner webs of the secondaries and inner webs of tail feathers partially white. *Adult female:* Top of the head brownish gray; body plumage light grayish, tinged with olive yellowish; throat bordered with dusky on each side; greater wing coverts, edgings of secondaries, and tail coverts, inner webs of tip of tail, and patch on the base of the primaries white. *Young:* Similar to female but duller and more brownish. Lower parts much paler.

Length 7-8.5 inches; wing 4.2-4.5; tail 2.75-3.2; bill .8; depth of bill at base .55-.7.

Distribution. The Evening grosbeak inhabits boreal North America, breeding in western Alberta and the surrounding country; and winters from southern Saskatchewan to Missouri, Kentucky, Ohio, and irregularly to New England, New York and Pennsylvania. When I began to study the migration and distribution of New York birds, I supposed that only one visitation of the Evening grosbeak had ever occurred in New York State, namely, the great invasion of 1890, when these birds were found in almost all the northeastern states in considerable abundance; but on further investigation I find that it has occurred almost certainly on all the following dates: 1875, 1882, 1886, 1887, 1889-1890, 1896, 1899, 1900, 1904, 1906, and another large visitation in 1910-1911. Thus this bird must be considered as an occasional winter visitant in recent years, but usually in very small numbers, especially when the seed crop in the north-west has failed.

Haunts and habits. With us it feeds on seeds and buds of the maple, ash, mountain ash and various fruits which are left hanging on the trees. This interesting species, which is related to the Hawfinch of Europe, is

a bird of striking appearance, especially the full plumaged males, whose conspicuous coloration of bright yellow, olive, black and white, and their enormously heavy beaks, immediately attract the attention of the most casual observer. The sight of a mountain ash tree full of Evening grosbeaks, feeding on the brilliant red berries is an event long to be remembered. The fruits of the sumac and the ash-leaved maple also attract them, and they sometimes remain for weeks in localities where these trees are loaded with food, as was the case reported by Mr Verdi Burtch from Branchport in 1911.

The following records of occurrence may be interesting to students of migration:

Elizabethtown.....	Winter 1875 (seen by Doctor Cutting) Brewer, B. N. O. C. 4, 75
New York.....	(?) 1866, Lawrence, Ann. Lyc. Nat. Hist. 8, 289
Marcellus.....	July 8, 1882 (seen) Coues, B. N. O. C. 7, 250
Buffalo.....	Winter 1886 (20 taken) Ottomar Reinecke
Brant.....	April 15, 1887, Fenton, "F. & S." vol. 28, 267 Auk 7, 210
Elmira.....	Nov. 25, 1887 (1 taken) Swift, "F. & S." 29, 383
Ithaca.....	Dec. 11, 1889, Jan. 21, Mar. 7, 1890 (Fuentes) Fisher, "F. & S." 34, 65
Ithaca.....	Mar. 28, 1890, Cornell Univ. Col.
Lockport.....	Dec. 14, 1889 (7) (Davison) Fisher, "F. & S." 34, 65 Feb. 1890, J. L. Davison, MSS.
Orleans county.....	Winter 1889, Posson, Auk 16, 195
Brockport.....	Dec. 30, 1889, Jan. 29, 1890 (Guelf) Fisher, "F. & S." 34, 65
Brockport.....	Jan. 30, 1890, Truman R. Taylor
Albion, Chili, Gaines..	1889-1890, E. H. Short
Lake George.....	Jan. 6, 23, 25, 30 and 31, 1890, several taken (Lockhart), Fisher, "F. & S." 34, 64
Buffalo.....	Jan. 10, 11, 18, 1890 (9) (Bergtold), Fisher, "F. & S." 34, 65; Auk 7, 210

- Painted Post..... Jan. 23, Feb. 1, 1890 (Wood) Fisher, "F. & S."
34, 65
- Oswego..... Jan. 28, 1890 (10, 4 taken) (Miller) Fisher,
"F. & S." 34, 65
- Owego..... Jan. 30, 1890 (1 taken) Loring "F. & S." 34, 65
Feb. 1, Mar. 4, 1890, J. A. Loring MSS.
- Cayuga..... Jan. and Mar. 1890, Foster Parker collection
- Naples..... Jan. 1890 (2 taken), L. V. Case MSS.
- Clinton..... Feb. 20, 1890 (Benton), Bagg, Auk 7, 230
- Wayland..... Feb. 1890 (2), Marshall, Auk 9, 203, State
Museum
- Troy..... Mar. 29, Apr. 17, 1890 (Parke), Sampson "F.
& S." 34, 247
- Lowville..... Feb. 1896, J. H. Miller
- Binghamton..... Nov. 21, 1899, Lilian Hyde
- Lake George..... Dec. 15, Mar. 12, 1900 (6 seen) (Lockhart), Dr
A. K. Fisher MSS.
- Ithaca..... April 11, 1904, Fuertes, Auk 21, 385
- Ithaca..... Dec. 8, 1906 (Kerr), L. A. Fuertes
- Utica..... Feb. 8, 1907, Bagg, Birds Oneida Co. 1912, p. 62
- Lake George..... Jan. 30, 1909, F. A. Lockhart, A. K. Fisher MSS.
- Westernville..... Jan. to Mar. 1911, Bagg, Birds Oneida Co. 1912,
p. 62
- Utica..... Apr. 6-9, 1911 (flock of 12), Bagg, Birds Oneida
Co. 1912, p. 62
- Branchport..... Jan. 10 to Mar. 14, 1911 (2 to 30 seen almost
daily) Verdi Burtch
- Lyons..... Feb. 4, 1911 (30 seen) Elliott, Auk 28, 266
- Rochester..... Jan. 4 to Mar. 6, 1911 (several flocks seen) Dr
C. A. Dewey
- Port Chester..... Feb. 28 to Mar. 9, 1914 (flock of 8), James C.
Maples

Pinicola enucleator leucura* (Müller)Pine Grosbeak*

Plate 76

Loxia leucura Müller. Natursyst. Suppl. 1776. 150*Corythus enucleator* DeKay. Zool. N. Y. 1844. pt 2, p. 181, fig. 142*Pinicola enucleator leucura* A. O. U. Check List. Ed. 3. 1910.

p. 241. No. 515

pinicola, Lat., pine-inhabitor; *enucleator*, Lat., a sheller-out; *leucura*, from Gr., light tailed or white tailed

Description. Nearly the size of a Robin; like an overgrown Purple finch in general appearance; beak very heavy; tip of the upper mandible considerably curved; tail slightly forked. *Adult male:* Slaty gray overlaid with *rosy red* especially on the head, breast and rump, sometimes giving the bird almost a uniform rosy red appearance; wings and tail fuscous slightly edged with color of the back; *2 conspicuous wing bars of whitish*, the inner secondaries and tertials also edged with white. *Female:* *Slaty gray overlaid*, especially on the head and rump, *with olive yellow* or saffron. *Young males:* Similar to female.

Length 9-9.2; extent 13-14; wing 4.36; tail 3.68; bill .54; tarsus .88.

Distribution. This species inhabits the boreal region of eastern North America, breeding mostly in the Hudsonian zone. In New York it is only a winter visitant, slightly irregular in occurrence, its abundance depending upon the crop of mountain ash berries and spruce cones in the northern forests, but a few at least are found in New York State every winter. The dates of arrival from the north vary from November 9 to December 4. They are commonest between the middle of December and the first of March, the latest dates usually from the 25th of March to the 5th of April; but a few are occasionally noted as late as April 20 or May 5. The winters of 1844, 1896 and 1903 are especially remarkable for the abundance of this bird in New York. It occurs in all parts of the State, but is usually not so plentiful on Long Island as in the interior.

Haunts and habits. The Pine grosbeak is one of the largest of its family found in New York, but is of gentle, unobtrusive manner, almost entirely fearless of man's approach, and always seems to be perfectly con-

tented with its situation wherever encountered. A whole tree full of these birds may frequently be seen feeding on the seeds of mountain ash berries, apples or the buds of beeches. One may stand within a few feet of them for a long time without their taking any notice of one's presence. They are rather slow and deliberate in manner. Their flight, however, is rather rapid and aggressive, slightly undulating as is usual in this family. While on the wing they often utter a high-pitched call resembling somewhat the note of the Purple finch, or two or three high whistles similar to the notes of the Yellow-leg's "*tee-te, tee-tee-te.*" The food of the Pine grosbeak in this State includes the seeds of spruces, larches, hemlocks and pines, berries of sumac, mountain ash, cedar, *Crategus* or American hawthorn, and wild apple; also buds of apple, peach and birch. Like the crossbills they are more or less gregarious, but in this State the flocks nearly always consist principally of young birds and females, sometimes not more than 2 or 3 red birds being found in a flock of 20 or 30 individuals.

***Fringilla coelebs* Linnaeus**

Chaffinch

Description. "Forehead black; crown and nape greenish blue; back and scapulars chestnut tinged with green; rump green; breast chestnut red fading into white on the belly; wings black, with 2 white bands; coverts of the secondaries tipped with yellow; tail black, the 2 middle feathers ash gray, the 2 outer on each side black with a broad white band. *Female:* Head, back and scapulars ash brown tinged with olive; lower parts greenish white; the transverse wing bands less defined." Hudson

Length 6.5 inches.

Distribution. This bird is one of the most popular songsters of Britain and western Europe in general, a bird of the orchards and hedgerows. It was introduced in 1890 at Central Park, New York City, by Mr Eugene Schieffelin, several pairs being released, and was still found in that vicinity as late as 1906, when Mr Chapman reported that 3 individuals at least were still in the park. In 1900 I noticed several specimens near the northern end of Manhattan island. It is probable, however,

that unless more birds are introduced, this species will not increase as the Starling and the House sparrow have done.

Ligurineus chloris

Green Finch

General color *yellowish green, variegated with yellow and ashy gray.* Length 6.5 inches.

The Green finch is one of the characteristic birds of western Europe, common throughout the greater portion of the British Isles. A single specimen was obtained in Lewis county by Romeyn B. Hough and was identified by Washington ornithologists as a fine specimen of the European Green finch. It showed no evidence of having been in captivity. Of course, the occurrence of this bird in New York State was purely accidental and, as in the case of the European linnet recorded by Mr Thayer, it may have escaped from captivity and have led a wild existence long enough to efface all evidences of its former confinement.

Passer domesticus Linnaeus

House Sparrow

Description. *Male:* Upper parts ashy gray, *streaked on the back and scapulars with black and bay; broad band of deep chestnut or mahogany behind the eye, spreading on the side of the neck; lesser wing coverts chestnut; a white wing bar formed by the white tips of the middle coverts. Under parts grayish; a conspicuous black bib on the throat and upper breast; bill blackish; sides of the head and bordering the black bib nearly white. Female and young: Brownish gray above streaked on the back with ochreous and black; wing bar obscure; under parts plain dingy brownish white.*

Length 6.35 inches; wing 3; tail 2.5.

This bird, which is now our commonest species, is almost exactly the size of a Purple finch. The tail is slightly emarginate, the bill heavy though not so heavy as the Purple finch's, the general build stocky. Persons who shoot the English sparrows from their Martin houses or Bluebird boxes can not be too careful to identify the bird before shooting. I have known of Purple finches and 3 or 4 species of native sparrows being shot by accident for the suspected interloper.

The House sparrow, or English sparrow as it is almost universally called in this country, as is generally known, is an importation from Europe. It was liberated in Brooklyn and New York City during the years 1860-

64, and soon thoroughly established itself both in New York, Boston, Philadelphia, Washington and all the larger cities of the Atlantic seaboard. It began spreading westward and soon occupied the whole country east of the Mississippi. In the year 1879 there were no English sparrows in the village of Springville, where the author's boyhood was spent. That winter he visited the city of Buffalo and was delighted to see the English sparrows about the streets and dooryards amid the deep snow in the coldest weather. Two years later the sparrows had thoroughly established themselves at Springville and before the year 1888 had occupied practically every hamlet in the State. During the last 20 years they have been working their way from the cities and villages into the country and nearly every large farmyard is thickly inhabited by these troublesome parasites. It is almost impossible for the farmer to keep them from his barns and grain stacks. Large flocks of young birds accompanied by a few older individuals gather on the wheat and oat fields in late June, July and August, doing considerable damage to the standing grain and more to the grain in the shock and stack. They also attack the garden fruits, doing especial damage to berries and currants. Many garden vegetables are also pecked and rendered unfit for market. There is every reason to believe also that the San José scale and other injurious parasites of our fruit trees are distributed by these birds as they are continually flying from one tree to another, especially about our gardens and orchards, whole flocks filling the trees and shrubbery and continually flying from one farmyard to another so that the scales are quickly carried from infected trees to the well-sprayed orchards of the most careful horticulturist. These direct injuries done by the English sparrow to our various crops, however, are not the chief reason why it should be considered an injurious species, nor the litter of dirt which he creates about our eaves, windowblinds and porches, but the influence which he exerts upon our native bird life. As intimated in other connections, the sparrow builds so early in the season that nearly every available box and hollow limb is occupied by the time the bluebirds, chickadees and nuthatches, martins and Tree swallows begin to think

of their nestbuilding, so that the scarcity of such nesting sites, which becomes greater and greater in all civilized communities, is multiplied tenfold by the occupation of all the available hollows by the indefatigable sparrow. Although the bluebirds and martins may drive the sparrows from the box which they have occupied for generations, as soon as they arrive in April, nevertheless the sparrows remain in the vicinity and as soon as the martins or bluebirds are out of the box they begin to carry in their nesting material again, in this way harassing the native birds so continually that they succeed in rearing no young. Thus the number of bluebirds and martins that nest in our dooryards or about the village is becoming smaller and smaller. The effect on the abundance of swallows is especially manifest. A farmer closes his barn to keep out the sparrows and the swallows can not enter. So it is evident that all those birds which make their nests about our buildings or in boxes prepared by men are continually crowded out of their nesting sites and driven farther and farther from our habitations. Furthermore, as the number of sparrows increases it is not only these birds that are discouraged, but even the robins, Chipping sparrows, Yellow warblers and various other species. I have noticed on many occasions the sparrows carrying off the nesting materials that the Robin was placing in the crotch of an apple tree, the poor Robin bringing materials day after day, and the sparrows, one pair after another, carrying the materials away as fast as they were brought. to fill up some yawning hollow post or some hole in the eaves of a building. Likewise, they often build their nests on top of Robins' nests and those of other birds. Being clumsy nest-builders they seem unable to start a new nest for themselves in the ordinary crotches of our shade trees, but as soon as a nest has been started by some respectable architect they immediately take possession and pile up their straw and feathers into an unsightly bunch, thus driving away even the crotch builders from our dooryards. It is not only in this direct way that they discourage the nesting of our native birds, but as they increase in numbers they destroy all the available food supply of smooth caterpillars and other palatable

insects which the wrens and warblers desire for their own young, so that by this method of food rivalry they are continually crowding out native species which would not only destroy the caterpillars which the House sparrow destroys in feeding its own young, but would not do the damage which the House sparrow creates, and at the same time would, in the author's estimation, be much more pleasant neighbors than this irritating foreigner which has established himself so permanently in our midst. As yet, no parasite has been discovered which might decimate the ranks of this sparrow pest, and no enemy has yet arisen which has made any appreciable impression upon it. It is true that Sparrow hawks and Sharp-shinned hawks frequently establish themselves in the fall and winter in the vicinity of sparrows' haunts and feed upon them throughout the colder months, and in many of the northeastern states the Northern shrike or Butcher bird has acquired the habit of entering towns or cities and pursuing the English sparrow; but none of these birds are numerous enough to affect the abundance of a bird which rears 6 to 8 young in one brood and brings up 3 or 4 broods each season. A few sparrows are frozen to death in our coldest northern winters and during severe rain storms many of the young are frequently destroyed, but they are still increasing in number. It seems to be a question of rivalry, which is referred to above. In the old world the various species of birds which compete with the sparrow for nesting sites and food have become accustomed to his ways and have gradually become able to cope with him, whereas the American species with which he comes in contact have never had to contend with such rivals and can not adapt themselves rapidly enough to meet him successfully. Of all our native species, the Robin seems to be the most successful in this contest of rivalry. The Phoebe succeeds fairly well and the Song sparrow is only slightly affected. It is probable that many of our more dominant species will survive, but undoubtedly the sparrow is another influence which must be added to all the changes mentioned in the chapter on Ecology which are affecting unfavorably the abundance of many of our more interesting birds.

The sparrow begins its nesting operations with the first thaw of springtime. I have seen the old birds carrying building materials in December, January, February and March, but in the first warm wave of March nestbuilding begins in earnest, and the sparrows are continually fighting and pairing. The nest is usually completed by the third week in March and eggs are quite common by the first week in April. There is no question but in some of the warmer cities nesting is considerably earlier than this, but in western New York the young birds are rarely seen out of the nest until the 20th of April or the 1st of May.

The various means of destroying the House sparrow are well described in Farmers Bulletin 493 of the Biological Survey of the United States Department of Agriculture. There is no doubt that the number of this pest could be appreciably diminished by poisoning if this were practiced during the coldest, snowiest portion of the winter; but this means should not be employed except by persons who understand thoroughly the method of procedure and would practise the utmost care in protecting the poisoned grain from pigeons and other birds that might get it later in the season. In addition to this, a very effective method would be to destroy all the nests with the old birds during the breeding season. Boxes erected at a moderate elevation, as soon as they are inhabited by sparrows, could be visited after nightfall and a net thrown over the hole, to be used to secure the parent bird. In this way all the breeding birds could often be secured; but those that nest in eaves and inaccessible places must be secured by the flobert dustshot cartridge or the shotgun, and as soon as these methods are practised, many of the neighboring citizens object. Some even pride themselves in protecting and singing the praises of the much despised English sparrow, and he has many points of interest and some points to admire. He is a character of great individuality, but in the author's experience the more he is studied the less he is admired, although we may wonder at his success. In some of the western states an organized warfare is often waged at certain seasons against the English sparrow and wagon loads of the birds are destroyed by universal hunts.

It is true that these wholesale hunts frequently destroy some beneficial birds, but if all the house owners of every district should conspire against the sparrow, each one making himself responsible for all the nesting birds and nests on his own premises, we believe that each one could be successful, and it is evident that such warfare would soon be disastrous to this pestiferous bird.

Carpodacus purpureus purpureus (Gmelin)

Purple Finch

Plate 76

Fringilla purpurea Gmelin. Syst. Nat. 1789. 1:923

Erythrospiza purpurea DeKay. Zool. N. Y. 1844. pt 2, p. 169, fig. 163

Carpodacus purpureus purpureus A. O. U. Check List. Ed. 3. 1910.
p. 243. No. 517

carpódacus, from Gr., fruit-biting; *purpureus*, Lat., purple

Description. Size of the English sparrow; bill stoutly conical; tail slightly forked; head slightly crested. *Adult male:* Head, neck, throat, breast and rump rich *rose red* or "wine purplish," brightest on the crest and rump, the winey purplish most pronounced on the breast; whole plumage suffused with the same color, but the feathers of the back with dusky central streaks; the wings and tail fuscous, slightly edged with the reddish color; belly and under tail coverts whitish. *Female:* Grayish *olive brown streaked with darker; under parts* white tinged on the throat and breast with buffy, *conspicuously streaked* with dusky; sparrowlike in appearance, but the unusually heavy bill and heavy streaking distinguish her. *Young males:* Until the second year, like the female.

Length 5.5-6.25 inches; extent 10.2; wing 3.15-3.4; tail 2.3-2.5; bill .46; tarsus .68.

Distribution. The Purple finch inhabits eastern North America, breeding from British Columbia, Alberta, northern Ontario, central Quebec and Newfoundland southward to North Dakota, Minnesota, northern Illinois, the mountains of Pennsylvania, northern New Jersey and Long Island. In New York it breeds in all sections of the State, but is a rare summer resident on Long Island and in the immediate vicinity of New York City, and on Staten Island. Throughout the Adirondack and Catskill districts it is a common summer resident, as well as in the highlands of

western New York. On the lowlands of western New York and in the Hudson valley it is rather uncommon or erratic as a breeding species. In all sections of the State, however, it is common as a transient visitant, appearing from March 15 to April 10, migrating birds being common until the 10th to the 20th of May, and disappearing in the fall between the 5th and the 20th of November. It also remains throughout the winter in all the southern portions of the State, some years being fairly common throughout the coldest weather, especially in the vicinity of New York City and in the lower Hudson valley. It is not a winter resident of the Adirondacks, however, but in western New York a few may always be seen throughout the winter. It is rather erratic in habits like its relatives, the crossbills and Pine grosbeak, some years appearing very early in the spring and at other times not making itself heard till the middle of April; but a definite yearly migration is perfectly evident in nearly all sections of the State as indicated by the dates given above. I found it one of the common breeding species throughout the spruce and balsam belt of the Adirondacks, and in western New York near Springville it was also a common breeder in the years between 1876 and 1885. Every spruce tree in the town of Concord from 10 to 20 feet in height could be counted upon for having a Purple finch's nest near its top. My friend, Mr William B. Burke, also noticed it as a common species in the Catskills during the spring of 1905. Thus we can regard the Purple finch as one of our characteristic summer residents in the greater portion of the State, and a permanent resident in the southern districts although rare in the summer and uncommon throughout the winter months. The haunts of the Purple finch are the evergreen forests, not the denser portions, but rather the open woods and swamps where numerous pointed firs and cedars may be seen scattered about. Here he fills the neighborhood with his gushing music throughout the latter part of April, May, and early June. It is one of the conspicuous birds of these localities. His song is delivered from the top of a spruce or balsam and consists of a rapid, easily flowing, melodious warble, resembling somewhat that of the Warbling vireo but more variant in

character. Sometimes when overcome with emotion he launches into the air with vibrating wings, rising upward and upward, a torrent of melody coming from his swelling throat, until he has reached an altitude of 200 to 300 feet, when he descends in wide circles with outstretched wings to the summit of the evergreen from which he started. Sometimes in late May or early June he may be heard to burst forth as if with unrestrained emotion so suddenly as to startle one by the gushing of his overpowering melody. I have thought sometimes that it was the most impassioned bird song that we have in our groves and woodlands. I have also seen him dancing about the female on the limbs of a tree or on the ground with his wings fully extended and quivering, his crest raised to its utmost, his tail spread and the brilliant feathers of his rump raised in the air, all the while uttering his melodious warble, *sotto voce*, until, apparently overcome by his emotion, he closed his wings and flew to a neighboring tree, perhaps to repeat the performance in a few minutes. Besides his song, while flying he utters a sharp "*pit*," and while feeding frequently a "*chipp chee*." Mr Bicknell has noticed the song period to begin from the fourth week of March, or sometimes as late as the 23d of April, and continue to the middle of July, varying from the 2d to the 20th. The autumn song is weak and desultory. The immature males, which look like the females, sing almost as well as the high plumaged males, and several observers have stated that they have positively made out the fact that the females themselves sing, though not so melodiously as the male.

The food of the Purple finch consists in spring largely of the buds of trees. Unfortunately, the buds of the peach, cherry and apple trees are frequently selected. In this way he often does considerable harm to the peach and cherry orchard, but serious complaints have come from only a few localities in New York. Later in the season I have often found them feeding on green cherries, one-fourth grown, on the green berries of the fly honeysuckle, viburnum and ironwoods and, in the fall, on the ripened fruit of the red cedar, white ash, hemlock, and nearly any species of seed-bearing tree. They rarely feed upon the ground, but sometimes

are found where seeds are plentiful, hopping about after the manner of sparrows. In the winter I have noticed that they seem to prefer the seeds of maples, ashes and mountain ash. Late in June I have found their food mostly confined to the samaras or ripened fruit of the elm tree. The species is more or less gregarious, and throughout the migration season in April and May, as well as in winter, they are often seen in loose flocks of 6 to 30. While feeding, one will usually notice a rustle of wings as they dislodge seeds from the branches and regain their balance. This sound has often directed me to a flock which otherwise would have escaped my attention.

The nest of the Purple finch is usually constructed between the 5th and the 20th of May in western New York, sometimes as late as the middle of June. The fresh eggs have been found from the 10th of May to the 15th of June, and sometimes as late as the 10th of July. In this instance I think it was a second brood. The nest resembles very much that of the Chipping sparrow, consisting outwardly of small twigs, grasses and rootlets thickly lined with hairs. In dimensions, however, it is conspicuously larger than that of the Chipping sparrow and the inner nest not quite so neatly constructed. The eggs vary from 4 to 6 in number, usually 5, in my experience, greenish blue in color, spotted with blackish, brown and purplish. They average .8 by .56 inches in dimensions.

***Loxia curvirostra minor* (Brehm)**

Crossbill

Plate 77

Crucirostra minor Brehm Allg. deutsche Naturhist. Zeitung. 1846. 1: 532
(note)

Loxia americana DeKay. Zool. N. Y. 1844. pt 2, p. 182, fig. 144

Loxia curvirostra minor A. O. U. Check List. Ed. 3. 1910. p. 245. No.

521

lóxia, Gr., λῶξίς, crooked; *curvirostra*, Lat., curve-billed; *minor*, smaller (that is, than the European crossbill)

Description. About the size and build of the Purple finch but somewhat less streaky; mandibles crossed; tail rather short, forked. *Adult*

male: Dull red varying from reddish orange chrome in summer to dull vermilion in the high plumage; the color brightest on the head, breast and rump, the back showing dark brownish centers of the feathers; wings and tail fuscous, slightly edged with the color of the back; bill horn-colored, tipped with dusky; iris brown; feet dark brownish. *Female and young:* Grayish olive more or less overlaid with a yellowish olive or a dull saffron, especially on the head and rump.

Length 6.2-6.4 inches; extent 10.75; wing 3.4; tail 2.14; bill .66; tarsus .62.

Distribution. The American crossbill breeds principally in the boreal zone of America, occasionally and erratically as far south as southern New York, but commonly in the Adirondack spruce forest. In other parts of the State it is an irregular winter visitor, some years appearing in large numbers in nearly all parts of the State, in other seasons almost entirely wanting. It is perhaps more erratic than the Pine grosbeak in its occurrence and more of a wanderer, apparently following the best crop of pine, spruce and hemlock cones about the country, while at other times seeming to be led along purely by its fancy. It also occasionally appears in midsummer in various parts of the State, especially in seasons of great forest fires in the North Woods. Such occurrences are June 8 to July 28, 1888, in Niagara county (Davison); June 16, 1889, Ithaca, Fuertes; Ithaca, July 15, 1900, Hankinson; Hamilton county, July 13, 1903, Embody; Ontario county, July 27, 1903, Eaton; Monroe county, July 1903, Dr C. A. Dewey; Ithaca, August 7, 1904, and June 24, 1906, Doctor Reed. On account of its wandering habits it is practically impossible to mention migration dates for the Crossbill, but we might say that these birds may be expected from November 15 to December 12, on the average, and they will be last seen in the spring from April 12 to May 14. I am aware that these migration dates do not agree with what would be expected on account of the early breeding habits of this bird, but they seem to be justified by the notes which I have taken for many years. This species has been recorded by Merriam, and by Ralph and Bagg, as a common breeder in Hamilton and Herkimer counties and eastern Lewis county. Eggs in the Smithsonian Institution collected by Doctor Ralph at Morehouse-

ville were taken on March 30, 1904. Kennard (Auk, 12:304) found the bird breeding at Brandreth lake in May 1890 and 1894, and reports a nest in the same place May 1890, containing young birds. Mr Bicknell reports the breeding of this species at Riverdale on the Hudson, the fresh eggs being taken on April 30, 1875 (N. O. C. Bul. 5:7-9), and Mr Helme reports it breeding at Millers Place, Long Island, April 10, 1883 (Auk, 2:100). It will thus be seen that the species is also erratic in the time of breeding as well as in the locality chosen for that purpose.

Habits. The nests are placed in evergreen trees, usually not very far from the ground; constructed mostly of twigs, grasses and rootlets, lined with bits of moss and hair. Mr Bicknell describes the nest he found as composed of spruce twigs in a mass, with cedar bark and a felting of finer materials, and a second coating of horsehair, rootlets, pieces of string, and 2 or 3 feathers. The eggs are usually 3 or 4 in number, pale greenish, spotted and dotted with various shades of brown and lavender, averaging .75 by .57 inches.

Like the Pine grosbeak this species is gentle and approachable in disposition, exhibiting very little fear of mankind. I have frequently stood under a hemlock or a spruce for some time without realizing that 20 or 30 crossbills were scattered throughout the top of the tree, twisting the seeds from the cones, until the little wings which they had cut from the seeds came floating down and advised me of their presence. Then on examination the tree seemed to be full of crossbills. They are very dexterous in their work of extracting seeds from the cones, climbing about and hanging by their feet and bills almost as expertly as parrots. Occasionally the whole flock takes flight suddenly without any apparent reason, as they fly away uttering a keen "*pip-pipe, pip-pip-pipe.*" While feeding they occasionally keep up a series of short chirping whistles that sounds like a contented chattering among the company. The flight of the Crossbill is undulating. The flock keeps more closely together than is the case with most of the members of the finch family, sometimes wheeling about almost as closely ranked as flocks of cowbirds

in the fall. The Crossbill has a beautiful song of varied and pleasing character, though not very powerful. "A series of somewhat goldfinch-like trills and whistles, seldom of any duration and in any case far less rich than that of the White-winged crossbill. It is more apt to keep up a low twittering while feeding than that species. Common call notes are a 'pip-pipe-pip-pip-pip' somewhat like the peeping of young chickens, and the much deeper 'püp-püp' strikingly similar to one call of the Olive-sided flycatcher. The last mentioned note is rarely or never uttered when the bird is on the wing." (Gerald Thayer)

Loxia leucoptera Gmelin

White-winged Crossbill

Plate 77

Loxia leucoptera Gmelin. Syst. Nat. 1789. 1:844

DeKay. Zool. N. Y. 1844. pt 2, p. 183, fig. 145

A. O. U. Check List. Ed. 3. 1910. p. 245. No. 522

leucóptera, from Gr., meaning white-winged

Description. Shaped like the Red crossbill but slightly smaller and the color more of a *rosy red* in this species, and the *wings and tail black*, the former *with conspicuous white bars* formed by the white tips of the middle and greater wing coverts; the center of the belly nearly white. *Female and young: Olive green*, yellowish on the rump, gray on the under parts, mottled on the back and head with blackish.

Length 6-6.2 inches; extent 10.18; wing 3.27; tail 2.4; bill .62; tarsus .61.

Distribution. The range of this species coincides closely with that of the Red crossbill, but it is if anything more northerly in distribution and does not wander so far south in winter, but occurs as a fairly common winter visitant in this State, though more irregularly than the Red crossbill, and as far as my records show is never found throughout the State in the summertime. It breeds in the Adirondack forest according to Merriam, but is very much less common in the summer than the Red crossbill. In other parts of the State this species is only an erratic winter visitor, appearing from the 29th of October to the 15th of November, and disappearing

in the spring from the 15th of April to the 10th of May, sometimes remaining until late in June (in Scarboro; Gerald Thayer). It certainly is commonest between the first of December and the last of February, most of the records occurring between those dates. There were visitations of these birds in New York State in the winters of 1848, 1864, 1874, 1878, 1882, 1888, 1890, 1893, 1896, 1897, 1899 and 1906. They were especially common on Long Island in the winter of 1899 and 1900, and in western New York in the winters of 1882 and 1889. When these birds find a locality where food is abundant they seem to remain in that immediate vicinity throughout the winter, as was observed by Mr Bicknell at Riverdale in the winter of 1874-75, from November 3 to May 10, and by Mr Burtch at Penn Yan from February 4 to April 19, 1900, and by Mr Helme at Montauk Point from November 8, 1899, to February 20, 1900.

Habits. This species is more active and uneasy than the Red crossbill, and also more shy and suspicious, usually keeping near the tops of tall trees when feeding. The few flocks which I have been able to observe in western New York and in the Adirondacks, were in the tops of tall hemlocks and spruces, and it was with great difficulty that I was able to approach near enough to take specimens. They seemed to fly frequently from one tree to another, wheeling about in the air and keeping up a rather loud chattering cry as they flew about, the call note resembling somewhat the syllables "*cheep, cheep,*" being uttered in succession by the different members of the flock. In the springtime they have a beautiful song, perhaps more melodious than that of the Red crossbill, a low, soft warbling, suggesting somewhat the song of the Redpoll. The nest is described as composed of twigs, strips of bark, mosses, and lined with softer moss and hair. The eggs are usually 3 or 4 in number, pale blue, spotted and streaked with reddish brown and lilac, averaging .8 by .55 inches.

"The two common calls of this species are a loud, whistled '*wheet-wheet-wheet*' impossible to mistake for that of any other eastern bird, and an equally characteristic rolling twitter, which, however, is somewhat

similar to the corresponding note of the Redpoll. Its song, heard occasionally in the winter but much more frequently in the birds' summer home, is a remarkably loud and rich series of trills, twitters and whistles suggestive of the song of a strong-voiced canary. It is one of the loudest and one of the most noticeable songs to be heard in the north woods." (Gerald Thayer)

Acanthis hornemanni exilipes (Coues)

Hoary Redpoll

Aegiothus exilipes Coues. Proc. Acad. Nat. Sci. Phila. 1861. 385

Linaria borealis DeKay. Zool. N. Y. 1844. pt 2, p. 169

Acanthis hornemanni exilipes A. O. U. Check List. Ed. 3. 1910. p. 247.
No. 527a

acanthis, Gr., name of the linnet; *hornemanni*, to J. W. Hornemann; *exilipes*, Lat., small-footed

Description. Pattern of coloration similar to the common Redpoll, but decidedly *whiter*, the *sides* being much *less heavily streaked* and the upper parts more broadly edged with white; *rump plain white* without any streaks; the wings and tail more distinctly edged with whitish; the breast and rump tinged with pink as in the common species.

For dimensions see table under *rostrata*.

Distribution. The Hoary redpoll is found throughout the holarctic regions. In America it breeds from Ungava to western Alaska, and straggles southward in the winter as far as Maine, Massachusetts, Ontario, Michigan and Illinois. It is unfortunate that I have been unable to find any actual specimens of the Hoary redpoll from New York State, but it is ascribed to New York by Nuttall (see Chamberlain's edition, page 538) and also reported from the vicinity of Auburn in 1854 (see paper by William Hopkins read by Doctor Brewer, Proceedings Boston Society Natural History, volume 5, 1856, page 13). It is also included by DeKay in "Birds of New York," but without definite statement as to specimens secured in the State. It has also been reported as seen by different observers, the last record coming from Otto McCreary of a specimen seen near Trumansburg with Common and Greater redpolls on March 24, 1912. There is little doubt that this species occurs in New York, as many speci-

mens have been taken in Massachusetts at Swampscott, Revere, Cambridge and Nantasket (see Brewster, Auk, 4:163); it is also reported by Ridgway and the A. O. U. from Hamilton Beach, Ontario; Chicago, Ill.; and from northern Michigan.

Acanthis linaria linaria (Linnaeus)

Redpoll

Plate 78

Fringilla linaria Linnaeus, Syst. Nat. Ed. 10. 1758. 1:182

Linaria minor DeKay, Zool. N. Y. 1844. pt 2, p. 168, fig. 161

Acanthis linaria linaria A. O. U. Check List. Ed. 3. 1910. p. 248.
No. 528

linaria, Lat., a linnet

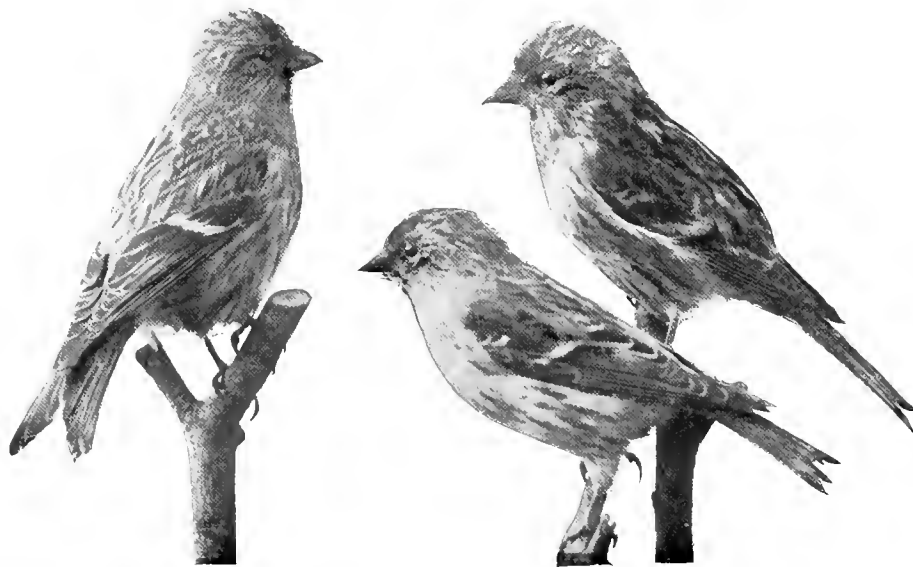
Description. Small, shaped like a Goldfinch; streaky; tail forked; bill small and sharp-pointed, with conspicuous tufts of bristles over the nostrils. *Adult male:* Crown bright red; forehead, chin and upper throat blackish; upper parts grayish brown streaked with dusky and whitish, lighter on the rump; under parts whitish especially the belly and under tail coverts; sides streaked with dusky; the lower throat, breast and rump rosy pink; whitish wing bars and edgings. *Female:* Duller, only slightly tinged with pink on the breast and rump.

Length 5.32 inches; extent 8.25-8.75; wing 2.8; tail 2.32; bill .36; tarsus .56.

Distribution. This species inhabits the northern hemisphere, in America breeding from Alaska and northern Ungava, southward to northern Alberta and the islands of the Gulf of St Lawrence; winters in the northern portion of the United States. In New York this species is an irregular winter visitant, undoubtedly occurring every winter, but frequently being very abundant. Winters of unusual abundance were those of 1876, 1878, 1882, 1886, 1889, 1898, 1899, 1906, 1908, 1910. The date of arrival varies from the 9th to the 25th of November. It seems to be commonest from about the last week in November till the last of March, although they are frequently seen from the 6th to the 29th of April. Usually they disappear by the 10th of April.

Haunts and habits. The Redpoll is most commonly found in birch and alder swamps subsisting on the seeds which it extracts from the stro-

biles with its sharp beak, and along the roadsides and wide fields covered with weeds, feeding on the seeds of amaranth, goosefoot and ragweed, and frequently enters the gardens in the outskirts of towns and cities to feed on the weeds projecting above the snow. In notes and habits it reminds one very much of the Goldfinch. It is unsuspecting and often allows one to approach closely, without taking wing; sometimes, however, the whole flock will rise suddenly without a moment's warning, wheeling around



Greater redpoll ♀
Acanthis linaria rostratus (Coues)

Holboell redpoll ♂
Acanthis holboeilli (Brehm)

Redpoll ♂
Acanthis linaria linaria (Linnaeus)

From New York specimens in the State Museum. † nat. size

over the swamp and disappearing entirely from view. "The distinct call notes of this species are at least four in number; a long drawn, shrill 'buzz' very similar to one note of the Pine siskin, but thinner and longer; a conversational twittering uttered when several birds are feeding together, difficult to distinguish from the corresponding note of the siskin but somewhat more rolling; a 'ker-weet' extremely similar to the long plaintive call of the American goldfinch but distinguishable, being different in tone; and lastly, a common, loud twittering or rolling call uttered when the bird

is on the wing, which may be described as intermediate between the corresponding rolling call of the White-winged crossbill and the ordinary piping call of the Red crossbill, though somewhat softer than either" (Gerald Thayer). On the 27th of March 1912, I heard the song of a full plumaged Redpoll delivered from the peak of a tamarack in a swamp near Geneva, N. Y. It resembled somewhat the ecstatic flight song of the Goldfinch, but seemed to me more melodious and finer toned, more of the quality of the "tweet" call of the Goldfinch and less of the warbling quality, but delivered in the manner of the Goldfinch's warble. The Redpoll is fully as gregarious as the Crossbill, is rarely found except in flocks of from 20 to 50, sometimes 200 or 300. When the flocks take wing they keep up a combination of twittering and chirping very characteristic of the species. In habits they are wholly beneficial, feeding only on seeds of trees or on the seeds of harmful weeds which grow in the field.

***Acanthis linaria holboelli* (Brehm)**

Holboell Redpoll

Linaria holboellii Brehm. Handbuch Vogel Deutschl. 1831. 280
Acanthis linaria holboelli A. O. U. Check List. Ed. 3. 1910. p. 248.
 No. 528a

holboelli, to C. Holboell

Description. Like the common Redpoll in color, but *larger*, the *bill slimmer and longer* (see dimensions given under *rostrata*).

Distribution. This subspecies of Redpoll breeds in the holarctic region, in America on the islands of the Arctic coast, especially Herschel island, and wanders southward in winter as far as Quebec, Ontario, Maine and Massachusetts. In New York it has been taken at Lake George, Warren county, January 27, 1890, A. K. Fisher collection, no. 3940; and at Kenwood, near Albany, February 15, 1907, a male taken by George Richard, New York State Museum collection, no. 1753. The dimensions of the latter specimen, which is figured in the half tone on page 272, are: wing 77 millimeters; tail 60; culmen 10.5; depth of bill 6.5; tarsus 15;

middle toe 9. There is little doubt that many specimens of this species could be obtained in northern New York if a large series of redpolls were collected and carefully examined; but it resembles so nearly the common subspecies that it can not possibly be distinguished at any distance in the field.

Acanthis linaria rostrata (Coues)

Greater Redpoll

Plate 78

Aegiothus rostratus Coues. Proc. Acad. Nat. Sci. Phila. 1861. 378
Acanthis linaria rostrata A. O. U. Check List. Ed. 3. 1910. p. 248.
 No. 528b

rostrata, Lat., beaked

Description. Much larger than the common species; general coloration darker and browner; stripes on the breast and sides decidedly heavier; the bill thicker and blunter in outline.

Distribution. The Greater redpoll next to the Lesser redpoll is our commonest species of the genus in New York. It unquestionably occurs each season. Several specimens have been taken near Shelter island by Mr Worthington, one of which, a female, taken February 11, 1879, is in the Dutcher collection, no. 1562. Specimens from the interior of the State are: Ossining, taken February 12 and 13, 1883, by Ezra Acker (see Fisher, N. O. C. Bul. 8:121); a pair taken at Lake George, Warren county, January 2 and 11, by T. A. Lockhart (see Fisher, Auk, 1:156); and a specimen from Lewis county collected by Doctor Merriam, reported in the Ralph and Bagg list, page 129. The specimen figured on page 272 was taken at West Waterford, January 23, 1899, by Will Richard, and is now in New York State Museum collection, no. 1139. Its dimensions are: wing 78 millimeters; tail 60; culmen 9.6; depth of bill 7; tarsus 15.5; middle toe 10. By observing flocks of redpolls with a field glass when they are working among the weeds near one in the field, or in birch, alder, tamarack and apple trees at a distance of from 2 to 6 rods, it is possible to distinguish, in size and coloration, between this subspecies and the Lesser redpoll; and they can thus be recorded with certainty

by those who are experienced in the differences between our redpolls. In this way Mr Otto McCreary has observed them on several occasions in Ontario and Seneca counties during 1909, 1910 and 1912. The home of the present subspecies is in Greenland and the adjoining country, straggling southward in winter from Ungava and Labrador to Quebec, Ontario, Manitoba, Indiana, Illinois, Colorado, New York and Massachusetts.

Average dimensions of Redpolls
(Ridgway, Birds of North and Middle America)

SUBSPECIES		WING MILLIMETERS	TAIL	EXPOSED CULMEN	DEPTH OF BILL AT BASE	TARSUS	MIDDLE TOE
exilipes	male.....	75.18	57.40	7.87	6.35	14.48	7.87
	female.....	71.12	56.13	7.87	6.10	14.48	7.62
linaria	male.....	74.93	54.10	8.89	6.10	14.73	8.64
	female.....	73.91	53.85	8.38	6.10	14.73	8.38
holboellii	male.....	75.18	56.90	9.91	7.37	15.24	8.89
	female.....	72.69	57.15	9.91	7.11	14.99	7.87
rostrata	male.....	80.52	59.94	9.91	7.62	16.51	9.95
	female.....	78.23	58.67	9.65	7.62	16.26	9.14

Acanthis cannabina

European Linnet

cannabina, Lat., of hemp

Description. *Forehead* and *crown crimson*; rest of the head, nape and sides of the neck mottled brownish gray; *mantle chestnut brown*; wing feathers blackish with outer edges white, forming a conspicuous bar; under tail coverts dark brown with whitish margin; tail feathers black narrowly edged with white on the outer and broadly on the inner webs; chin and throat dull white striped with grayish brown; *breast crimson*; belly dull white; flanks fawn brown; in winter the crimson feathers concealed by wide grayish margins. *Female:* Duller in color and without any crimson.

Length 5.75 inches.

Distribution. This old-world species, which resembles superficially the Redpoll in appearance, is not a native of our avifauna, but has been reported once from this State by Gerald Thayer (see *Auk*, 17: 389). Of course, its occurrence here was wholly accidental. The specimen taken by Mr Thayer in Westchester county, at Scarborough, is now in the State Museum. Besides the one taken, he saw a flock of 5 males and females for several days about the locality. There is no question about the identity of Mr Thayer's specimen but, of course, it is barely possible that these linnets had escaped from some zoological park or had been liberated by persons who had them in captivity, yet there is little more reason to doubt that they had wandered here, than that many specimens of American

species reported in Great Britain had wandered to that region. It is, moreover, improbable that so many individuals as the 6 seen by Mr Thayer would have crossed the ocean on board a ship, as sometimes happens to single individuals of other species.

Astragalinus tristis tristis (Linnaeus)

Goldfinch

Plates 78 and 79

Fringilla tristis Linnaeus. Syst. Nat. Ed. 10. 1758. 1:181

Carduelis tristis DeKay. Zool. N. Y. 1844. pt 2, p. 166, fig. 151

Astragalinus tristis tristis A. O. U. Check List. Ed. 3. 1910. p. 248.
No. 529

astragalinus, Gr., ἀστραγάλινος, "an unknown small bird" (D'Arcy W. Thompson), "a goldfinch" (Liddell & Scott); *tristis*, Lat., sad, alluding to its call

Description. Bill conical, sharp pointed; tail forked. *Male: Bright lemon yellow*, the *crown, wings and tail black*; wing bars and streaks on the wings and tail, white. *Female: Grayish olive brown tinged with green*, especially on the throat and sides of the neck; wings and tail blackish; wings barred and the secondaries and tail feathers streaked with whitish; under parts dull white tinged with yellowish. *Male in winter:* Plumage resembles the female, but the wings and tail blacker, the body plumage much browner, the throat and sides of the neck more tinged with yellowish green, the *lesser wing coverts* and the *upper tail coverts bright yellow* as in summer. *Young* resemble the female.

Length 4.75-5.2 inches; extent 8.8-9.25; wing 5.82; tail 1.95; bill .4; tarsus .54.

Distribution. This species inhabits eastern North America from southern Manitoba, central Quebec and Newfoundland southward to eastern Colorado, Arkansas and northern Georgia, in winter extending as far southward as the gulf coast. In New York it is a common resident, though less common in winter, fairly abundant as a breeding species in all portions of the State except the dense portion of the forested districts; found in winter throughout the State, but more commonly in the southern portion. Many bird students assume that the Goldfinch migrates like many of our sparrows and warblers because the male birds, assuming their brilliant hues about the last of April or the first week in May, seem to appear suddenly; although, if they had visited the swamps and fields,

they might have found them in somber plumage throughout the winter months. It is true that the Goldfinch is much commoner and more generally distributed in the summer time than in the winter, especially in the gardens and farmyards.

Haunts and habits. Its usual haunts are open fields with plenty of seeds of the dandelion and thistle. It feeds largely on the ground or among the weeds, but otherwise spends most of its time in the orchards and shade trees, in pairs or little companies, being a rather sociable species, and in fall and winter almost always travels in flocks, after the manner of the Redpoll and Siskin. I have noticed that the principal food of the Goldfinch in winter consists of seeds of the birch, alder, hemlock and all kind of weeds which grow in the open field. In summer and fall it seems especially fond of hemp seeds, thistle seeds, chickweed, dandelion and salsify. It is rarely complained of as injurious, but gardeners who are raising lettuce and salsify find it oftentimes very destructive to the seeds; in fact, a garden of lettuce which has been allowed to go to seed almost certainly attracts dozens of these gay-plumaged finches until the supply has been exhausted. When the dandelions are in full seed, it is customary to see dozens of Goldfinches scattered over the lawn, busily engaged in tearing the seeds from their gossamers and devouring them. Thus, by destroying weed seeds through the summer and winter, it does good service to the gardener and farmer.

This little finch is not only one of our most beneficial and brilliantly colored birds, and one of the most familiar during the summer months, but his call notes and song are as beautiful as his plumage. He has a plaintive, canarylike "*twee-tee*" uttered with a rising inflection, and, when flying in deeply undulating sweep, the male utters a call note resembling the syllables "*per-chick-a-pee*." The young birds fresh from the nest have a curious note somewhat similar to the syllables "*chee-pee*." The song of the Goldfinch, heard late in June and through the months of July and August, is sometimes uttered from a perch, but more usually while the bird flies around in broad circles with fluttering wings, pouring

forth a torrent of canarylike warbling which sometimes approaches in beauty the song of the Purple finch.

The nest is constructed the latest of all our native birds. They rarely begin to build before the last week in June, although they may have been in residence throughout the year. Fresh eggs have been taken from the 5th to the 27th of July, sometimes as late as the 10th to the 19th of August, and on one occasion I found a Goldfinch's nest with eggs the first week in September. This is very unusual. The site selected is in a bush or tree from 5 to 30 feet from the ground, usually among thickly clustered limbs. The structure is composed externally of fine grasses, strips of bark, especially the epidermis of the milkweed, and mosses, lined with thistledown, a fact almost universal in this species, which has given it the name of "Thistle bird" in many portions of the State. The eggs are from 3 to 6 in number, normally 5, ovate in shape, white in color, slightly tinged with bluish, averaging .65 by .48 inches in dimensions. Only one brood is reared. The time of incubation is about 10 days.

Spinus pinus (Wilson)

Pine Siskin

Plate 78

Fringilla pinus Wilson. Amer. Orn. 1810. 2:133. pl. 17, fig. 1

Carduelis pinus DeKay. Zool. N. Y. 1844. pt 2, p. 167, fig. 136

Spinus pinus A. O. U. Check List. Ed. 3. 1910. p. 250. No. 533

pinus, Lat., thorn tree, *spina*, a spine or thorn; *pinus*, Lat., pine tree

Description. Sexes similar. Shaped like the Goldfinch but slightly shorter, the bill more slender; upper parts *grayish brown streaked with dusky*; under parts *whitish* tinged with buffy, *streaked with blackish*; wing bars whitish; the *bases of the tail feathers*, except the middle pair, and *bases of the wing feathers bright yellow* showing in flight as yellow patches at base of tail and in the wing. Young birds have the under parts more tinged with yellowish and the wing bars ochreous instead of white.

Length 5 inches; extent 8.63; wing 2.76; tail 1.9; bill .43; tarsus .47.

Distribution. The Siskin or Pine finch inhabits North America from central Alaska, southern Keewatin and southern Ungava to the mountains

of lower California and southern New Mexico, and to northern Michigan, Nova Scotia and in the Appalachian mountains to North Carolina, nesting also casually in Massachusetts and the lower Hudson valley. In winter it wanders over the whole United States and northern Mexico, but is erratic in its habits and distribution. Some years it appears in great numbers in various parts of the State; other seasons it is almost unknown. The years of unusual occurrence were 1882, 1886, 1891, 1898, 1901, 1909. It must not be assumed that it does not occur nearly every season, especially in the eastern and northern portions of the State, but certainly is rather uncommon except at intervals of a few years. The flocks arrive from the north from the 4th to the 16th or sometimes the 30th of October and wander about various localities where food is abundant, become commoner again in April and May, and are last seen from the 10th to the 30th of May, but occasionally as late as the 27th of June, sometimes remaining to breed, as happened at Ossining, May 25, 1883 (Fisher, N. O. C. Bul. 8:180), and at Cornwall-on-the-Hudson, May 3-12, 1887 (Allen, Auk, 4:284), at Remsen, April 4-9, 1889 (Ralph and Bagg list). In the higher Catskills, but more particularly in the Adirondacks, it is likely to breed each season, although in what part of the Adirondacks the principal breeding will occur is problematic. In the spring of 1905 immense numbers of these birds bred in Essex county in the region surrounding the higher peaks of Marcy and Skylight, and young fully fledged and feeding themselves were found in large flocks when we visited the district on the 16th of June. Doctor Merriam speaks of them breeding abundantly in the western Adirondacks in various seasons. Some years, however, they seem to be entirely absent from all portions of the Adirondacks as a breeding species, although it is possible that, if search of the whole region were made, some would be found breeding in unexpected places. Its breeding in the southern portions of the State as recorded at Ossining and Cornwall is certainly very exceptional.

Haunts and habits. The Pine siskin resembles the Goldfinch in habits, its flight being undulating, and the flocks usually proceeding over the

fields in long, waving swoops. It is commonly found in forests of hemlock, pine and spruce, alder swamps, and open fields. The Siskin is fully as gregarious as the Redpoll, in my experience. It is no uncommon thing in the month of November and again in late April or the first half of May to see flocks of 500 or 600 Siskins sweeping over the country, sometimes remaining only for a few minutes in any given locality, and then continuing their wanderings, their presence being determined largely by an abundance of their favorite food. It feeds principally on the seeds of conifers and various weeds, scarcely differing in this respect from the Goldfinch and Redpoll, but is perhaps more confined to seeds of the hemlock and the pine than these species. Its call note is a melancholy "chee-a," and the flight call is a chipping "tit-i-tit." The Siskin also has a song suggesting that of the Goldfinch, but less melodious.

The nest is usually saddled on a large limb of hemlock or other conifer 20 to 30 feet from the ground among the thick foliage. It is a bulky structure with a rough exterior, loosely built of hemlock twigs and sprigs of moss, about 6 inches in external diameter. The interior is compactly woven of thistledown, fur and hair, the innermost lining being of horse-hair and the inside dimensions given by Mearns 2.25 by 1.25 inches. The eggs are 4 to 6 in number, bluish white, slightly spotted with reddish; average dimensions .67 by .46 inches.

Carduelis carduelis (Linnaeus)

European Goldfinch

Plate 79

carduelis, Lat., thistlefinch, goldfinch

Description. Size and shape of the American goldfinch; fore face bright red, that of the crown and brow separated from that of the throat by black lores; behind the red on the sides of the head and upper throat is a margin of white, brightest on the side of the head; crown and band behind the white on the side of the head and neck black; upper parts cinnamon brown; breast and sides tinged with the same; belly white; wings and tail black; the feathers tipped with white; a large yellow patch in the wing.

Length 5.5 inches; wing 3; tail 2.95; bill .5.

Distribution. This old-world species was introduced at Hoboken, N. J., in 1878. The following year it appeared in Central Park, New York City, and soon spread over the northern portions of Manhattan island and the surrounding country. Locally not an uncommon resident (Adney, *Auk*, 3:409). The winter of 1880, Mr Hendrickson reported three specimens from Long Island City. In the winter of 1891 many were noticed flocking with the American goldfinches at Dobbs Ferry, but several were found dead in the snow, evidently the severity of the winter proving too much for this species (Dr A. K. Fisher).

I am not aware that the European goldfinch has increased, or even held its own in this State since the brief records rehearsed above were published. In the spring of 1900 I noticed several pairs that were endeavoring to build their nests in Central Park, and in the country about Kings Bridge and Spuyten Duyvil, New York City; but from all reports it seems that this beautiful species is not likely to become established so easily as the obnoxious European sparrow.

Plectrophenax nivalis nivalis (Linnaeus)

Snow Bunting

Plate 89

Emberiza nivalis Linnaeus. *Syst. Nat.* Ed. 10. 1758. 1:176

Plectrophanes nivalis DeKay. *Zool. N. Y.* 1844. pt 2, p. 178, fig. 158

Plectrophenax nivalis nivalis A. O. U. Check List. Ed. 3. 1910. p. 251.

No. 534

plectróphenax, from Gr., *πλήξτερον*, quill or spur, and *ψύκτις*, a cheat, referring to the long hind claw which might be mistaken for a spur; *nivalis*, snowy

Description. Considerably larger than the English sparrow; tail slightly forked; hind claw longer than toe; wings long and pointed. *Male in summer:* Largely white; back, under portion of primaries, inner secondaries and inner tail feathers, mostly black. *In winter:* The top of the head, back of the neck, cheeks and the black feathers of the upper parts, largely overlaid with rusty and buffy whitish; also a touch of rusty on the side of the breast; bill yellow tipped with dusky; feet black. *Female:* Similar to the male, but upper parts streaked with black in summer, and the wings and tail not so blackish in winter.

Length ♂ 7-7.35 inches, ♀ 6-6.5; extent 12.5-13.25; wing ♂ 4.2-4.5, ♀ 4; tail 2.7; bill .42; tarsus .83.

Distribution. The Snowflake inhabits the northern hemisphere, being holarctic in distribution, in America breeding from 83 degrees north, to

northern Alaska and Ungava; winters from Alaska, southern Alberta and southern Ungava as far south as northern California, Kansas, Ohio and sometimes Florida. In New York State it is a common winter visitant in nearly all localities, but is rather irregular in occurrence, sometimes appearing in great numbers for several weeks in winter, at other times seeming to be absent except for passing flocks which will be noted at intervals throughout the colder weather. They arrive from the north sometimes as early as the 28th of September on the Montezuma marshes and about the central lakes and the shores of Lake Ontario, but on Long Island and other parts of the State are rarely noticed before the 22d to the 30th of October, sometimes not before the 26th of November, and remain until the last of February or the 10th of March, sometimes being noticed as late as the 22d to 26th of the month.

Haunts and habits. This species is fully as gregarious as the cross-bills and redpolls. Although I have frequently seen single individuals appear on the Montezuma marshes and on the lake shore, almost without exception they are noticed in companies of from 25 to 50, and sometimes several hundreds, and on a few occasions I have noticed flocks of thousands sweeping over the fields like clouds of drifting snow. Flocks of snowflakes perform various evolutions while on the wing, careening backward and forward and wheeling about, and again seeming to blow over the fields like dried leaves driven by the wind. While flying, the members of the flock keep up a tinkling whistle, a note resembling somewhat the syllable "tee" repeated at intervals by the various members of the flock; also, when disturbed, they utter a harsh "beez-beez."

Their ordinary fare consists of seeds of the pigweeds (goosefoot and amaranth) and ragweed (ambrosia), and all species of grass. They feed entirely on the ground and are almost never observed to alight in trees, although such instances have been recorded. They walk and run while on the ground, never hopping as is the custom with the Song sparrow and other birds of the family. Consequently their tracks in the snow are often mistaken for those of the Horned lark. Snowflakes are wholly

beneficial on account of the destruction of weed seeds. Although they were frequently shot for food in the earlier days, they are rarely slaughtered for that purpose now, and should be left to enliven the winter landscape.

Calcarius lapponicus lapponicus (Linnaeus)

Lapland Longspur

Fringilla lapponica Linnaeus. Syst. Nat. Ed. 10. 1758. 1:180

Plectrophanes lapponicus DeKay. Zool. N. Y. 1844. pt 2, p. 177, fig. 159

Calcarius lapponicus lapponicus A. O. U. Check List. Ed. 3. 1910.
p. 251. No. 536

calcarius, Lat., *calcar*, a spur, referring to the long, rather straight hind claw; *lapponicus*, of Lapland

Description. Slightly smaller than the Snowflake; hind claw even more elongated; bill somewhat more slender; tail more forked; in general, darker in coloration; upper parts light brownish streaked with blackish. *Male in summer: Head, throat and chest black; a buffy stripe behind the eye; sides streaked with black; belly white; hind neck chestnut. Male in fall and winter: The black and rufous more or less obscured by the brownish white tips of the feathers, but the black showing through, particularly in the region behind the eye, on the lower cheek, the sides of the throat, and on the chest. Female in summer: Like the winter male, but the black areas more broken; the hind neck streaked with blackish. Female in winter: Brownish and less sharply streaked, lower parts brownish white. Young: Above tawny buff streaked with black; beneath, pale buffy, chest and sides streaked with blackish.*

Length ♂ 6.1-6.9 inches, ♀ 5.5-6; wing ♂ 3.6-3.9, ♀ 3.5-3.6; tail 2.55; bill .4.

Distribution. The Lapland longspur, like the Snowflake, is found throughout the northern half of the northern hemisphere, in America breeding from latitude 73 on the Arctic islands and 75 degrees in east Greenland, southward to the limit of trees in Mackenzie and northern Ungava; winters from southern Quebec and Dakota southward to the Middle States and Texas. In New York this longspur has always been regarded as a rare or uncommon species, but I have no doubt that this rating has been the result of inability to distinguish it among the flocks of snowflakes with which it associates. Though the darker plumage of

the Longspur in winter will almost always distinguish it from the snowflakes, it has been my experience that bird students who are in the habit of collecting find the Longspur more common than they had supposed before shooting extensively. During many seasons this species is fairly common on Long Island and on the plains near Lake Ontario and Lake Erie. The reports of longspurs in New York are mostly between the 18th of December and the 22d of February, the greater number having been taken in January and the first half of February; but Mr Dutcher records a specimen from Shinnecock bay August 12, 1881, which is about 3 months earlier than most of the dates before me. Another specimen he records from Long Island City October 18. A record 6 weeks later than the usual date of departure is April 18, 1885, a specimen from Hempstead Plains reported by Mr Dutcher (*Auk*, 3:440).

Haunts and habits. The Lapland longspur resembles the Snowflake in habits, walking instead of hopping, living entirely upon the ground and traveling over the wide fields and desolate shores near the coast in straggling flocks. It has a tendency, however, to fly higher in the air than the Snowflake when disturbed in the open fields, or when migrating across the country.

Calcarius ornatus (J. K. Townsend)

Chestnut-collared Longspur

Plectrophanes ornata Townsend. *Journ. Acad. Nat. Sci. Phila.* 1837. pt 2. 7:189

Calcarius ornatus A. O. U. Check List. Ed. 3. 1910. p. 252. No. 538
ornatus, Lat., adorned, ornamented

Description. *Male in summer:* Top of the head, stripe behind the eye, chest, breast and belly black; the under parts sometimes edged with rufous; hind neck rich rufous; stripe over eye, chin and throat white; cheeks pale buff. *In winter* the black largely concealed by light brownish. *Female:* Upper parts light grayish buffy brown streaked with dusky; paler below. *Young:* Dusky, margined with brownish white; an indistinct whitish stripe over eye; cheek and throat white flaked with grayish dusky; lower parts grayish buff, streaked on the breast and sides with dusky. Size of the Lapland longspur.

Distribution. The Chestnut-collared longspur inhabits the Great Plains, breeding from Montana, southern Saskatchewan and Manitoba to central Wyoming, Kansas, eastern Nebraska and western Minnesota; winters from Colorado and Iowa to Arizona and the Mexican tableland. Accidental in the Eastern States. It is purely a straggler within our borders. Two specimens have been taken on Long Island, the first at Long Island City, February 16, 1889 (see Hendrickson, *Auk*, 6:89); the second specimen was collected at Millers Place, September 14, 1891, and reported by A. H. Helme.

Pooecetes gramineus gramineus (Gmelin)

Vesper Sparrow

Plate 82

Fringilla graminea Gmelin. *Syst. Nat.* 1789. 1:922

DeKay. *Zool. N. Y.* 1844. pt 2, p. 151, fig. 140

Pooecetes gramineus gramineus A. O. U. Check List. Ed. 3. 1910. p. 253. No. 540

Pooécetes, Gr., πῶζ, meadow, and οἰζίτης, inhabitant; *gramineus*, Lat., grassy

Description. *Grayish brown streaked with dusky; under parts dull white spotted on the breast and sides with dusky; the tail fuscous except the central feathers which are like the back; outer tail feathers mostly white; lesser wing coverts rufous; ear region usually shows dusky spot; legs flesh colored; general appearance of the bird is a pale grayish brown, streaked sparrow.*

Length 5.8-6.7 inches; extent 10-11; wing 3-3.4; tail 2.4-2.7; bill .42; tarsus .83.

Distribution. The Vesper sparrow inhabits eastern North America from southern Keewatin, central Quebec and Cape Breton to eastern Nebraska, Kentucky and North Carolina; winters from the Central States to the gulf coast. In New York this sparrow is a common summer resident of all portions of the State and in the region near the sea and some of the warmer counties a few remain throughout the winter. The spring migration begins from the 18th to the 30th of March in the southern part of the State; in the northern counties from the 1st to the 6th of April. In the fall the birds disappear between the 1st and 15th of November, sometimes a few remaining until the last of the month.

Haunts and habits. The Vesper sparrow, Bay-winged bunting or Grass finch, as this bird is called in different parts of the country, inhabits open grassy fields, being almost entirely a ground bird; but it prefers pasture lands and fields with sparse cover of weeds and grasses to the dense meadow lands and, on the whole, enjoys a drier soil than the Savannah sparrow. It is frequently seen in plowed fields and along the dusty roadsides running along in front of the traveler and, when too closely pressed, darts away with a rather hurried, sweeping, slightly undulating flight to some distant fence post or to the shelter of the grass.

The song of this species is heard mostly in the morning, late in the afternoon and in the evening as late as an hour after sundown. It consists of two long, low notes, succeeded by two higher notes, then descends in chipping trills, the whole song being somewhat longer and more deliberate than that of the Song sparrow. On clear evenings in May and early June if one walks into the country and takes one's station near some crossroad, the song of the Vesper sparrow may often be heard in a dozen different directions at the same time; first one individual from a near-by fence post takes up the refrain, followed by another farther in the field standing upon a clod of earth, another farther off on top of a small tree, still farther one from a fence rail, and so in every direction near and far at intervals from different individuals the song will be repeated, the farthest sending only the two higher notes to the ear of the listener. Such a concert is really inspiring if one will take the trouble to stop and listen. The song is loud, clear and ringing, "sweeter and more plaintive than that of the Song sparrow" (Chapman).

The nest of this species is invariably placed upon the ground, usually beside a clod of earth, partly under a clump of grass, or beside a growing weed in the open field, rather loosely constructed of coarse grass and weed stalks, lined with finer grasses, rootlets and long hair. The eggs are 4 or 5 in number, grayish white or bluish white in ground color, spotted with umber and reddish brown. Average size .83 by .61 inches. The period of incubation is about 10 days. Two broods are reared in a season

in this latitude. The first nestful of fresh eggs may be found from the 28th of April to the 20th of May. Later sets are frequently observed from the 20th of June to the 25th of July.

This sparrow in the summer time destroys many insects, especially young grasshoppers, leafhoppers and the larvae of insects found among the grass. In the fall, winter and early spring he feeds almost entirely upon weed seeds, thus rendering efficient service to the agriculturist.

Passerculus princeps Maynard

Ipswich Sparrow

Plate 81

Passerculus princeps Maynard. Amer. Nat. 1872. 6:637

A. O. U. Check List. Ed. 3. 1910. p. 254. No. 541

passerculus, Lat., diminutive of *passer*, sparrow; *princeps*, Lat., first, chief

Description. In general appearance this bird resembles a *large* Savannah sparrow, having almost exactly the same pattern of coloration, but *paler*. The yellowish superciliary line is mostly confined to a spot of yellow in front of the eye or entirely wanting; the same yellow on the bend of the wing as in the Savannah sparrow, but the breast and sides are less heavily streaked.

Length 6.25-6.75 inches; extent 11; wing 2.9-3.2; tail 2.25-2.50; tarsus .93.

Distribution. This sparrow is confined to the north Atlantic coast of America, breeds on Sable island, Nova Scotia, and winters from Sable island southward as far as Georgia. In this State it is confined to the bleak, wind-swept hillocks of the southern shores of Long Island, and the barren beaches. The earliest fall records are October 12 to October 26. The latest spring records in Mr Dutcher's Long Island notes are found between the 7th of March and the 3d of April. It is evident that this bird is not so rare on the coast of Long Island as was formerly supposed. Mr Dutcher concluded years ago that it would hereafter be relegated to the commonplace (Auk, 3:42), and his judgment has been confirmed by subsequent investigation.

Haunts and habits. Anyone who is willing to scour the barren beaches

and the rolling sandhills of the Long Island coast, searching carefully among the bunches of beach grass, will surely find these sparrows throughout the winter season. They rise rapidly when disturbed and, darting away with hurried flight, pitch down again to conceal themselves as soon as they are two or three shotgun ranges from the hunter. They frequently utter a faint "sip" as they fly or as they hop about searching for food.

Passerculus sandwichensis savanna (Wilson)

Savannah Sparrow

Plate 81

Fringilla savanna Wilson. Amer. Orn. 1811. 3:55. pl. 22, fig. 3
Emberiza savanna DeKay. Zool. N. Y. 1844. pt 2, p. 161, fig. 155
Passerculus sandwichensis savanna A. O. U. Check List. Ed. 3.
 1910. p. 254. No. 542a
sandwichensis, of Sandwich island, Alutians; *savanna*, a meadow (Spanish)

Description. Upper parts streaked with brownish black, dull rufous and ashy, the general tone being darker and more heavily streaked than the Vesper sparrow; also smaller than that species, and the tail shorter; the crown has a median streak of whitish; *pale sulphur yellow stripe over the eye.* *Under parts white*, tinged with buffy and *streaked with blackish* on the breast and sides; feet flesh colored.

Length 5.3-5.9 inches; extent 8.8-9.2; wing 2.65-2.9; tail 2-2.2; bill .41; tarsus .82.

Distribution. The Savannah sparrow is confined to eastern North America, from central Keewatin and northern Ungava to northern Iowa, Pennsylvania and Connecticut; winters from New Jersey and Indiana to northeastern Mexico and Cuba. In New York it is an uncommon summer resident in the coastal district, except, perhaps, at the eastern end of Long Island, but is a common transient visitant in this section of the State and also an occasional or fairly common winter resident. In other parts of the State it is an abundant transient visitant, and a fairly common or common summer resident throughout central and western New York and in the Adirondaek district. Throughout the interior of the State it is less common as a breeding species than the Vesper sparrow, but decidedly more common and more generally distributed than the Grasshopper sparrow.

It arrives from the south from the 23d to the 30th of March in the warmer portions of the State, from the 1st to the 10th of April in the northern counties. In the fall it is extremely abundant from the 20th of September to the middle of October, the migration ending between the 25th of October and the 15th of November.

Haunts and habits. The haunts of the Savannah sparrow are open grassy fields; but it prefers damper situations than those chosen by the Vesper sparrow and frequently is found nesting in wet meadows. Wherever such situations abound, this bird will be found, even in the southern portion of the State. It also nests in meadows where the grass is denser than would be attractive to the Vesper sparrow and where few other birds are at home excepting the Bobolink and Meadowlark. In the fall it is found both in the marshes and the dry upland pastures and weed fields. It lies closer than most of our native sparrows, often rising from beneath one's feet with a whirring noise suggestive almost of a diminutive Bobwhite, and, darting rapidly away in wide sweeping undulations, pitches headlong again into the marsh or the dense weeds some distance from the observer.

The song of this species is an insignificant note and has often been taken for that of the Grasshopper sparrow by the uninitiated. It can rarely be heard more than a few rods and consists of 3 or 4 "tsips" at the beginning, ending with a reedy trill something like "tsip-tsip-tsip-se-e-e-e, r-r-r" (Chapman), or "tsip-tsip-tsip-ts-e-e-e-e-e-e-e-e, tsee-ee-ee-ee." Besides this song, which is heard from the first of April till late in June, sometimes as late as July, is the ordinary call note, somewhat suggestive of the Chipping sparrow, and a loud insistent *chip*, uttered when one approaches its nest or disturbs its coverts.

The food of this species does not differ materially from that of the Vesper sparrow. It can be ranked as a wholly beneficial species, the immense numbers which are found here during the fall migrations destroying many tons of weed seed during their stay of several weeks.

The nest of the Savannah sparrow is placed on the ground beneath a clump of sedge or among thick standing grass; composed of dry grasses and weed stalks, lined with finer blades of grass and a few hairs. The eggs are 4 or 5 in number, bluish white in ground color, thickly spotted and washed with reddish brown and purplish shell markings; average size .70 by .50 inches.

Ammodramus bairdi (Audubon)

Baird Sparrow

Emberiza bairdii Audubon. Birds Amer. 1844. 7:359. pl. 500

Ammodramus bairdi A. O. U. Check List. Ed. 3. 1910. p. 256. No. 545
ammōdramus, Gr., ἄμμος, sand, and ἐρξαίνω, to run; *bairdi*, to Spencer F. Baird

Description. Tail doubly emarginate; feathers sharply pointed; out-stretched feet reaching beyond the tail; tarsus longer than middle toe; the hind toe large, its claw as long as its digit and much curved. *Head ochreous buff* fading to whitish on the throat; sides of crown heavily streaked with blackish, leaving a *broad median stripe of buffy*; heavy *black rectal and submalar streaks*; *outer edges and tips of tail feathers white*; under parts whitish; *breast and sides tinged with buff and streaked with black*.

Length 5.2-5.8 inches; wing 2.65-3; tail 1.85-2.12; exposed culmen .44; depth of bill .28; tarsus .82.

Distribution. The Baird sparrow is an inhabitant of the Great Plains, breeding from southern Saskatchewan and southwestern Keewatin to central Montana, North Dakota and northwestern Minnesota; winters from central Texas to Sonora. A single specimen of this bird has been obtained in New York, where it is purely an accidental visitant. It was taken on Montauk point November 13, 1899, and Doctor Dwight pronounces it "in the juvenal plumage, passing into the first winter" (see Helme, Auk, 17:296).

Ammodramus savannarum australis Maynard*Grasshopper Sparrow*

Plate 81

Ammodromus australis Maynard. Amer. Exch. and Mart. 1887. 3:33
Emberiza passerina DeKay. Zool. N. Y. 1844. pt 2, p. 156, fig. 150
Ammodramus savannarum australis A. O. U. Check List. Ed. 3.
 1910. p. 256. No. 546
savannarum, quasi-Latin from Sp., *savanna*, meadow; *australis*, southern

Description. Smaller than the Savannah sparrow. Upper parts variegated with black, rufous brown, buff and ash, the ash appearing as edgings on the feathers and tending to form broad back stripes, the rufous brown most conspicuous as spots and streaks on the neck and back; a *median crown streak of creamy buff; bend of the wing yellow*; lesser wing coverts yellowish olive green; *under parts buffy, without spots*, fading to whitish on the belly. *Young birds:* Somewhat *spotted on the breast and sides with blackish*.

Length 5-5.4 inches; extent 8.5; wing 2.4-2.6; tail 1.8-2; bill .43; tarsus .75-.8.

Distribution. This species inhabits eastern North America from southern Wisconsin, Ontario and New Hampshire to Louisiana, Alabama and South Carolina; wintering from southern Illinois and North Carolina to Cuba and Yucatan. In New York it is a common summer resident in various localities of the Carolinian and lower Alleghanian life zones, its known distribution at the present time being shown by a map on page 23, volume 1 of this work. It is rarely found in localities of greater elevation than 1000 feet, but is fairly common as a breeding species on Long Island, in the vicinity of New York City, in the Hudson valley, and through central and western New York, especially at Canandaigua, Phelps, Chili, West Barry, Maplewood, Lockport, Bushnell's Basin, Potter, Meridian and East Hamburg. In the southeastern part of the State its spring migration begins from the 1st to the 10th of May, sometimes as early as the 26th of April, and it disappears in the fall between the 5th and the 25th of October. These dates also agree very closely with the migrations at Rochester and Canandaigua recorded in my notebook.

Haunts and habits. The Grasshopper sparrow, or Yellow-winged sparrow as it is frequently called, inhabits meadows, clover fields and weed fields, usually on dryer ground than the Henslow sparrow or the Savannah sparrow, often seeming to prefer sandy, rolling plains and upland meadows. It is frequently seen seated on a mullein stalk, fence post, or any convenient object, singing its insectlike song, which has been written "*pit-tuck, zee-e-e-e-e-e-e-e-e.*" This note resembles very much the performance of a meadow grasshopper, and is so high in pitch that it is inaudible to the ears of many persons unless the bird is singing within a distance of



Grasshopper sparrow's nest and eggs

2 or 3 rods. Mr Gerald Thayer writes the song "*sit-tit, ts-e-e-e-e-e-e-e-e-e-e-e-e.*" This, however, he does not regard as the true song of the bird, which sounds to him like a "long rambling twitter" uttered in a tone similar to that of the shorter note and about as loud, but lasts as much as 10 or 12 seconds. This rolling twitter is uttered when the male and female are flying together over the meadows or seated near each other. Mr Fuertes compares the song to that of the Prairie horned lark when the latter is heard at a considerable distance. It is usually uttered toward evening, and in May can sometimes be heard in the dusk as late as half

past eight o'clock when the last Robin is hushed. This sparrow has also several forms of weak "tsipps" or call notes. A common alarm note is usually written "t'lick," almost a two-syllable exclamation.

This bird is a terrestrial species, feeding on the ground as exclusively as the Savannah sparrow, fully as recluse in its habits as that species, except during the singing season when the male is constantly in evidence flying in circles about the field, or seated on some prominent weed stalk. When flushed it rises suddenly from beneath one's feet and darts hurriedly away to dive and hide among the grass.

The nest is concealed in the dense meadow, loosely woven of dry grass and small weed stalks, lined with fibers, roots, fine grass and hair. The eggs are 4 or 5 in number, white in ground color, spotted and speckled with reddish brown; average size .73 by .54 inches.

Passerherbulus henslowi henslowi (Audubon)

Henslow Sparrow

Plate 81

Emberiza henslowii Audubon. Birds Amer. 1829. (folio) 1. pl. 70

Emberiza henslowi DeKay. Zool. N. Y. 1844. pt 2, p. 157

Passerherbulus henslowi henslowi A. O. U. Check List. Ed. 3. 1910.
p. 257. No. 547

passerh rbulus, evidently a diminutive from Lat., *passer*, sparrow, and *herba*, grass; *h nslowi*, to Prof. J. S. Henslow of Cambridge, England

Description. Upper parts streaked with chestnut, black and ashy white; wings and their coverts chiefly chestnut; head and neck buffy olive, sides of the crown black, leaving a buffy olive median line; postocular, rictal and submalar streaks black; under parts white, the breast and sides tinged strongly with buff and distinctly streaked with black; tail feathers very narrow and sharply pointed. Young: Have no spots on the breast and the head nearly plain buff; the whole plumage more suffused with buffy.

Length 4.75-5.25 inches; wing 2-2.2; tail 1.75-2.1; exposed bill .41-.58; depth of bill .20-.34; tarsus .66-.73; middle toe .53-.62.

Distribution. This sparrow breeds in the eastern United States from central Minnesota, Ontario, New York and southern New Hampshire to Missouri and northern Virginia; winters in the Southern States, inhabiting

the dry fields of broom sedge. In New York it is of local occurrence and is rather uncommon or rare in all portions of the State; yet there can be no doubt that it is more common than is generally believed. As it is true that none but the initiated seem to detect the presence of the Grasshopper sparrow, even in localities where it is fairly common, it is doubly true that few who are inexperienced distinguish the Henslow sparrow. It has been reported as breeding in Rockland county by Giraud; in Rockland county and on Long Island by DeKay; in the vicinity of New York by Lawrence; in Monroe county by David Bruce; and in Albany and Rensselaer counties, 1908, by the late E. Seymour Woodruff. Specimens of the nest and eggs fully identified have been found near New York, May 10 (Chapman); Syracuse, June 30, 1887 (Morris M. Green); Stephentown, Rensselaer county, May 1, 1890 (Hoag); Mount Dorr, Rockland county, May 23, 1897 (L. W. Brownell). Migration dates are scarce, but it has been reported from Binghamton, April 10, 1905, by Lilian Hyde; Potter Swamp, Yates county, August, 1909, by Otto McCreary; Ossining, October 5, 1910 (Fisher); Scarborough, November 3, 1897, Gerald Thayer; Shelter Island, November 20, 1901 (Worthington). Beside these, I notice reports from Webster, N. H., April 17, 1874, and Boscawen, N. H., April 26, 1875 (Ruthven Dean), as well as Oysterville, Mass., November 6, 1874 (Brewster). The November dates by Brewster and by Worthington seem to indicate that this species sometimes remains very late in the fall, or possibly through the winter after the manner of the Sharp-tailed sparrow.

Haunts and habits. The Henslow sparrow is a southern species and rarely goes beyond the northern limits of the Carolinian zone, but is found in rather cold localities in New Hampshire, western Massachusetts and eastern New York, which are ordinarily considered within the Alleghanian area. On the wet, ill-drained hillsides, upland pastures, and neglected fields overgrown with spiraea, cinquefoil and various sedges, this bird will be detected by the practised ear.

The call has two characteristic syllables which sometimes sound like the word "*flee-sic*," or as Gerald Thayer would write it "*phit-zit*," suggest-

ing to his ear the call of the American pipit. The full song he describes as considerably longer than this and generally delivered from the top of a low bush. It has also a characteristic sharp, thin "sipp" which is its usual alarm note. Mr Jouy writes the common call "tee-wick" and says that the real song may fairly be represented by the syllables "sis-r-r-rit, srit-srit." This song is often uttered while the bird takes a short flight upward and then drops again into the tangled weeds and grasses where it is impossible to follow it (N. O. C. Bul. 6:57). In such surroundings its nest is concealed upon the ground, constructed of grasses and lined with hair. The eggs are 4 or 5 in number, dull white or greenish white, thickly speckled with pale reddish brown and lilac.

Passerherbulus lecontei (Audubon)

Leconte Sparrow

Plate 81

Emberiza lecontei Audubon. Birds Amer. 1844. 7:338. pl. 488

Passerherbulus lecontei A. O. U. Check List. Ed. 3. 1910. p. 258.
No. 548

lecontei, to Dr John L. LeConte of Philadelphia

Description. In general resembling the Henslow sparrow, but the *crown stripe* as well as superciliary and malar stripes *light buff*; sides of the crown nearly black; *hind neck chestnut streaked with light gray*, edge of the wing white; breast and sides buffy streaked with blackish but the *streaks on the breast faint or wanting*. *Young:* Have the whole plumage suffused with buff except the center of the abdomen. *Bill much more slender* than that of the Henslow sparrow.

Length 4.5-5.5 inches; wing 1.94-2.12; tail 1.82-2.06; exposed bill .34-.42; depth of bill .2-.23; tarsus .68-.75; middle toe .62.

Distribution. The Leconte sparrow inhabits central North America from Great Slave lake, southern Saskatchewan and Manitoba to North Dakota and southern Minnesota; winters from Kansas to Texas, Florida and the coast of South Carolina. It is purely an accidental visitant in New York State, a single specimen having been taken at Ithaca, October 11, 1897, by Louis Agassiz Fuertes (Auk, 15:189).

This little mouselike sparrow might occasionally be found in New York if it were not so secretive in habits. When flushed, it proceeds with a weak, rail-like flight for a few feet, or a few rods, over the tops of the sedges, and drops again into the grass, whence it is almost impossible to raise it a second time. It frequents a denser cover than the Nelson and Acadian sparrows and, consequently, is more difficult to procure.

Passerherbulus caudacutus (Gmelin)

Sharp-tailed Sparrow

Plate 81

Oriolus caudacutus Gmelin. Syst. Nat. 1788. 1:394

Ammodramus caudacutus DeKay. Zool. N. Y. 1844. pt 2, p. 164, fig. 154

Passerherbulus caudacutus A. O. U. Check List. Ed. 3. 1910. p. 258.

No. 549

caudacutus, Lat., *cauda*, tail, and *acutus*, sharp

Description. Tail rounded; feathers sharp pointed; upper parts olivaceous tinged more or less, especially on the side of the neck, with grayish; the *back and tertials streaked with white* or buffy white; top of the head dark brown with a very indistinct grayish median stripe; *superciliary and malar stripes rich buff*, the latter broadening beneath the auriculars and bending upward behind them, but mostly separated from the superciliary stripe by a postocular blackish line; auriculars gray; abdomen white; *breast and sides strongly tinged with buff and distinctly streaked with blackish*.

Length 5.40-5.85 inches; extent 7.5; wing 2.24-2.36; exposed bill .46-.50; depth of bill .23; tail 1.9-2; tarsus .85.

Distribution. This subspecies inhabits the salt marshes of the Atlantic coast from Massachusetts to Virginia; winters from New Jersey, and rarely from Massachusetts and New York, to Florida. It is common on the marshes of Staten Island and Long Island throughout the summer, arriving from April 18 to 29, sometimes as late as May 8, and the majority depart from the 17th of October to the 2d of November. A few remain each year throughout the winter on the salt marshes. This sparrow also ascends the Hudson river as far as Piermont and occasionally to Newburgh.

Habits. "It runs about among the reeds and grasses with the

celerity of a mouse, and is not apt to take wing unless closely pressed. In the breeding season it is usually associated with the Seaside sparrow on the salt marsh, but prefers the dryer parts and builds its nest in the tussocks on the bank of a ditch or in a drift left by the tide, rather than in the grassier sites chosen by its neighbor. From some bit of driftwood or a convenient stake its infrequent song may be heard morning and evening. It is short and gasping, and only less husky than the somewhat similar performance of the Seaside sparrow" (Doctor Dwight).

Passerherbulus nelsoni nelsoni (Allen)

Nelson Sparrow

Plate 81

Ammodromus caudacutus var. *nelsoni* Allen. Proc. Bost. Soc. N. H. 1875. 17: 293

Passerherbulus nelsoni nelsoni A. O. U. Check List. Ed. 3. 1910. p. 258. No. 549.1

nelsoni, to E. W. Nelson, American ornithologist

Description. Similar to the Sharp-tailed sparrow, but *smaller* and brighter; markings on the back sharper; the buff on throat, breast and sides deeper, and the *chest only indistinctly streaked* with dusky.

Length 5.5 inches; wing 2.1-2.3; tail 1.8-2.1; exposed bill .41; depth of bill .21; tarsus .8; middle toe .62.

Distribution. The Nelson sparrow breeds from Great Slave lake and central Alberta southward to Manitoba and northeastern South Dakota, and winters on the Atlantic and gulf coasts from North Carolina to Florida and Texas. During migration it is found from Maine to New York. In this State the Nelson sparrow is a transient visitant but chiefly, if not entirely, in the fall, not a single spring record being before me. It occurs every autumn between the 22d of September and the 27th of October along the shore of Lake Ontario, the central chain of lakes, and the Hudson valley; Doctor Fisher's dates of migration at the mouth of the Croton river being from September 25 to October 10. Ralph and Bagg reported it October 12 at Oneida lake; and David Bruce, September 22, in Monroe county; Eaton, October 7, Canandaigua; Embury, October 8 to 17, at

Hamilton; and Fuertes, September 26 to October 1 at Ithaca; Doctor Braislin, October 5, 1907, at Rockaway beach, Long Island. It is also interesting to note that the dates at Toronto lie between September 22 and October 28 (Auk, 16:277), but there is also one spring date, June 10, 1895, from Toronto.

This sparrow is found on the reedy margin of the lake or river, not usually in the very dense grass and reeds far from the shore, but in the shallow water where there is only a sparse growth of flags, reeds and rushes. It rises when disturbed with a sudden bound and darts away in a deeply undulating, swooping flight to the cover of the denser grasses.

Passerherbulus nelsoni subvirgatus (Dwight)

Acadian Sharp-tailed Sparrow

Plate 81

Ammodramus caudacutus subvirgatus Dwight. Auk July, 1887.
4: 233

Passerherbulus nelsoni subvirgatus A. O. U. Check List. Ed. 3.
1010. p. 259. No. 549.1a

subvirgatus, Lat., less, or slightly, striped

Description. The size of *caudacutus* but with *smaller bill*, distinctly duller and more plainly colored than the two preceding species, the *whitish streaks on the back* being *obsolete* or at least not sharply contrasted. The buff on the side of the head, breast and sides is paler, and the superciliary stripe and malar stripes show a more grayish tinge like the olivaceous of the upper parts.

Wing 2.14-2.32 inches; tail 1.82-2.06; bill .41; depth of bill .21-.25; tarsus 1.83-1.87; middle toe .64-.66.

Distribution. This subspecies of the Nelson sparrow inhabits the salt marshes of the Atlantic coast from southeastern Quebec, Prince Edward island and Cape Breton to Maine; and winters on the coast of South Carolina, Georgia and Florida. In this State it occurs as a migrant at the same time and in the same places with the Nelson sparrow. Its habits, so far as have been observed in this State, during migration time are exactly those of the Nelson sparrow, from which the amateur could not distinguish it without collecting the specimens in question. It has been

recorded from Penn Yan, October 7, 1896 (Burtch, Auk, 14: 93); Ithaca, October 1-10, 1897, October 10, 1899, September 26, 1900, October 8, 1906, by L. A. Fuertes; from Shelter Island, October 7, 1901 (Braislin "Birds of Long Island," page 83); the lower Hudson valley, September 25 to October 10 (A. K. Fisher, Auk, 2: 306).

Passerherbulus maritimus maritimus (Wilson)

Seaside Sparrow

Plate 81

Fringilla maritima Wilson. Amer. Orn. 1811. 4: 68. pl. 34, fig. 2
Ammodramus maritimus DeKay. Zool. N. Y. 1844. pt 2, p. 163, fig. 153
Passerherbulus maritimus maritimus A. O. U. Check List. Ed. 3.
 1910. p. 259. No. 550

maritimus, Lat., maritime, of the seaside

Description. Olive grayish, more tinged with olive brown on the back and faintly streaked with grayish; crown olive on the side, grayish in the middle, producing three dimly defined broad stripes; a *supraloral stripe of yellow* passing to grayish white above the eye and giving way to a dim grayish olive stripe above the auriculars; *auriculars and submalar streaks dusky; malar streak, throat and abdomen white*, dimly tinged with buffy on the breast and sides (buffy absent in the breeding plumage); *breast and sides indistinctly streaked with grayish; bend of the wing yellow.*

Length 6-6.5 inches; wing 2.5; tail 2.2; exposed culmen .52-.58; depth of bill .29; tarsus .95.

Distribution. This species inhabits the Atlantic seacoast from southern Massachusetts to Virginia, and winters from Virginia to Georgia. As a New York species it is confined to the salt and brackish marshes of Staten Island, Long Island and the lower Hudson river, as far up as Piermont. It is abundant on the salt marshes as a summer resident, arriving from April 20 to May 10, and departing from October 20 to 30. A few individuals remain through the winter with the Sharp-tailed sparrows and other species which frequent the tide-washed flats.

Haunts and habits. It is rarely seen far from the cover of the rank grasses which cover its chosen habitat. Its call note is a squeaky "cheep," and it has a chipping song of no great melody, uttered from the top of

some reed or tall stalk just above the marsh. Its nest is concealed near the high water mark among the dense sedges, and is composed of coarse grasses and reed stalks. The eggs are 3 or 4 in number, white in ground color, spotted with purplish and brown; average size .80 by .64 inches.

Chondestes grammacus grammacus (Say)

Lark Sparrow

Fringilla grammaea Say. In Long's Exped. 1823. 1:139 (note)

Chondestes grammacus grammaeus A. O. U. Check List. Ed. 3. 1910. p. 260. No. 552

chondēstes, Gr., meaning "grain-eating"; *grāmmacus*, evidently an incorrect form from *gramma*, line, intended to refer to the head stripes

Description. A very sharply marked sparrow, a trifle larger than the Vesper sparrow. *Crown of the head chestnut with a median stripe of buffy and superciliary stripes of buffy and white; auriculars chestnut; malar stripes buffy white like the superciliary; a black stripe through the eye; short, sharp, black rictal stripe leading back to the chestnut auriculars, and long black submalar stripes on each side of the white throat; under parts whitish; a black spot in the center of the breast; upper parts grayish brown striped on the back with blackish; wings with two buffy white bars and a spot of the same at the base of the primaries; central tail feathers similar to the back; all the others black conspicuously tipped with white and the outer pair with the outer web white for nearly its entire length.*

Length 6-6.75 inches; wing 3.5; tail 2.82; bill .45; tarsus .75.

Distribution. This species inhabits the Mississippi valley east of the Great Plains from eastern Nebraska, northwestern Minnesota, central Wisconsin and Ohio to Louisiana and central Alabama; accidental in the Atlantic States during migration. In New York this species has been taken at least four times on Long Island, as follows: Sayville, August 20, 1879 (Earl, N. O. C. Bul. 6:58); Millers Place, November 27, 1899 (Helme, Auk, 17:296); Millers Place, November 1900 (Braislin, "Birds of Long Island," page 83); eastern Long Island, July 28, 1902 (Worthington, Auk, 19:403). It has also been reported from Oneida county, June 13, 1903 (Johnson, Auk, 21:281); and during the summer of 1911 Mr W. L. Dobbin found it breeding near his home in Monroe county. The birds were around

for several weeks and he carefully identified them, though no specimens were taken. The nest and eggs were also discovered, and the young birds were successfully reared. This is the first record of its nesting in New York State, although I have expected every year to find that it had come into this region, as it already has appeared in northern and eastern Ohio and in western Pennsylvania, evidently extending its range gradually from the Mississippi valley, as the Prairie horned lark and Migrant shrike have done since the forests of western New York were cleared away.

Haunts and habits. The Lark sparrow is a grassland bird, and may become established in New York, perhaps some day becoming one of our common sparrows. The nest is built on the ground, or near it in a thick bush, composed of grasses, rootlets and long hairs, very much like the nests of our other ground sparrows. The eggs are from 3 to 5, pinkish white in ground color, spotted and splashed with blackish brown; average size .80 by .60 inches.

Zonotrichia leucophrys leucophrys (J. R. Forster)

White-crowned Sparrow

Plate 82

Emberiza leucophrys Forster. *Philos. Trans.* 1772. 62:426

Fringilla leucophrys DeKay. *Zool. N. Y.* 1844. pt. 2, p. 153, fig. 139

Zonotrichia leucophrys leucophrys A. O. U. Check List. Ed. 3. 1910. p. 261. No. 554

zonotrichia, Gr., ζώνη, band, and περιζύξ, hairy one, alluding to the banded stripes on the head; *leucóphrys*, Gr., white eyebrow

Description. *Crown with a broad central stripe of white bordered by 2 deep black stripes* reaching from the base of the bill to the occiput; side of the head with a *stripe of white beginning just above the eye and reaching backward, joining the central crown stripe on the occiput; black stripe passing through the eye and below the white stripe just mentioned* back to the side of the neck. Thus from the eye over the crown there are 4 stripes of black and 3 of white, making the head of this bird more conspicuously black and white striped than that of any other native species. *Side of the head and neck ashy gray; throat lighter, almost white; the breast light gray fading on the abdomen to white; flanks buffy brown; under tail coverts buffy; back gray streaked with chestnut-brown and grayish white; rump and upper*

tail coverts light hair brown; tail a darker hair brown; wings with 2 white bars formed by the tips of the coverts; the secondaries streaked with chestnut and whitish; *bill and feet pinkish brown*. *Young*, in the fall much more ochreous in color, the *crown light chestnut rufous* on the sides *with a median stripe of ochreous*, but not strongly contrasted with the chestnut rufous; the line backward from the eye more grayish in color but not white as in the adult; bill and legs, however, a brown, almost as pinkish as in the adult.

Length 6.75-7.5 inches; extent 9.85-10.3; wing 3-3.3; tail 2.8-3.1; exposed culmen .42; tarsus .95.

Distribution. This subspecies of the White-crowned sparrow breeds from central Keewatin and northern Ungava to southeastern Keewatin, central Quebec and southern Greenland, and in the mountains to southern Oregon and central California, Wyoming and New Mexico; winters from southern Kansas, the Ohio valley and the Potomac valley to Mississippi and the Mexican plateau.

In New York this bird has been reported as breeding on 2 or 3 occasions in the northern part of the State but, as no breeding specimens have ever been taken and as the nest and eggs have not been positively identified by comparison with unquestioned specimens of the species, I am inclined to think that these records are based on errors. No one has been able to find the White-crowned sparrow nesting in any portion of the Adirondacks or of the surrounding country in recent years. It is, however, a common transient in nearly all portions of the State, arriving from the south, in the warmer districts, from the 23d to the 30th of April; in other parts of the State from the 1st to the 12th of May, and passes northward from the 18th to the 25th or even the 30th of May. In the fall the first arrivals are recorded between the 25th of September and the 12th of October, the species passing on to the south usually between the 10th and the 24th of October, although specimens are sometimes observed in the southern part of the State as late as the 17th of November; and one or two winter records of birds seen have been reported.

Haunts and habits. This is one of our neatest and most elegant sparrows, usually found in more open places than the White-throat, espe-

cially along old fences, hedgerows, stone piles and weed fields, retreating to a cover of sparse shrubbery when disturbed. It is even less wild and suspicious by nature than the White-throat and will frequently allow one to approach within a few feet without the slightest concern. Bird students have frequently reported to me that they have seen a White-crowned sparrow when it was only a white-throat, but one who has really seen a White-crowned sparrow can never be in doubt for a moment, its prevailing gray coloration on the upper parts being in decided contrast to the more rufous and rusty hue of the White-throat's back. This species also has much more white about the striping of the crown and no yellowish in front of the eye.

The song of the White-crown is one of the finest of our sparrow melodies, resembling somewhat the latter portion of the White-throat's performance, but repeated several times. It has a peculiarly pleasing, pathetic quality, a clear soft whistle, "a peculiar sad cadence," among its near relatives ranking next to the Fox sparrow's in my estimation.

Zonotrichia leucophrys gambeli (Nuttall)

Gambel Sparrow

Fringilla gambelii Nuttall. Manual Orn. Ed. 2. 1840. 1:556

Zonotrichia leucophrys gambel A. O. U. Check List. Ed. 3. 1910.

p. 262. No. 554a

gambeli, to William Gambel of Philadelphia

Description. Almost exactly like the White-crowned sparrow, but the *lores entirely whitish, the white superciliary stripe continuing forward to the bill*; bill yellowish; size very slightly less than the White-crowned sparrow.

Distribution. The Gambel sparrow breeds from Montana and eastern Oregon northward to Alaska and Anderson river, passing the winter in Mexico and Lower California. This western species has been taken once in New York State, at Ithaca, April 30, 1898, a male in full plumage, by Louis A. Fuertes. The specimen is perfectly typical of the subspecies *gambeli* and may be regarded either as a straggler from the western states or as an aberrant form or mutant of *leucophrys*. In any case, its occurrence here is purely accidental.

Zonotrichia albicollis (Gmelin)*White-throated Sparrow*

Plate 82

Fringilla albicollis Gmelin. Syst. Nat. 1789. 1:921

Fringilla pennsylvanica DeKay. Zool. N. Y. 1844. pt 2, p. 152, fig. 141

Zonotrichia albicollis A. O. U. Check List. Ed. 3. 1910. p. 262. No. 558
albicollis, Lat., white-throated

Description. *Adult:* Slightly smaller than the White-crowned sparrow; sides of the head and neck and *upper breast ashy gray; chin and throat white*, edged on the sides by narrow black streaks, and sometimes along the lower margin next the ashy gray of the breast; crown with alternate stripes of blackish and white, the central stripe being a narrow white one with 2 broad black ones on either side; white stripe also from above the eye passing to the side of the neck and a black stripe passing backward from the eye, making altogether *4 black stripes and 3 white ones on the upper part of the head; a yellow stripe from the nostril to just above the eye*; upper parts streaked with rufous, ochereous and blackish; wings with 2 whitish bars formed by the tips of the coverts; lower back, rump and upper tail coverts plain grayish brown; tail similar in color but slightly darker; sides and flanks grayish brown; lower breast and abdomen white. *Immature of both sexes* in the fall or during the second year show the same pattern of coloration, but the *black and white stripes of the head are almost obsolete*, the yellow in front of the eye scarcely distinguishable at a distance of 10 feet, and the throat almost the color of the dingy ashy gray breast; otherwise like the adult. *Young in the first plumage:* The forebreast streaked with dusky and the general color of the lower parts more buffy. *Females* are usually duller than the males of the same age.

Length 6.6-6.8 inches; extent 9.5-10; wing 2.9; tail 2.86; exposed bill .44; tarsus .9.

Distribution. The breeding range of the White-throat extends from northern Mackenzie, central Keewatin and southern Ungava to Alberta, southern Montana, central Minnesota, southern Ontario and the mountains of Pennsylvania and New York. It winters from the Ohio valley and Connecticut, south to Florida and northeastern Mexico.

In New York it nests in the Canadian zone of the Catskills and Adirondacks, and is one of the commonest birds breeding in our north woods. A few also breed in the higher forests along the Pennsylvania border of

southwestern New York. During the month of June 1911, Mr C. F. Stone heard a White-throat in full song and found the nest and eggs, in Potter swamp, Yates county, N. Y. It has also been found breeding two or three times in the vicinity of Peterboro (Gerrett S. Miller), and in Oswego county, and in the woods near Cooperstown, Otsego lake, but it is more boreal in distribution as a breeding species throughout central and western New York than the Junco or even than the Winter wren. In the southern part of New York a few white-throats pass the winter, but it is mainly a migratory species in the southern and central portions of the State, arriving from the south from the 2d to the 16th of April, sometimes not appearing before the 24th or 30th in the more northerly counties. Throughout western New York the species has passed on to its summer home, usually from the 14th to the 22d of May. Occasionally, however, migrants are noticed as late as the 30th of May or the 2d of June. In the fall the migration begins from the 2d to the 20th of September, sometimes not before the 30th in the southern counties. The greater number have passed farther south between the 16th and 30th of October, though a few are still noted through November and as late as December 8th. As mentioned above, a few in the southeastern part of the State remain throughout the winter and a very few are winter residents in western New York.

Haunts and habits. During the migration season the White-throat is seen familiarly about our gardens and lawns, shrubbery and hedgerows, appearing in pairs or scattered companies usually of from 10 to 30 individuals hopping about on the ground and scratching the dead leaves in search of seeds and insects, but spending a portion of its time in the shrubbery and trees. The alarm note is a sharp "*chip*," and a call of less concern is like the *sst* of the Song sparrow. Its song is heard during the migration season, at least after it has been with us for a few days, especially in the morning and late in the afternoon and on rainy days. It consists of 2 high, clear, whistled notes succeeded by a triple trill usually fading away and dropping at the last. In New England it has been likened to the words "Old Sam Peabody, Peabody, Peabody," or "Sow wheat, Peeverly,

Peeverly, Peeverly"; but farther north he is supposed to say, "Oh, sweet, Canada, Canada, Canada." The song is rather plaintive and delivered in a minor key, but is one of the sweetest songs among the sparrows especially when heard along the northern trout streams or in the cool spruce forests or in the moonlight night from near one's camp in the deep woods.

The White-throat breeds not only in the clearings, but more or less throughout the coniferous forest of the Adirondacks, especially near the streams and borders of swamps, or wherever the wind or fire has made small openings in the woods. The nest will be found on the ground or near it in a thick bush, composed of coarse grasses and rootlets, mosses and strips of bark, lined with finer materials. The eggs are 4 or 5 in number, bluish white speckled and blotched with pale reddish brown and obscure shell markings. They average .83 by .60 inches in dimensions. Judging from the fact that I found nests with fresh eggs as late as the 20th of July, I am inclined to think that two broods are usually reared in the Adirondack district. The first sets of eggs are found late in May or during the first half of June.

Spizella monticola monticola (Gmelin)

Tree Sparrow

Plate 80

Fringilla monticola Gmelin. Syst. Nat. 1789. 1:912

Emberiza canadensis DeKay. Zool. N. Y. 1844. pt 2, p. 160, fig. 164

Spizella monticola monticola A. O. U. Check List. Ed. 3. 1910. p. 263.
No. 559

spizella, Lat., diminutive, from Gr., $\sigma\pi\iota\zeta\alpha$, finch; *monticola*, Lat., mountain inhabitant

Description. *Crown chestnut rufous*; a rufous stripe backward from the eye, and a spot of the same on either side of the breast near the bend of the wing; superciliary stripe and the greater portion of the sides of the head and the neck gray; *back striped with rusty brown, blackish and buffy whitish*; scapulars and inner wing feathers similar to back; *2 conspicuous white wing bars*; lower back and tail coverts plain grayish brown; tail dusky grayish, the feathers edged with grayish white; under part dingy whitish tinged with grayish brown on the sides; a *blackish spot on the center of the breast*; *bill yellowish at the base of the lower mandible, dusky at the tip.*

Length 6.36 inches; extent 9.5; wing 3; tail 2.82; bill .41; tarsus .8.

Distribution. The Tree sparrow is a common winter resident in this State. It makes its appearance in the fall between the 20th of September and the 10th of October, and passes northward again in the spring between the 10th and the 25th of April, occasionally being seen as late as the first week in May. Its breeding range extends from Great Bear lake and northern Ungava to Great Slave lake, northern Quebec and Newfoundland. It winters from southern Minnesota, Ontario and Nova Scotia to Arkansas and South Carolina.

Haunts and habits. This sparrow is one of our commonest winter birds. It is found along the edges of woodlands and hedgerows, and is especially fond of swamps and the borders of rivers and ponds, frequenting the shrubbery for protection and making excursions into the near-by fields to feed on the weed seeds, of which it destroys immense numbers during the course of the winter months. It is rarely seen feeding on the seeds of birches or other trees which retain their fruit in winter, but almost always near the ground in patches of smartweed, ragweed, pigeon grass, amaranth and goosefoot. They are slightly gregarious in habits, little scattered companies of 20 to 30 members usually associating more or less with juncos, Song sparrows and goldfinches in their feeding.

While at work among the weeds they keep up a continual tinkling of notes which have been compared to the syllables "*teel-wit*," but sound to my ear merely like the jingling of tiny bells. In March and April, however, the Tree sparrow gives his contribution to the spring chorus, a beautiful strain of long drawn notes which has been compared by many writers to the song of a Canary, beginning loud and clear, far sweeter than the quality of the Canary's voice, and ending in a loud, inspiring trill. Besides the tinkling call notes, this species also has a feeble "*tsip*" of alarm when disturbed.

The flight of the Tree sparrow is less jerky and dodging than that of the Song sparrow and more easily sustained. He is rather spritely in movements and more given to seeking exposed perches than either the Song sparrow or the Junco, and is frequently seen, after being driven from his

coverts, perching on a tree or cat-tail flirting his tail and erecting the crown feathers so that he appears to have a well-developed crest. Even when associated with the Chipping sparrow or the Field sparrow, which he resembles in general coloration, he should easily be distinguished by greater size and the single spot in the center of his breast.

Spizella passerina passerina (Bechstein)

Chipping Sparrow

Plate 83

Fringilla passerina Bechstein. In Latham. Allg. Ueb. Vögel. 1798. 3:544. pl. 120, fig. 1

Emberiza socialis DeKay. Zool. N. Y. 1844. pt 2, p. 159, fig. 160

Spizella passerina passerina A. O. U. Check List. Ed. 3. 1910. p. 263. No. 560

passerina, Lat., of a sparrow, or like a sparrow

Description. Small, slender, tail slightly forked; bill rather slender for a sparrow. *Crown deep rufous chestnut* or copper colored, blackening near the bill; superciliary line whitish; *narrow black line through the eye; bill black*; sides of the head and neck mostly gray; back and scapulars striped with rusty brown, blackish and grayish brown; *rump and tail coverts ashy gray*; primaries and tail feathers dusky grayish; *entire under parts grayish white*. *Young:* Lack the rufous crown and *streaked with dusky on the breast*.

Length 5.36 inches; extent 8.75; wing 2.75; tail 2.3; bill .36; tarsus .64.

Distribution. This species is a common summer resident of New York State, except the densely forested regions, usually arriving from the 27th of March to the 12th of April, but has occasionally been noted as early as the 17th of February in the southern counties. In the fall it disappears between the 15th of October and the 10th of November, sometimes as late as the 30th. The breeding range of this subspecies extends from central Saskatchewan, southwestern Keewatin, central Quebec and Cape Breton to central Texas, Mississippi and central Georgia; winters in the southern states.

Haunts and habits. None of our native sparrows except the Song sparrow is more familiar than the Chippy, which is found everywhere in

New York about the farmyard, the garden, the orchard and in the groves and parks, but more particularly near the habitations of men, frequently placing its nest on the ampelopsis or honeysuckle which climbs on the porch, and in the shrubbery or young evergreens on the lawn or in the garden. It feeds both on the ground and among the trees and foliage, in the fall and spring mostly on the ground, subsisting on the weed and grass seeds which are scattered about, and during the summer taking its food largely from the insects of the garden, apple and shade trees. Green caterpillars and beetles are the favorite food for its young. I have counted as many as 70 green caterpillars brought by a Chipping sparrow in an hour and a quarter to feed 4 young that were being reared in a grape vine which screened our porch.

Two broods are usually hatched in a season. The first sets of eggs will be found between the 2d and the 20th of May in the warmer portions of the State, and eggs for the second brood may be found from the 20th of June to the 30th of July. The nest is composed mostly of rootlets with a few grass stalks, and lined with horse hair, which has given this sparrow in many parts of the country the name of Hair bird. The eggs are 4 or 5 in number, a beautiful greenish blue, almost always wreathed near the larger end with blackish and reddish brown blotches and pen lines. They average .72 by .51 inches in dimensions.

The song of the Chipping sparrow is a thin, monotonous trill like the syllables "*chip, chip, chip, chip, chip,*" often uttered incessantly or with little intermission for hours during the day. It can not be called an agreeable song. Besides this, it has a call note, a slight "*tsip.*" The song, to my ear, is more harsh and insectlike than the trill of the Savannah sparrow, which is comparatively musical, and much higher and thinner in quality than the trill of the Junco.

Spizella pusilla pusilla (Wilson)*Field Sparrow*

Plate 83

- Fringilla pusilla* Wilson. Amer. Orn. 1810. 2: 121. pl. 16, fig. 2
Emberiza pusilla DeKay. Zool. N. Y. 1844. pt 2, p. 158, fig. 152
Spizella pusilla pusilla A. O. U. Check List. Ed. 3. 1910. p. 265.
 No. 563

pusilla, Lat., very small

Description. About the size of the Chippy, but with longer tail; *crown chestnut rufous*, also a postocular stripe and spot on the side of the breast near the bend of the wing of the same color; the back similar to the Chipping sparrow, but more extensively rufous; rump and upper tail coverts less gray but more hair brown in color; wing bars rather inconspicuous; under parts dingy whitish, tinged somewhat on the breast and sides with grayish buff; *bill and legs pinkish brown*. *Young* in first plumage duller colored and streaked on the breast with darker.

Length 5.68 inches; extent 8.15; wing 2.5; tail 2.55; bill .36; tarsus .74.

Distribution. The Field sparrow is a common summer resident of the greater portion of New York State, though absent from the higher portions of the Catskills and the Adirondack forest, and decidedly less common than the Chippy in the northern districts. The spring migration begins between the 20th of March and the 6th of April. In the fall the greater portion disappear between October 15th and November 10th, but in the southern part of the State, especially on Long Island and in the vicinity of New York City, a few pass the winter. The breeding range of this subspecies extends from southern Minnesota, southern Quebec and southern Maine to Texas, Louisiana and northern Florida. The principal winter range is from Missouri and New Jersey to the gulf coast.

Haunts and habits. The haunts of the Field sparrow are bushy hillsides and berry patches, edges of woodlands with a considerable undergrowth, hedgerows and neglected gardens. Wherever the Indigo bird and Chewink find a convenient home, here the Field sparrow will be plentiful. It feeds mostly upon the ground and among the low shrubbery, like the Chipping sparrow, in the fall, winter and spring subsisting almost

entirely on weed seeds, and during the summer largely on smooth caterpillars, young grasshoppers, beetles and other insects.

The call note of the Field sparrow is a gentle "tsip." His song is a beautiful performance delivered in a minor key, but almost endlessly varied by different individuals. It usually begins with two or three clear, high-pitched notes, followed by a rapid run of numerous shorter notes, often in a descending scale, but sometimes in a rising trill and ending in a clear sustained note. Occasionally the song seems inverted, beginning with a run and ending with the high, long tones; and frequently the performance is immediately repeated with slight variation of its original form, or in a wholly different key. What the Vesper sparrow is to the wide grassy fields, the Field sparrow is to the brushy hillside, pouring forth his pensive strain both in the morning and at the close of day, and inspiring the passerby to gentler and more humanizing reflections.

The nesting season begins early in May, the first sets of eggs being found between the 14th and 25th of May; later sets from the 21st of June to the 21st of July. The nest is usually placed on the ground or in a thick bush not far above it; composed of coarse grass stalks, weeds and rootlets, and lined with fine grasses and hair. The eggs are 3 to 5 in number, grayish white or bluish white in ground color, speckled and spotted with reddish brown and obscure shell markings thickest near the larger end of the egg. Average size .7 by .52 inches.

Junco hyemalis hyemalis (Linnaeus)

Slate-colored Junco

Plate 82

Fringilla hyemalis Linnaeus. Syst. Nat. Ed. 10. 1758. 1:183
Struthus hyemalis DeKay. Zool. N. Y. 1844. pt 2, p. 147, fig. 138
Junco hyemalis hyemalis A. O. U. Check List. Ed. 3. 1910. p. 266,
 fig. 567

júnco, derivation uncertain, Coues says, from Lat., *juncus*, a reed; *hyemális*, Lat., of winter

Description. Upper parts, and the head, neck and breast, *slaty gray*; under parts from the middle of the breast to the under tail coverts white,

the slaty gray of the upper breast giving way abruptly to the pure white of the lower breast and abdomen; 3 *outer tail feathers largely white*, showing conspicuously in flight; *bill pinkish white*. Fall birds, especially young and females, more or less tinged with brownish. *Females*: Similar to males but lighter slate gray and *more dingy or brownish*.

Length 6.2-6.4 inches; extent 9.8; wing 3-3.25; tail 2.7-2.9; bill .41; tarsus .82.

Distribution. This subspecies of the Junco breeds from northwestern Alaska, northern Mackenzie and central Ungava to southern Yukon, central Alberta, northern Minnesota, Ontario and the mountains of New York, Pennsylvania and Massachusetts. Winters throughout the eastern states from Ontario to the gulf coast. In New York this is a very abundant species, one of the commonest birds nesting throughout the Catskill and Adirondack districts, and also fairly common as a breeding species in the highlands of western New York which lie above the 1200 foot line. A few pairs are also found in many of the colder swamps and gulleys of central and western New York as summer residents. In the warmer portions of the State it is a very abundant migrant in April and October, and a common or fairly common winter resident. Throughout the lowlands of western and central New York and the Hudson valley the Junco passes northward from the 22d of April to the 5th of May. I have seen a few dull-colored migrants as late as the 12th and the 23d of May in the vicinity of Rochester, Geneva and Canandaigua. In the fall, migrants begin to appear from the 11th to the 28th of September, in the southernmost parts of the State sometimes not before the 4th to the 12th of October. Among the members of the sparrow family, this species rivals the Song sparrow, Vesper sparrow, Savannah sparrow and Chipping sparrow for the place of greatest abundance during the spring and fall migration, probably being as abundant as the Song sparrow in most localities; while along the principal highways of migration to the North Woods, it is the most abundant member of the family.

Haunts and habits. The Slate-colored junco or common snowbird, as it is frequently called, is very gentle and unsuspecting in habits, coming

familiarly into the garden and dooryard to feed on waste crumbs, weed seeds and whatever insects it can pick up among the grass and shrubbery. They nearly always travel in scattered companies, sometimes as many as 40 or 50 birds being seen on the lawn at the same time, and though not strictly gregarious the little company keeps together. When one is disturbed it flies off with a smack of alarm which, together with its flashing white tail feathers, act as signals to warn and direct the brotherhood.

When quarreling, especially when fighting on the wing, they utter a curious mellow note sounding like the whistled syllables *pu-pu-pu*. While feeding, the members of the company keep up a merry twittering note. The flight is rather jerky, although they do not pump their tails so decidedly as the Song sparrow in flight, but at nearly every wing stroke the white tail feathers flash, making an easy recognition mark for the species.

These little sparrows do an immense amount of good by destroying countless weed seeds during the fall, winter and spring months, and also by feeding on many dormant insects which might do harm in the summer.

For a summer home the Junco prefers damp woodland. The north woods of spruce and balsam, with moist moss on the ground, are most to his liking. Whatever pairs I have found nesting in western New York have been in damp gulleys, swamps and cool shaded hillsides. The nest has usually been placed on a mossy bank or among overhanging ferns and other woodland plants. The materials of the nest are stalks of grass, bits of bark, rootlets, mosses, and a lining of finer grass, leaves, bits of moss and long hair. The eggs are 4 or 5 in number, of a white or pinkish white ground color, more or less speckled and blotched with rufous brown and obscure lilac shell markings, tending to form a wreath near the larger end of the egg, rather broadly ovate in shape, and measuring about .76 by .60 inches in dimensions.

Besides its various call notes and notes of alarm, the Junco has at least two distinct songs, one a simple trill which is to be compared to the song of the Chipping sparrow, though carrying much farther and, to my ear, more melodious in quality. The other song is described by Bicknell

as a whispering warble usually much broken but not without sweetness and sometimes continuing intermittently for many minutes. This is evidently the song described by Florence Merriam as "low, sweet and as unpretentious and cheery as the friendly bird himself."

Junco hyemalis carolinensis Brewster

Carolina Junco

Junco hyemalis carolinensis Brewster. Auk. Jan. 1886. 3: 108

A. O. U. Check List. Ed. 3. 1910. p. 267.

No. 567e

Description. Very similar to the Slate-colored junco, but the slaty gray *more uniform*, slightly *lighter*, the *head not decidedly darker than the rest of the plumage*; the bill light bluish horn-colored instead of pinkish white as in the common Junco. The dimensions of this subspecies very slightly exceed the average of the common Junco, especially the length of the bill, but the difference is not sufficient to decide the identity of any individual specimen.

Distribution. This subspecies of the Junco breeds in the higher Alleghanies "from Maryland to northern Georgia." According to the range published by the A. O. U., third edition, the winter range is in the adjacent lowlands. It is evident that New York State lies outside the supposed range of this subspecies and many members of the American Ornithologist Union who believe in the validity of the form would not credit the occurrence of this subspecies within the limits of New York State; but Dr Jonathan Dwight, jr, who has made a special study of juncos, after examining a long series of skins taken on Long Island and in other portions of central and southeastern New York, states that "if there *is* any *Junco hyemalis carolinensis*, many individuals in this New York series must be assigned to that subspecies." On authority of this statement I have included this subspecies as occurring in New York State, and it is evident that unless the identity of the subspecies is to be decided entirely by the *locality where it was taken*, rather than from its evident characteristics, this subspecies must be admitted as occurring in New York.

Melospiza melodia melodia (Wilson)*Song Sparrow*

Plate 84

Fringilla melodia Wilson. Amer. Orn. 1810. 2: 125. pl. 16, fig. 4

DeKay. Zool. N. Y. 1844. pt 2, p. 150, fig. 156

Melospiza melodia melodia A. O. U. Check List. Ed. 3. 1910. p. 272.

No. 581

melospiza, Gr., μέλος, song, and σπίζα, a finch; *melódia*, sweet-singing

Description. Prevailing color of the *upper parts brown streaked* on the back *with blackish* and more or less edged with gray; a grayish stripe through the middle of the crown; *tail rather long and rounded, plain brown; under parts white, spotted and streaked on the breast and side with blackish*, these streaks more or less bordered with brown, the *spots on the center of the breast confluent* into a large blotch of blackish; also on the sides of the throat tending to form *conspicuous submalar streaks* or triangular spot. Throat very slightly spotted; abdomen plain white; bill brownish.

Length 6–6.8 inches; extent 8.5–8.9; wing 2.5–2.8; tail 2.6–2.7; bill .49; tarsus .82.

Distribution. Of all the numerous subspecies of Song sparrow, this is the only one found in the eastern United States. It breeds from southern Mackenzie, central Keewatin, central Quebec and Cape Breton to Nebraska, Kentucky and North Carolina, and winters from Illinois and Massachusetts to the gulf coast. In New York State this species is an abundant summer resident and in all the warmer portions of the State remains throughout the winter in considerable numbers, in the lower Hudson valley and the country about New York City being a common winter species. In central and western New York it is a resident, but in the wintertime confined mostly to the shelter of swamps and marshes, and is seldom seen unless one visits those localities. Throughout the greater portion of the State they begin to appear from the 10th to the 28th of February in the warmer localities, these birds being undoubtedly some that have wintered in the swamps of the immediate vicinity. Migratory birds in western New York appear from the 1st to the 15th of March. By the 20th to the 30th of March they become abundant in nearly all localities. In the fall the

greater number of individuals disappear between the 10th and 20th of November, a considerable number sometimes remaining until the 5th of December. As a summer resident it is fairly common throughout the central portions of the Adirondack wilderness except in the depths of the forest. I suppose that this sparrow is the most generally distributed and most abundant of all the species of the family nesting in the State.

Haunts and habits. The haunts of the Song sparrow are the gardens, hedgerows, bushy banks, brooksides, edges of groves, fence lines, but never, as far as my experience goes, in the depths of the forest nor in the midst of open fields. I have frequently found its nest in a meadow 3 or 4 rods from the hedgerow, and also in small openings in the midst of the woods even if the clearing is only a few rods in diameter, but it does not care for the shady depths of the forest, and prefers always to live near dense shrubbery to which it may retreat in case of danger. They feed largely upon the ground throughout the fall, winter and spring, like most members of the family subsisting on weed seeds of various kinds, preferring most of all seeds of the pigeon grass, amaranth, ragweed and goosefoot. In this way it does immense good to the agriculturist. During the summer it feeds itself and its young largely upon young grasshoppers, smooth caterpillars, beetles and May flies. At this season of the year it hunts its prey sometimes 20 or 30 feet from the ground among the foliage of trees, but mostly among the low bushes and grass. The flight of the Song sparrow is more jerky than that of any of our other native species, its tail pumping continually as it flies for cover when disturbed in the field. Its call note is a simple chip of rather metallic quality. When its nest is approached the chip becomes more insistent and sharper. Its song is uttered during every month of the year. If one visits its haunts in January or February its cherry note may often be heard, especially on sunny mornings. This song is endless in its variation, but usually begins with two or three loud, full notes, descending in a more or less confused chipper or trill, a song familiar to every child who has been in the country. The singer usually chooses a perch of low elevation, not during his work of hunting seeds

and insects, but flies up to his low perch, usually 7 to 15 feet from the ground, utters his cherry song, then flies to the ground again to resume his occupation, for he seems never to be without something to do. He is rarely seen perched motionless preening himself, but usually busily hunting about or flying from bush to bush and singing.

The nest of the Song sparrow is placed upon the ground under a tussock of grass or on a sloping bank, composed of the stalks of grasses, rootlets, leaves and strips of bark, lined with finer grasses and long hairs. The eggs are usually 4 or 5 in number, bluish white or grayish white in ground color, rather profusely speckled and spotted with rufous brown or purplish brown and obscure lilac shell markings, sometimes uniformly over the whole surface, at other times tending to form a wreath near the larger end. They average about .80 by .60 inches in dimensions. The first sets of eggs are found in this State from the 25th of April to the 15th of May; eggs of the second brood are usually found about the 20th of June; while a third nesting is often observed in July and August, sometimes as late as the 25th of the latter month. The second and third nests are frequently built in thick bushes or tall tussocks of grass, sometimes in bushes as high as 6 or 8 feet, and Mr Ralph Paddock of Rochester has a photograph of a Song sparrow's nest in a hollow apple tree about 5 feet from the ground. This bird, however, is the common "ground bird" or "brown ground bird" of the school boy, and 99 per cent of their nests are placed upon the ground, but often so securely hidden that they would never be found if the old bird were not startled from the nest. The Cowbird, however, finds them with perfect ease and often deposits her eggs in the Song sparrow's nest; but I know of no other native species which can afford so well to rear the young of this interloper as the Song sparrow, for it is one of our most abundant birds, and if its first brood fails on account of the parasitic intruder the mother will, nevertheless, raise one or more later broods of her own.

Melospiza lincolni lincolni (Audubon)*Lincoln Sparrow*

Plate 84

Fringilla lincolnii Audubon. Birds Amer. 1834. (folio) 2. pl. 193

Emberiza lincolni DeKay. Zool. N. Y. 1844. pt 2, p. 162

Melospiza lincolni lincolni A. O. U. Check List. Ed. 3. 1910. p. 276.
No. 583*lincolni*, to Robert Lincoln, a friend of Audubon

Description. Slightly smaller than the Song sparrow; tail especially, being slenderer and shorter. Upper parts olive brown to grayish brown, rather sharply streaked with blackish; a narrow grayish line through the center of the crown and broader superciliary lines of the same color; also gray tinged on the side of the neck; wings and tail mostly plain hair brown; throat and abdomen whitish, the former lightly streaked with blackish; a *broad buffy band across the breast*; sides and flanks buffy, the *breast and sides rather sharply but narrowly streaked with black*, but there is no tendency to form a central blotch of black on the breast, and the heavy submalar streaks of the Song sparrow wanting, but *narrow rictal and postocular streaks of blackish* are evident.

Length 5.4-5.9 inches; wing 2.3-2.6; tail 2.3-3; bill .41; tarsus .78.

Distribution. This species breeds in the boreal zone of North America from the Yukon valley, southern Mackenzie, central Keewatin and northern Ungava to northern Minnesota, central Ontario, northern New York and Nova Scotia, as well as in the Rocky and Sierra Nevada mountains; winters from California, Oklahoma and Mississippi to southern Mexico and Guatemala. In New York it is a summer resident of the Adirondack district and a transient visitant in other parts of the State, arriving from the 3d to the 9th of May and passing northward from the 10th to the 16th of May. In the fall it appears from the 15th to the 30th of September and is last noticed from the 8th to the 27th of October, sometimes as late as November 27 (Braislin, page 84).

Haunts and habits. In the Adirondaeks I found this bird very difficult to observe due to its shy, retiring habits. It was present, however, in the spruce and tamarack swamps of Essex county as well as in Hamilton and Herkimer counties. Where the swamp is open, with small spruces

and a few tamaracks scattered about, the Lincoln sparrow is almost surely found, its nest on the ground near the foot of some spruce sapling, but it is rare indeed that we catch a fair glimpse of him as he lurks about the low cover of the swampland. According to Doctor Dwight, he has a very interesting song "which suggests the bubbling, guttural notes of the House wren combined with the sweet, rippling music of the Purple finch, and when you think the song is done there is an unexpected aftermath." The nest of this sparrow resembles closely that of the Song sparrow. The eggs are greenish white or buffy in ground color, rather thickly spotted with reddish brown and purplish shell markings. They average .78 by .60 inches. Fresh eggs are usually found from the 10th to the 25th of June.

During the migration season I have often found this sparrow among the sparse shrubbery on dry hillsides and along the courses of small streams as well as about the edges of gardens and lawns, but he is shy even during the migration season and as soon as approached retreats to the shelter of the shrubbery, but is much more easily observed than during the summer in his chosen haunts of the North Woods.

Melospiza georgiana (Latham)

Swamp Sparrow

Plate 84

Fringilla georgiana Latham. Index Orn. 1790. 1:460

Ammodramus palustris DeKay. Zool. N. Y. 1844. pt 2, p. 165, fig. 161
(pl. 71)

Melospiza georgiana A. O. U. Check List. Ed. 3. 1910. p. 276. No. 584
georgiana, of Georgia

Description. Slightly smaller than the Song sparrow and bill more slender. *Adult in spring:* *Crown chestnut darkening to black on the forehead; superciliary line, sides of the neck and the chest ashy; dusky postocular streak and short rectal streak of the same color; back streaked with black, buffy and chestnut; wings mostly chestnut; inner secondaries heavily marked with black; tail rufous brown or dull chestnut, at least the outer webs of the feathers; central feather line dusky; the tail when closed appearing mostly rufous brown; throat and abdomen white; flanks ochreous; under parts not streaked; rump and under tail coverts hair brown to ochreous*

brown more or less streaked with blackish. *Young birds and fall specimens:* More tinged with brown and stained with yellowish. *Young* streaked on the breast and sides with dusky.

Length 5.3-6 inches; wing 2.3-2.5; tail 2.4-2.7; bill .46; tarsus .86.

Distribution. This sparrow breeds from Newfoundland, Labrador and Fort Simpson southward to the northern United States. In New York



Photo by L. S. Horton
Swamp sparrow's nest and eggs

it is a summer resident of all portions of the State, arriving from March 25 to April 12, a few days later in the northern counties; and the fall migration usually takes place from October 20 to November 15, but in all the southern counties a few individuals remain throughout the winter. I have noticed that it is a winter resident in Monroe county, Ontario county and in all the marshes of the lower Hudson valley and Long Island.

Haunts and habits. The chosen haunts of the Swamp sparrow are the grass, sedge and flag-covered marshes of riversides and the flooded shores of ponds and lakes. It is common in the Montezuma marshes, about equaling the Song sparrow in abundance, also about Lakes Erie and Ontario it is a fairly

abundant species in the flooded portions of the swamps which are covered with a dense growth of sedges, rushes, flags and grasses. Even in the migration season the Swamp sparrow is rarely seen far from the edge of the marsh. As the draining of our swamps and marshes progresses, it is evident that the habitat of this species becomes more and more restricted and the

species must diminish in numbers. Its song is usually delivered from the top of a cat-tail or some low bush and resembles considerably the trill of the Chipping sparrow, but is not so thin and insectlike and is somewhat more melodious. It has also an ordinary chip similar to that of the Song sparrow.

Its nest, which is placed on the ground at the edge of the marsh or in a bunch of flags or sedges, resembles very much the nest of the Song sparrow. The eggs are 4 or 5 in number, greenish white or light blue in ground color, rather closely spotted and blotched with brown, more heavily around the large end. Average dimensions .76 by .56 inches. Two broods are usually reared in a season.

***Passerella iliaca iliaca* (Merrem)**

Fox Sparrow

Plate 83

Fringilla iliaca Merrem. *Beitr. besond. Gesch. Vögel.* 1786. 2. pl. 10

DeKay *Zool. N. Y.* 1844. pt 2. p. 149, fig. 166

Passerella iliaca iliaca A. O. U. Check List. Ed. 3. 1910. p. 277. No. 585

passerella, diminutive form of *passer*, sparrow; *iliaca*, prelinnean specific name of the Redwing, from Gr., ἰλιζ, a thrush; perhaps from a superficial resemblance to a thrush

Description. A large sparrow with a moderately heavy bill, nearly square tail, prevailing colors rufous and gray. The top of the head and neck and sides of the neck largely gray or brownish gray; the back brownish gray streaked with dark rufous; rump and tail deep rufous or rusty; *under parts white, heavily spotted on the breast and sides* with triangular spots and short streaks of blackish; numerous blotches of *deep rufous* also on the breast and side of the throat; auriculars largely rusty; heavy maxillary streaks of dusky rufous; bill yellowish, at least the base of the lower mandible, tip dusky; legs light brown; sexes alike. Young very similar to the adult.

Length 6.75-7.5 inches; extent 10.5-11.5; wing 3.4-3.7; tail 2.7-3.1; bill .5; tarsus .96.

Distribution. The breeding range of the Fox sparrow extends from the Gulf of St Lawrence and Labrador to Alaska, being practically con-

tinuous with the Hudsonian zone. It spends the winter in eastern United States from southern New York and Illinois to the gulf coast. In New York this species is a fairly common transient visitant in all portions of the State, arriving from the south late in March and passing on to its northern home from April 25 to May 12, the height of the spring migration usually occurring about the middle of April. In the fall it appears again late in September and the fall migration is mostly completed by the 25th of October. In the southern portion of the State, however, especially on Long Island, a considerable number of this species remain throughout the winter so that in those localities it is to be rated a fairly common winter visitant and common migrant. I fail to find any evidence that this species remains in the coldest portion of the Adirondacks to breed, although I believe that it has been found to breed in northeastern Maine.

Haunts and habits. This sparrow is always regarded as an interesting species by the amateur bird student. Its large size and bright colors, for a sparrow, spritely habits and beautiful song, especially at the season when migrants are few, tend to make it a favorite with all nature lovers. It feeds mostly on the ground like the Junco and Song sparrow, usually keeping nearer the cover of shrubbery, however, than those species, frequently rustling and scratching the leaves with considerable vigor while searching for its food of seeds and insect larvae. Even as early as the third week in March his cheery song may be heard, particularly on cool, bright mornings, but sometimes throughout the day. It consists of a clear, loud, melodious whistle. This song is usually delivered while the bird is perched on the limb of a tree from 10 to 40 feet from the ground. Sometimes it remains quietly perched for half an hour singing at intervals of a few seconds throughout the morning. Mr Thayer has called attention to this sparrow's habit of singing in an undertone, sometimes for half an hour at a time, as if the bird were expressing day dreams of his summer home.

Pipilo erythrophthalmus erythrophthalmus (Linnaeus)*Towhee*

Plate 84

Fringilla erythrophthalma Linnaeus. Syst. Nat. Ed. 10. 1758. 1:18c

Pipilo erythrophthalmus DeKay. Zool. N. Y. 1844. pt 2, p. 172, fig. 162

Pipilo erythrophthalmus erythrophthalmus A. O. U. Check List.

Ed. 3. 1910. p. 279. No. 587

pípilo, Lat., to chirp; *erythroptthalmus*, Gr., meaning red-eyed

Description. Wings short and rounded; tail long and rounded; head, neck, forebreast and upper parts black, sometimes, especially in winter, edged with rusty on the back; inner secondaries streaked with buffy white; white spot on the base of the primaries, also on the outer edges of the primary quills; 3 outer tail feathers conspicuously tipped or spotted with white, the outer web of the outer feather entirely white; lower breast and abdomen white becoming buffy on the under tail coverts; sides and flanks rufous; eyes red. Female: Grayish brown where the male is black and otherwise duller in coloration.

Length 8.35 inches; wing 3.3; tail 3.7; bill .55; tarsus 1.1.

Distribution. The breeding range of this species extends from eastern Dakota, Michigan and southern Maine to the gulf coast. In New York it is quite generally distributed as a summer resident throughout the State, but does not enter the Canadian zone of the Adirondacks and Catskills except along the river valleys and settlements, and in the extreme northern counties is not common or generally distributed. In the southeastern part of the State it is abundant and throughout western New York a common summer resident, in the country about New York arriving from April 15 to 25, and in western New York from the 15th to the 30th of April. In the fall it disappears between the 15th and 30th of October, a few individuals remaining throughout the winter in the warmer counties in the vicinity of New York City.

Haunts and habits. The haunts of the Towhee are in hedgerows, thickets, brushy hillsides and "slashings." It is a bird of the thicket more than any other member of the sparrow family. It feeds principally upon the ground, hopping about, scratching the leaves and bustling around

with considerable noise, but seems rather shy unless one approaches cautiously, when his curiosity overcomes his retiring disposition, and he hops onto some near-by stump or bush to inspect the intruder. He is very restless in disposition except when singing; then he chooses a fairly elevated perch on top of a small tree, or occasionally 50 to 60 feet from the ground, and gives himself up to his song, sometimes for an hour at a time. Ernest Thompson-Seton has written this song, "*Chuck, burr, pill-a-will-a-willa-a,*" which is the best imitation yet invented. There is, however, considerable variation in the manner of its delivery, and on one occasion I mistook a very poor performer of this species for an abnormal Song sparrow. The call note or alarm note (I have never been able to determine any distinction between the two) sounds like the word "*che-wink,*" often followed directly by the other call which has given him his other name, "*tow-hee,*" uttered in a rather sharp, incisive manner. He usually flirts his tail as he utters the note and is almost sure to be bobbing about among the bushes at the same time.

The nest is placed on the ground or very near it, composed of dead leaves and grasses and strips of bark, usually lined with fine grass. The eggs are 4 or 5 in number, white or grayish white, finely and evenly speckled with reddish brown, sometimes with heavier spots about the larger end. Average dimensions .97 by .71 inches.

During the migration season the Chewink is frequently seen about the gardens, dooryards and thickets in all our cities and villages, where it is unknown at other seasons of the year. He is rather an attractive bird with his conspicuous and sharply marked color pattern. He is a beneficial species, very rarely taking enough berries from the gardener to be considered a nuisance. The greater portion of his food consists of seeds, wild fruits, and, in the summer time, a plentiful supply of insects.

Cardinalis cardinalis cardinalis (Linnaeus)*Cardinal*

Plate 85

Loxia cardinalis Linnaeus. Syst. Nat. Ed. 10. 1758. 1:172*Pitylus cardinalis* DeKay. Zool. N. Y. 1844. pt 2, p. 171, fig. 143*Cardinalis cardinalis cardinalis* A. O. U. Check List. Ed. 3. 1910.
p. 282. No. 593*cardinalis*, of the color worn by a cardinal, red

Description. About the size of a Robin; bill very heavy; *head conspicuously crested*; tail long, slightly rounded; colors *bright rosy red* especially across the sides of the head and under part; the upper parts more or less washed with grayish; the inner webs of the wing feathers fuscous; *throat* and a narrow space all around the base of the bill *black*; bill reddish. *Female: Crest, wings and tail dull reddish; upper parts brownish; under parts buffy ochreous*, lighter on the belly; breast slightly tinged with red; the space around the base of the bill grayish black.

Length 8.25 inches; extent 11-12; wing 3.75; tail 4; bill .66; tarsus .95.

Distribution. The Cardinal inhabits eastern United States from Iowa and southern New York to the gulf coast and is nonmigratory in habit. In this State it is commonest in the extreme southeastern counties west of the Hudson river, but not in Westchester county on the other side of the Hudson. It is a local resident also on Staten Island, and rare on the western end of Long Island, only one or two instances of its breeding there having come to my attention, one at Prospect Park, June 8, 1884 (see Adney, Auk, 1:390), and another instance reported from Bellport by W. A. Babson. In Rockland county it is undoubtedly commoner than in any other portion of the State. Its occurrence in the coastal district has been reported not only from the localities mentioned, but from Riverdale, Coney Island, Flatbush, Flushing, Seaford, Roslyn and Brooklyn. In the interior of the State it has been recorded from Brockport, Keuka lake, Syracuse, Buffalo, Brant, Fredonia, Jamestown and Cohoes. There is a bare possibility that some of these birds had escaped from cages, but in the majority of instances the condition of the specimens indicated that they had not been captive, at least for a long time, and there is no

question that the species occasionally comes into the western part of New York State. It is possible that it breeds in Chautauqua county, as Miss Sarah Waite reports that she has seen it near the shore of Lake Erie throughout the summer, under circumstances which made her certain it was breeding in the vicinity. It is probable that the nonmigratory habit of this bird is largely responsible for its not becoming commoner in southern New York. What few specimens are raised in the State are likely to be killed during the shooting season in late fall or during the winter months, their conspicuous appearance and notes attracting the attention of everyone that passes by. They learn, however, to be very secretive in habits, and if dense swamps and thickets of brush and small trees were common, there is little doubt that it would become much more plentiful on Staten Island, Long Island, and in the lower Hudson valley. The nature of the country in Rockland county is more favorable to it, and there it is well established. If the residents of localities where the bird is beginning to appear could protect it thoroughly, there is no doubt that it would be able to remain throughout the winter and become more abundant, especially if fruit trees and plants which retain their seeds were planted in the thickets.

The song of the Cardinal is "a loud clear whistle into which usually enters quite frequently the sound of *Q! Q! Q!*, and a peculiar long-drawn-out *e-e!* sometimes syllabled as 'three cheers'" (Chapman). Its call note is an abrupt *tsip*. The nest is composed of twigs, rootlets, weed stalks and strips of bark, usually placed in thick bushes. The eggs are 3 or 4, pale bluish-white, speckled with brown and grayish; average size 1 by .7 inches.

Zamelodia ludoviciana (Linnaeus)*Rose-breasted Grosbeak*

Plate 85

Loxia ludoviciana Linnaeus. Syst. Nat. Ed. 12. 1766. 1:306*Coccyborus ludovicianus* DeKay. Zool. N. Y. 1844. pt 2, p. 146, fig. 147*Zamelodia ludoviciana* A. O. U. Check List. Ed. 3. 1910. p. 284. No. 595*zamelódia*, Gr., ζή, inseparable prefix meaning very, and μελωδία, melody, song; *ludoviciána*, of Louisiana

Description. Beak very heavy; tail of moderate length, slightly emarginate. *Male:* *Black and white with rosy* breast; head, neck and upper parts mostly deep black; a white patch at the base of the primaries, also the middle wing coverts white, the longer wing coverts tipped with white and some of the inner secondaries spotted with white; rump mostly white; 3 or 4 outer pairs of tail feathers extensively tipped with white on the inner web; *breast rich rosy red* extending down the middle of the abdomen; under wing coverts also rosy red; rest of the under parts white; bill whitish, dusky at tip. *Female:* Resembles somewhat an overgrown female Purple finch. Upper parts *grayish brown streaked with darker*; wings with obscure wing bars; obscure whitish median line on the crown; *grayish white superciliary streak*; *under parts* dingy white tinged with buffy or brownish on the breast and sides and *heavily streaked* with blackish; under wing coverts saffron yellow. *Young:* At first resemble female; during first fall show touches of rosy on breast and under wing coverts.

Length 7.75–8.5 inches; extent 13; wing 4; tail 3; bill .7; tarsus .88.

Distribution. This species inhabits eastern North America from Maine and Manitoba south to Kansas and in the mountains to North Carolina, and winters in Central and South America. In New York it is quite generally distributed and fairly common throughout the Alleghanian zone, and also in a large portion of the boreal zone of the Adirondacks. In the coastal district, especially on Long Island (Brasher, fide A. H. Howell) and in the lower Hudson valley, it is rare or at least uncommon as a summer resident. In all the southern and central districts of the State it is more common as a migrant than as a summer resident, arriving from the south about the first of May, the dates ranging between April 24 and May 12. During the migration season of early May, the rose-breasts are often found

in little companies of 5 to 15 birds among the deciduous trees of our lawns, parks and the outskirts of towns. Sometimes a few females arrive with the first little flocks of male birds, but usually they succeed by several days their more brilliantly colored brethren. In the fall it disappears between September 22 and October 10.

Haunts and habits. The haunts of the Rose-breasted grosbeak are the rich woodlands with a fair stand of undergrowth, and swamps and stream courses well grown with alder, swamp maple and birches. In my experience also, it prefers a mixed woodland where there is a considerable admixture of hemlock, pine or spruce. I have found it nesting about the Ausable lakes, the lower slopes of Mount Marcy and the shores of Elk lake in the Adirondacks, and in western New York it prefers such locations as the Potter swamp, Bergen swamp, Conewango swamp and the beech, maple and hemlock forests of Allegany, Chautauqua, Erie and Cattaraugus counties. It also inhabits pure forests of white and red oak on upland slopes, but the damper forest is certainly preferred. The nest is usually placed in an alder, maple, beech or hemlock sapling or the limbs of a low tree at a height of from 8 to 20 feet from the ground. It resembles considerably the nest of the Scarlet tanager, but is slightly larger, usually constructed of small twigs, especially those from the beech and hemlock, lined with finer materials of the same kind and a few rootlets. The eggs are 4 or 5 in number, greenish blue in ground color, rather profusely spotted and blotched with olive-brown and reddish brown markings. They average .90 by .70 inches in size.

The call note of the Grosbeak is a loud, sharp, questioning "*peek, peek.*" The song is a rich, rolling warble which has been many times compared to the quality of the Robin's note, but to me seems more melodious, approaching the quality of the Purple finch's song but a larger, fuller sound. It is frequently delivered when the bird is on the wing, fluttering through the air after the manner of the Goldfinch during his ecstatic delivery.

The food of this Grosbeak consists to a considerable extent of green

fruits such as those of the elm, wild cherry, honeysuckle, viburnum and dogwood while they are about half grown. It also partakes of the ripe fruit later in the season; but during the nesting period does immense good by destroying the larger beetles such as the potato beetle, June beetle, grape vine beetle, and other injurious species. This is one of the birds which has been noted in various sections of the country as preferring the potato beetle to other species. Not only on account of its beautiful plumage and melodious song, but also on account of this unusual propensity, it ought to be encouraged in all parts of the State.

Guiraca caerulea caerulea (Linnaeus)

Blue Grosbeak

Plate 86

Loxia caerulea Linnaeus. Syst. Nat. Ed. 10. 1758. 1:175

Coccothorus ceruleus DeKay. Zool. N. Y. 1844. pt 2, p. 145, fig. 146

Guiraca caerulea caerulea A. O. U. Check List. Ed. 3. 1910. p. 285.

No. 597

guiraca, barbarous Latin, meaning unknown; *caerulea*, Lat., blue

Description. *Adult male:* Deep blue, the lores and chin black; back partly blackish; wings and tail black edged with blue; the wing coverts tipped with rufous. *Female:* Grayish brown showing somewhat bluish about the head, rump and wing coverts; wings and tail fuscous; wing coverts tipped with ocherous; under parts brownish buff, feathers sometimes showing bluish under plumage. *Young* resemble the female.

Length 6.5-7.5 inches; wing 3.4-3.6; tail 2.7-2.9; culmen .63-.66; depth of bill .52-.58.

The Blue grosbeak bears a considerable resemblance, when seen among the foliage, to the Indigo bunting and might easily be mistaken for it when imperfectly seen or in unusual conditions of the atmosphere. It is, however, decidedly larger, being the size of a Cowbird, nearly 2 inches longer than the Indigo bird. As it has been reported so many times by amateur bird people in New York, I make these suggestions to restrain the possible error. Very few New York specimens have ever been seen, and it seems almost impossible that the numbers reported by different observers could be actual occurrences.

Distribution. This Grosbeak inhabits the southeastern United States, locally northward as far as southern Pennsylvania, Kentucky and Kansas; winters in Cuba and southern Mexico. DeKay, in "Birds of New York," page 146, reports a specimen from Manhattan island taken May 15, 1838. There is also a specimen in the collection of the Long Island Historical Society taken at Canarsie, Long Island, in May 1843. Bicknell (N. O. C. Bul. 31:32) mentions its occurrence on Long Island "many years ago," which allusion may well be to the specimen referred to. Lawrence, in his catalog of birds from the vicinity of New York, also includes this species (Lyceum N. Y. Annals 8, 1866, 286); Egbert Bagg reports two seen in central New York (Birds Oneida County, ed. 2, page 69); Mr Willard E. Yager writes of seeing a flock of 12 Blue grosbeaks in July 1899, near Oneonta, Otsego county. Besides these reports there are several others less clearly substantiated from different parts of the State, which may well be reports of the actual occurrence of this species; but no specimens other than the one above recorded have been found in the different collections which the author has examined.

Passerina cyanea (Linnaeus)

Indigo Bunting

Plate 86

Tanagra cyanea Linnaeus. Syst. Nat. Ed. 12. 1766. 1:315

Spiza cyanea DeKay. Zool. N. Y. 1844, pt 2, p. 173, fig. 157

Passerina cyanea A. O. U. Check List. Ed. 3. 1910. p. 285. No. 598

passerina, Lat., of or like a sparrow; *cyanea*, Gr., *κυανος*, dark blue

Description. *Male:* Deep blue; a deep ultramarine blue on head and breast, more inclined to azure blue on the back; the concealed portions of the wings and tail blackish, but showing very little except when they are spread. *Female:* Grayish brown; tail, wings and rump obscurely edged with blue; obscure buffy whitish wing bars; under parts dingy white, strongly tinged on the breast and sides with buffy brown and obscurely streaked with dusky. *Young* resemble the female but darker.

Length 5-5.75 inches; extent 8.55; wing 2.6; tail 2.1; bill .41; tarsus .67.

Distribution. This species breeds in the eastern United States from Minnesota, southern Ontario and Nova Scotia southward to the Gulf States, and winters in Central America. In New York the Indigo bird is a common summer resident in all the warmer portions of the State and



Indigo bunting at nest Photo by James H. Miller

is found about the edges of the Catskill and Adirondack districts, but does not enter the Canadian zone. It is decidedly less common in the northernmost counties of the State, but is one of the characteristic birds throughout central and western New York, as well as the coastal district.

The spring migration is accomplished between the 3d and the 17th of May, and the fall migration between the 25th of September and the 15th of October.

Haunts and habits. The Indigo bird prefers brushy hillsides, " slashings " and bushy gardens, being a member of the same gild as the Thrasher, Chewink and Field sparrow. Throughout the hot, dry summer his song may be heard from the hillside thickets and edges of the woodlands. The nest is usually placed in a bramble or bush at a height of 2 to 4 feet from the ground, composed externally of dry leaves, weed stalks and strips of bark, and lined with finer grasses, rootlets and long hairs. The eggs are usually 4 in number, broadly ovate in shape, pale bluish white in color; average size .74 by .55 inches. The first sets of eggs are usually found between May 25 and June 12, but frequently nests with fresh eggs may be seen as late as July 15 or even the first of August.

The Indigo bird is one of our most persistent singers and his pleasing song may be heard from the time of his arrival in May till well into the month of August. He usually chooses an elevated, though not exposed, position while singing; and it is often quite difficult to discover the singer hidden among the foliage near the top of some tree which overlooks his chosen brush lot. The song has a fringilline character, a pleasant, chippering warble, not rich and full in quality like the Purple finch's, but blithe and gay. Though rather definite in form of delivery, it never makes a definite impression upon my mind so that I remember it from one season to another. This little bunting is wholly beneficial, and besides being one of our most brilliantly colored song birds ranks near the Goldfinch as a songster.

Passerina ciris (Linnaeus)

Painted Bunting

Emberiza ciris Linnaeus. Syst. Nat. Ed. 10. 1758. 1:179
Passerina ciris A. O. U. Check List. Ed. 3. 1910. p. 286. No. 601
ciris, Gr., $\kappa\alpha\iota\gamma\epsilon\tau\iota\varsigma$, daughter of Nisus, who was changed to a bird

Description. *Adult male:* Head and sides of the neck indigo blue; back golden green; rump and under parts red; wings and tail tinged with

dull red; greater wing coverts green. *Adult female:* Upper parts bright olive green; under parts white washed with greenish yellow; wings and tail fuscous margined with olive green.

Length 5.25 inches; wing 2.7; tail 2.15; bill .42.

Distribution. The Painted bunting or Nonpareil breeds from the Gulf of Mexico as far north as Kansas, southern Illinois, North Carolina, and winters in tropical America. In New York State it is purely an accidental visitant. Bicknell, writing in the Bulletin of the Nuttall Ornithological Club, volume 3, page 132, describes its occurrence at Riverdale July 13, 1875, and on the authority of Akhurst records the capture of 5 or 6 specimens near the Narrows on Long Island and two others at Brooklyn. It is barely possible that these specimens had escaped from some cage in which they were being transported to the New York market, but it is equally possible that they were driven by storm up the coast of the eastern United States beyond their usual range, or that they wandered northward as southern species frequently do during their migrations and reached the shores of Long Island in the same manner that the Summer tanager and various other species have done. The occurrence of this bird in New York is also recorded in "Forest and Stream," 1884, page 424. The latest record of an apparently wild bird is from Bridgehampton, Long Island, December 1885, specimen mounted by Knoess, recorded by Dutcher in his Long Island notes. In the days when there was more extensive traffic in native birds, numerous specimens of this brilliantly colored bunting were imported and sold in the New York market so that specimens occasionally were noticed which had escaped from confinement or had been liberated; but such specimens exhibit signs of having been kept in cages and they are not included in this report. The specimens recorded were evidently wild birds.

Spiza americana (Gmelin)*Dickcissel*

Emberiza americana Gmelin. Syst. Nat. 1789. 1:872

DeKay. Zool. N. Y. 1844. pt 2, p. 155, fig. 3

Spiza americana A. O. U. Check List. Ed. 3. 1910. p. 287. No. 604

spiza, Gr., σπίζα, a small bird, the Chaffinch (Prof. D'Arcy W. Thompson)

Description. *Male:* Upper parts grayish brown streaked on the back with blackish; sides of the neck gray; lesser and middle *wing coverts chestnut*; *breast bright yellow*; a large black patch on the lower throat usually more or less crescentic in shape; superciliary stripe and maxillary spot yellow; chin and patch below the side of the throat and belly white. *Female:* Similar, but much duller and the black patch replaced with black streaks.

Length 6 inches; wing 3.2; tail 2.35; bill .55.

Distribution. The Dickcissel, or Black-throated bunting, breeds in the Mississippi valley from Minnesota and Wisconsin south to Texas, and winters in Central and South America. It was formerly common in the middle states east of the Alleghanies, but has now almost entirely disappeared from that region. In the days of DeKay and Giraud, and to a less extent at the time of the publication of the Lawrence catalog, the Dickcissel was still common on Long Island, but now it has entirely disappeared. DeKay speaks of it as breeding throughout the southeastern and western portions of the State, and Dutcher (*Auk*, 10:276) speaks of it as breeding commonly in Kings county in 1842. The specimens in the collection of the Long Island Historical Society were taken at Flatlands in 1846. In 1875 Mr W. W. Worthington considered it very rare at Shelter island. Dutcher reports specimens taken at Millers Place in 1888. Johnson reports a specimen from Blithewood, Long Island, August 25, 1890; and Doctor Dwight reports a specimen from Kingston, June 5, 1896. This is the last report from New York. It was still breeding in eastern Massachusetts in 1877 and 1878 according to the reports of Purdy and Dean, and as late as July 1904, at Plainfield, N. J. (W. D. Miller, *Auk*, 21:487). I have found only two reliable reports from western New York. The late J. A. Dakin records having seen a small flock at Tully, Onondaga

county, in 1883; and during the summer of 1875 a pair reared their young at Junius, Seneca county. They returned the next season and a pair of the birds was collected and preserved by Mr C. J. Hampton, the male now being in the Hobart College collection. This is evidently the last instance of the Dickcissel breeding in New York State. Mr Todd, in the "Birds of Erie," reports it, however, as a rare summer resident in north-western Pennsylvania as late as June 14, 1895. There is a bare possibility that this species will become reestablished, at least in western New York, but as far as I can learn there is at present no indication that it is moving to the eastward as the Lark sparrow and the Prairie horned lark have done.

Haunts and habits. The Dickcissel is a bird of the grassy field, preferring prairies and weed fields, usually occupying a low perch on some stalk or fence post, singing his simple song with great earnestness, the notes of which have given him his common name throughout the country which he inhabits. The nest is placed upon the ground, or near it in a thick bush, and is composed of coarse weed stalks, grasses and leaves, lined with finer grasses and horse hair. The eggs are 4 or 5 in number, of a pale blue, without spots, and average .80 by .61 inches in dimensions.

Calamospiza melanocorys Stejneger

Lark Bunting

Calamospiza melanocorys Stejneger. Auk. Jan. 1885. 2:49

A. O. U. Check List. Ed. 3. 1910. p. 288.

No. 605

calamospiza, Gr., κάλαμος, a reed, and σπιζα, a finch; *melanocorys*, from Gr., meaning "black-helmeted"

Description. *Adult male:* Uniform black with a slaty cast; the wing coverts white forming a conspicuous wing patch. *Female:* Brownish gray streaked with dusky; a small white wing patch; lower parts white streaked with dusky on the breast and side. *Male in winter:* Similar to adult female but the under plumage of the abdomen showing black when disarranged. *Young:* Similar to adult female but more buffy.

Length 6.3-7.5 inches; wing 3.2-3.6; tail 2.9-3.3.

Distribution. This species ranges from Kansas to Saskatchewan and winters southward to Texas and New Mexico, lower California and Mexico. It is of accidental occurrence in the Atlantic States and west of



Lark bunting *Calamospiza melanocorys* Stejneger

the Rocky mountains. Two New York specimens have been taken, the first at Montauk Point, September 4, 1888 (Evans, Auk, 6: 192); the second was reported by Arthur H. Helme from Millers Place, Long Island, September 11, 1896.

Family TANAGRIDAE

Tanagers

Bill turgid, more or less notched near the tip, the cutting edge toothed or slightly dentate; primaries 9; size medium; colors bright though not intricately variegated. The characters which distinguish this family are difficult to describe. They are more nearly related to the finches than most families, although they have something in common with the wood warblers. They have long been characterized as *dentirostral finches*, but the tooth on the side of the beak is practically obsolete in many species. In general, a tanager is easily recognized, though one can scarcely enumerate the points on which it is determined. The family is American, evidently of neotropical origin; consists of about 350 species, only 2 of which are normally found in the eastern states. Probably the most brilliantly colored of all New York birds is the Scarlet tanager, and brilliant colors of red, orange and yellow mostly predominate in the family. They are forest-loving birds, seeking most of their food amongst the foliage, the native species feeding on beetles, caterpillars and fruit in its season. They are more or less melodious, our common tanager singing somewhat like a Robin or Rose-breasted grosbeak. They build rather weakly constructed nests. The eggs are bluish green speckled with brown.

Piranga ludoviciana (Wilson)*Western Tanager*

Tanagra ludoviciana Wilson. Amer. Orn. 1811. 3:27. pl. 20, fig. 1

Piranga ludoviciana A. O. U. Check List. Ed. 3. 1910. p. 288. No. 607

piranga, a barbarous word, perhaps one applied to tanagers; *ludoviciana*, of Louisiana, that is, French Louisiana

Description. *Adult male:* Head scarlet or crimson extending down along the central line of the breast; back, wings and tail mostly black, the wings with 2 yellowish white bars; the rest of the plumage bright yellow, especially the rump and the back of the neck. *Female:* Olive shaded with ash on the back; under parts greenish yellow shaded with olive on the side; wings and tail fuscous edged with olive, the wings barred with yellowish white. *Young males:* Resemble female, gradually passing into the plumage of the adult male.

Length 7 inches; wing 3.75; tail 3; bill .6; tarsus .75.

Distribution. This species inhabits western United States from the Great Plains to the Pacific coast, as far north as British Columbia; winters in Central America. Accidental in eastern United States. A single specimen was obtained in New York at Fort Montgomery, December 21, 1881, a young male (Mearns, Auk, 7:53).

Piranga erythromelas Vieillot*Scarlet Tanager*

Plate 87

Piranga erythromelas Vieillot. Nouv. Dict. d'Hist. Nat. 1819. 28:203

Piranga rubra DeKay. Zool. N. Y. 1844. pt 2, p. 176, fig. 149

Piranga erythromelas A. O. U. Check List. Ed. 3. 1910. p. 289. No. 608

erythromelas, Gr., ἐρυθρός, red, and μέλας, black

Description. *Male:* Bright scarlet except the wings and tail, which are black; under wing coverts white, which, however, rarely show except during flight. *Winter plumage:* Olive green above, greenish yellow below, wings and tail black slightly glossed with greenish. *Female:* Light olive green; under parts greenish yellow, wings and tail dusky, slightly edged with greenish. *Immature males* resemble winter male. During the moulting season birds partly scarlet and partly greenish are frequently observed.

Length 7-7.3 inches; extent 11-12; wing 3.75; tail 2.7; bill .46; tarsus .77.

Distribution. This tanager inhabits eastern America from Virginia and Illinois to New Brunswick and Manitoba, and passes the winter in Central America and northern South America. In New York it is found in every county of the State, a fairly common summer resident of the forested districts, but in the more cultivated portions of southern, central and western New York is uncommon in summer except in swamps, large groves and wooded ravines. In the Adirondacks I have noticed it as high as the summit of the Bartlett ridge and the slopes of Mount Colvin and the forests about St Huberts. It therefore invades the Canadian zone of New York State nearly to the summits of our higher mountains. The spring migration, when it is fairly common in most portions of the State, begins about the 1st of May in the southern counties, the 10th to the 14th in the colder districts. In the fall it disappears between the 3d and the 18th of October.

Haunts and habits. As already intimated, the habitat of the Scarlet tanager is mostly in our larger groves, forests and wooded ravines, although during migration time it is frequently seen in orchards, shade trees, and even in the open fields. I have seen as many as 12 or 15 male tanagers in an open plowed field during the first part of May, when they are feeding on May beetles and their larvae. The migration is past by the third week in May, and thereafter we must seek the tanager in its woodland haunts.

The common call note resembles the syllables "*chip, churr,*" and his ordinary song has been compared to that of the Robin, but has a decided burr or buzz in its delivery.

The females commonly arrive 5 to 7 days after the males and the mating occurs from the middle to the third week in May. The nest is constructed from the 23d of May to the 10th of June. Fresh eggs have been found from May 28 to June 19. The nest is usually placed on a horizontal limb at a height of 12 to 30 feet from the ground. Usually a deciduous tree is chosen, like an oak, beech or maple, though I have

found it in hemlocks and pines. It is loosely constructed of fine twigs, very often the dead twigs of the hemlock being chosen, and is lined with finer twigs and rootlets, but is frequently so loosely put together that when viewed from the ground the eggs may be seen through the nest. These are usually 4 in number, of a bluish green ground color rather thickly speckled and spotted with reddish brown and lilac. They average about .95 by .67 inches in dimensions. I have never seen a male tanager incubating the eggs, but he invariably appears when his mate is driven from the nest or raises an alarm, and flies about in the immediate vicinity, uttering his "chip, churr," and buzz of complaint. He is frequently seen sunning himself on the tops of dead trees in the forest, or on the edge of a ravine, and warbling from his perch at intervals throughout the forenoon, but he is not a continuous singer like some of the vireos and warblers. During the latter part of July and the first half of August, tanagers, like most birds, seem to go into seclusion. The moult, however, is completed about the last of August and after that season the males are seen in their winter plumage. During August, specimens are frequently noticed which are covered with patches of scarlet and regarded by the uninitiated as some new species of bird.

Piranga rubra rubra (Linnaeus)

Summer Tanager

Plate 87

Fringilla rubra Linnaeus. Syst. Nat. Ed. 10. 1758. 1:181

Piranga aestiva DeKay. Zool. N. Y. 1844. pt 2, p. 175, fig. 148

Piranga rubra rubra A. O. U. Check List. Ed. 3. 1910. p. 289. No. 610
ruba, Lat., red

Description. *Male:* Entire plumage rosy red, brick red or vermillion, the hidden portion of the wings and tail being dusky. The shade of red depends considerably upon the age of the bird. *Female:* Dull brownish olive; under parts brownish yellow. Young males resemble the females.

Length 7.5 inches; wing 3.75; tail 2.9; bill .55.

Distribution. The Summer tanager inhabits the eastern United States from Florida to southern New Jersey and wanders casually as far north

as New England and Nova Scotia. It winters in Central and South America. In New York it is only an accidental visitant. Of 13 specimens definitely recorded from this State, 6 were taken on Long Island between the 6th and the 11th of April, and 7 were taken between the 1st and 18th of May. No specimen taken in summer or fall, as far as I can learn, is in existence, and no unquestioned breeding record for this State can be given, although it has been reported several times as breeding in different localities, as by Judd in "Birds of Albany," page 75. This record is on the authority of Mr H. A. Slack, an enthusiastic bird student; but, as the birds were not secured nor the identification verified by "professional ornithologists," it is possible that the reports were due to error in observation. It is probable that the early date of many of the tanagers taken on Long Island is due to the fact that these birds were driven by storms while passing from the West Indies to the Southern States, and drifted up the coast, or that they alighted on coastwise trading ships and left the rigging as the boats approached New York harbor. At any rate, we can not regard this species as a summer resident of the State, but only an accidental spring visitant. It is not a common species farther north than the vicinity of Washington and Baltimore.

Haunts and habits. It inhabits woodland like our Scarlet tanager, which it resembles in breeding habits. Its common call note is set down by ornithologists as resembling the syllables "*chicky-tucky-tuck*."

Famil. HIRUNDINIDAE

Swallows

Wings strong and much elongated, the feathers rapidly graduated from the first or second to the secondaries; primaries 9; tail forked; rectrices 12; bill short, broad and flat, the gape extending far backward beneath the eyes equal to twice the length of the culmen; tarsi very short; the feet small and weak; plumage more or less iridescent, soft and smooth; head short, broad and depressed.

This family is cosmopolitan in distribution and consists of about 100 species, several of which are found in the eastern United States. They

are vigorous flyers, spending most of their time in the air hawking for insects over rivers, lakes and fields, capturing their prey while on the wing. They are more or less sociable in habits, sometimes immense colonies associating together on their breeding ground. The nests of some species were originally affixed to cliffs, but now they have availed themselves to a considerable extent of structures erected by man; while those which formerly nested in hollow trees accommodate themselves to boxes erected for them; and even the Bank and Rough-winged swallows resort to gravel pits and masonry, whereas formerly they were confined to the shores of lakes and streams. As the migration season approaches, swallows gather in immense numbers on chosen roosting sites where various species may be found associating together, and separating again in the morning to seek their food over the surrounding country. During the day they frequently gather in companies of hundreds and thousands on the roofs of barns and on telegraph wires or on the reeds of extensive marshes. These congregations usually last until the end of August or the first weeks of September when the swallows suddenly disappear and are not seen again till the following April. Swallow roosts are usually found in the tall reeds or flags of marshes where there is an expanse of many acres, or in thickets of willows or alders. I have seen tens of thousands of Tree swallows gathered on the Montezuma marshes to roost, and in thickets of the French basket willow I have observed as many as twenty thousand swallows in a roost which covered only two acres. The birds gather upon these roosting grounds late in the afternoon, usually after sunset, and I have seen a few belated arrivals come into the roost an hour after sundown. Swallows are birds of cheerful disposition, continually twittering to each other as they sit on telegraph wires or flit about over the ponds and streams or over the meadows. Their flight is the personification of ease and elegance. At the same time, they are very beneficial by destroying countless hordes of insects. Some maintain that beneficial hymenoptera as well as some of the predaceous coleoptera are destroyed, but the percentage is comparatively small, as shown by the examination of stomach contents. We

regret to add that swallows do not seem to be increasing in the more cultivated portions of the country as they ought, but this is not due to the destruction of forests, thickets and marshes, for they are birds of the open, and of all our native birds the swallows ought to be benefited rather than injured by the advance of culture conditions. The trouble is largely with the modern farmers who do not permit the swallows to enter their barns and nest upon the rafters or beneath the eaves. The English sparrow nuisance is partly responsible for this condition. Farmers close their barns against the sparrows and the swallows can not enter. If the swallow entrances were closed from September 1 to April 10, the sparrows would not choose the barn as their home; then if the swallows were let in and narrow ledges provided on some of the rafters and under the eaves, and protected with the gun against the sparrows, they might increase again among us. The author even believes that where no other suitable sites are found over considerable stretches of country, artificial sandpits should be constructed for the Bank swallows to occupy, and where hollow trees are no longer found along the stream courses and the lakeside, hollow limbs or boxes should be provided in abundance for the Tree swallows to occupy, and every village should be provided with several martin houses so that instead of a dozen towns where martins are found in abundance, we might have them in every city and village throughout the State.

Progne subis subis (Linnaeus)

Purple Martin

Plate 88

Hirundo subis Linnaeus. Syst. Nat. Ed. 10. 1758. 1: 192

Hirundo purpurea DeKay. Zool. N. Y. 1844. pt 2, p. 37, fig. 61

Progne subis subis A. O. U. Check List. Ed. 3. 1910. p. 290. No. 611

prógne, daughter of Pandion, fabled to have been changed to a swallow; *súbis*, Lat., some bird mentioned by Pliny

Description. Our largest swallow. Tail moderately forked. *Male:* Glossy bluish black. *Female:* Similar, but *under parts brownish gray* tipped with *whitish*. *Young:* Resemble the female.

Length 7.5-8.5 inches; extent 15-16; wing 5-5.6; tail 3-3.5; bill .5.

Distribution. The Purple martin inhabits North America from Nova Scotia, Saskatchewan and Idaho, south to Florida, Texas and Vera Cruz; winters in Central and South America. In New York this species is found in every portion of the State as a summer resident, but is very local in distribution except in the migration season, when it is more generally observed. I have been unable to secure full enough returns from observers in different parts of the State to plot its exact distribution at the present time, but it is almost entirely confined to villages and cities, both on Long Island and in eastern, northern and western New York, but only one-half or one-third of the villages and cities which were summer homes of this species fifty years ago are now inhabited by it. It is still common in Canandaigua, Geneva, Auburn and various villages and cities in western and central New York. At Rochester there is only one locality in the whole city where it still nests and the pairs are becoming fewer each year. From the returns which I received, it is evident that the Martin is barely holding its own in Auburn and Geneva, but has increased considerably in Canandaigua due to the encouragement received from residents who have built martin houses and keep the sparrows from them until the martins arrive in April. Unless this same method is pursued in cities where it still exists, the species will be extirpated within a generation in most localities where it does not receive this protection. In this State the Martin makes its appearance from the 2d to the 13th of April in western New York, usually before the 10th, and disappears in the fall between the 12th and the 30th of September, in western New York rarely being seen later than the 15th of the month.

Haunts and habits. The Martin is a cheerful, spritely neighbor—too spritely for such people as wish to sleep late in the morning. All through the fine weather in April, May and June the martins begin to chortle and warble about the martin house as soon as the sun is up. In fact, throughout the whole day one is likely to see martins flying about the house or seated on its ridge or shelves, sunning themselves and pursuing whatever passing insects are observed. In fine weather they hawk for insects high

in the air, sometimes several hundred feet above the ground, and in their excursions travel 2 or 3 miles from their native haunts. If there is a river or lake in the vicinity, though it may be 4 or 5 miles away, they will visit it frequently, evidently for the purpose of drinking and pursuing insects which are more numerous near the water. In May and early June they are frequently seen on the ground in the garden, road or waste places hunting for straws, twigs and feathers which they use in the construction of their nests. They rarely alight in trees, but like other swallows prefer the roofs of buildings, and telegraph wires for perches. One will frequently see 40 or 50 martins in a close row in those cities where they are most abundant. In southern New York the nest is made early in May and the eggs usually found by May 15. In western and northern New York the dates range from May 20 to 30. In cold, damp weather this species sometimes suffers a great deal from exposure; especially when a cold, damp snow comes in April after the Martins' arrival and continues for several days, they are frequently found dead about their houses. Aside from the unfavorable weather conditions, their principal enemy seems to be the English sparrow which occupies their nesting boxes before the martins arrive in the spring; and although they are very courageous warriors and drive the sparrows from their chosen home and carry out all the rubbish that the sparrows have carried in, the sparrows, by keeping constantly at it throughout the nesting season, prevent the martins from rearing their young, and so, after a few seasons of this continuous warfare, the martins are driven from the ancestral home and the sparrows left in control. I have seen this history repeated in so many martin boxes of central and western New York that I feel certain it will be the inevitable result wherever the martins do not receive special protection.

Petrochelidon lunifrons lunifrons (Say)*Cliff Swallow*

Plate 88

Hirundo lunifrons Say. Long's Exped. 1823. 2:47 (note)

Hirundo fulva DeKay. Zool. N. Y. 1844. pt 2, p. 41, fig. 95

Petrochelidon lunifrons lunifrons A. O. U. Check List. Ed. 3. 1910.
p. 291. No. 612*petrochelidon*, Gr., meaning rock swallow; *lunifrons*, Lat., moonfronted, referring to the crescentic spot on the forehead

Description. *Forehead buffy white; crown and back steel blue; sides of the head and the throat chestnut; upper tail coverts light rufous or buffy; grayish collar band; neck and breast brownish gray with steel blue patch on the center; abdomen whitish; tail and wings dusky and the tail very slightly forked. Young birds:* Similar but duller; easily distinguished from any of our other swallows by the *buffy upper tail coverts*.

Length 5-5.5 inches; extent 12-12.75; wing 4.3-4.5; tail 2.25.

Distribution. The Cliff swallow inhabits North America from the Gulf of Mexico as far as Labrador and the shores of the Arctic ocean. Winters in tropical America. In New York it is known locally throughout the State, but in many sections where it was very common 40 years ago it has almost entirely disappeared. At the present time it seems to be commonest in the Catskill and Adirondack districts and other sparsely inhabited sections of the State. Here it nests almost entirely in communities under the eaves of barns, although in the mountainous district it occasionally plasters its nest under the projecting ledges of the cliffs. The spring migration begins from the 13th to the 26th of April. In the fall they disappear from central and western New York from the 8th to the 15th of September; but in the coastal district are occasionally found as late as the 1st or the 10th of October. As a summer resident it must be regarded, on the whole, as less abundant than the Barn, Bank and Tree swallows, but, on the other hand, in some localities, especially the mountainous district, it is often more numerous than any other species. One frequently sees a line of this species' nests consisting of 50 to 150 thickly

crowded together under the eaves of some large barn, and a very interesting community it is.

Haunts and habits. The nests are jug or gourd-shaped with opening just sufficient for the birds to enter, and usually there is one of the parent birds guarding the entrance to each nest, with its little buffy-colored frontlet and chestnut cheeks appearing, and chattering at the opening. There are birds continually darting swiftly out of some of the nests, wheeling about in the air, flying around, uttering their sharp monosyllabic note, returning to the nest, heading around and pecking out again — a bustling city with all the occupants intent on rearing their young and destroying all the winged insects that can be found in the air for some distance around. The interior of this swallow's nest is lined with fine grass and feathers. The eggs are from 4 to 6 in number, white in ground color, very thickly spotted with olive and rufous brown and lavender shell markings. They average .82 by .56 inches in dimensions.

I have never been able to understand why so many farmers will not allow these swallows to build under the eaves of their barns, and even encourage the boys to stone down the nests and destroy whatever projections there are to help the birds attach them; for these birds are certainly among the most beneficial to be found about the farm, and a very interesting adjunct to rural life. I hope that before the species entirely disappears from our State a different sentiment in regard to swallows' nests under the eaves will have been aroused in rural communities.

Hirundo erythrogastra Boddaert

Barn Swallow

Plate 88

Hirundo erythrogaster Boddaert. Table Pl. Enl. 1783. 45

Hirundo rufa DeKay. Zool. N. Y. 1844. pt 2, p. 40, fig. 64

Hirundo erythrogastra A. O. U. Check List. Ed. 3. 1910. p. 202. No. 613

hirundo, Lat., a swallow; *erythrogastra*, from Gr., meaning red-bellied

Description. *Upper parts deep steel blue; under parts vary from pale buffy to rich chestnut, deepest on the throat and forebreast; the tail feathers*

show a broken band of white when fully spread; *tail very deeply forked*, the most so of any of our swallows. *Female and young*: Usually paler in color below; and the young have the tail feathers less elongated.

Length 6-7 inches; extent 12.5-13.5; wing 4.5-5; tail 3-5; the fork 2-3 inches.

Distribution. This species inhabits nearly the whole of North America as far as Ungava and Alaska; winters in Central and South America. In this State it is the most generally distributed swallow, a common summer resident in all parts, arriving from the 4th to the 14th of April and disappearing in the fall from the 10th to the 20th of September, on Long Island and in the southern Hudson valley occasionally remaining till the 5th to the 15th of October.

Haunts and habits. This species is the common swallow familiar to every country boy. It enters the old barn through any window, door or small aperture, and flies about with a happy cheep and twitter, and plasters its nest upon the rafters or crossbeams. This is made of pellets of mud held together with a few straws, and lined with fine grasses and hens' feathers. The top of the nest is always open, never inclosed like the nest of the Cliff swallow. The eggs are from 4 to 6 in number, white in ground color, rather thickly speckled with reddish brown, olive and lilac. They average .78 by .54 inches in dimensions, and are elongated ovate in form. The spots are usually rather uniformly distributed though sometimes thicker near the larger end.

This is another species which has suffered considerably by improved conditions on the farm. The modern barn is often built so tight that the Barn swallow can not enter and, even if he does succeed in building his nest, it is usually knocked down because the modern farmer thinks the swallows are unpleasant neighbors to have sleeping in his barn. Consequently, in townships where formerly every barn was occupied by this species — from 3 to 7 pairs in each large hay barn — there are at the present time not more than 1 pair on an average in every 3 or 4 barns. They still nest to some extent under the sheds and eaves of outbuildings and in the less cultivated portions of the State still find a hospitable

reception in the hay barn and sheep shed. Like the Martin and Cliff swallow, this species is very beneficial. The swallows are all insectivorous in habit, living almost entirely on flying insects and, although they fre-



Barn swallow's nest

Photo by Ralph S. Paddock

quently destroy beneficial species like tiger beetles, ladybirds, ichneumon flies and wasps, the larger portion of their food consists of injurious species.

Iridoprocne bicolor (Vieillot)*Tree Swallow*

Plate 88

Hirundo bicolor Vieillot. Ois. Amer. Sept. 1807 (1808). 1:61, pl. 31

DeKay. Zool. N. Y. 1844. pt 2, p. 38, fig. 63

Iridoprocne bicolor A. O. U. Check List. Ed. 3. 1910. p. 293. No. 614
iridoprocne, from Gr., meaning iris or rainbow-swallow; *bicolor*, Lat., two colored

Description. *Upper parts steel blue* with a greenish sheen; *under parts white*; tail slightly forked. *Immature* have the upper parts brownish gray. Length 6 inches; extent 13; wing 4.5-5; tail 2.5.

Distribution. This species inhabits North America as far north as Labrador and Alaska. In New York it is found in all portions of the State, but is much less common and more local in distribution as a summer resident in the southern counties. It prefers the vicinity of water; and in localities like river valleys, extensive marshlands, the flooded swamps of the central lake region and the Adirondaek lakes, it is the commonest swallow. In the fall it sometimes appears in myriads along the coast, the shores of the Great Lakes, and the Montezuma marshes, as well as the large river valleys. I have seen tens of thousands gathered to roost each night in portions of the Montezuma marsh and on the marshes along the shore of Lake Ontario. It is the earliest of all our swallows to migrate, appearing in western New York from the 27th of March to the 10th of April, average date April 1, in the Atlantic district occasionally arriving as early as the 16th of February or from the 1st to the 21st of March. In the fall it disappears from western New York from the 10th to the 20th of October, in the coastal district occasionally remaining to the 1st of November.

Haunts and habits. The Tree or White-breasted swallow breeds in hollow trees, the deserted holes of woodpeckers and in boxes which are erected for its accommodation. In western New York, however, it does not avail itself so readily of nesting boxes as is reported from the Hudson valley and from the New England States. I have no doubt that if boxes

were erected for it along the rivers, lake shores and marshes, it would gradually acquire this habit and become more numerous with us as a summer resident. I have found it nesting in every county of the State where I have made extensive observations of birds, but nowhere so abundantly as in the marshes of Seneca river and about the Adirondack lakes where dead timber and hollow trees are abundant. The nesting materials carried into the boxes or hollow trees consist of grasses and feathers. The eggs are 4 to 7 in number, pure white in color and average .75 by .55 inches. Unlike the Barn swallow, it seems that usually only one brood is reared by this species in parts of the State where I have observed it.

Riparia riparia (Linnaeus)

Bank Swallow

Plate 88

Hirundo riparia Linnaeus. Syst. Nat. Ed. 10. 1758. 1:192

DeKay. Zool. N. Y. 1844. pt 2, p. 39, fig. 62

Riparia riparia A. O. U. Check List. Ed. 3. 1910. p. 294. No. 616

ripária, Lat., pertaining to *ripa*, the bank of a stream

Description. Our smallest swallow. Tail moderately forked; a small tuft of feathers on the leg above the hind toe; *upper parts brownish gray; under parts white*, especially the throat and abdomen; a *distinct gray band across the breast*.

Length 5.2 inches; extent 10.5-11; wing 4; tail 2; bill .18; tarsus .45.

Distribution. The Bank swallow is holarctic in distribution, being our only common species of small bird which is identical with the corresponding European form. In America this species breeds from the edge of the tropics to Labrador and Alaska. In New York it is generally distributed throughout the State as a summer resident, very abundant in some localities where sand banks are plentiful. The spring migration begins from the 19th to the 30th of April. In the autumn the bulk of the birds have left by the 25th of August, but a few linger on in western New York until the middle of September and in the coastal district as late as October 1.

Haunts and habits. Like the White-breasted swallow, this species prefers to hunt its prey over the surface of the water and is most abundant along rivers, lakes and bays. It nests in large communities, sometimes thousands of holes being seen in the same sand bank, occasionally not more than a few inches apart. The excavations are from 18 inches to 3 feet in depth, the openings usually a flattened ellipse about 2 inches or 2.5 inches in width and 1.5 inches in vertical dimension. They are excavated by the birds themselves, and the end of the tunnel is enlarged to contain



Young Bank swallows

the nest of straws, grasses and feathers. The eggs are usually 5 in number, but vary from 4 to 6. They are pure white in color and average .68 by .48 inches in dimensions. About a sand bank inhabited by these little swallows one may frequently see thousands of birds in the air darting in and out of the holes, wheeling about in every direction, and keeping up a continuous reedy, buzzing twitter quite distinct from the notes of our other swallows. In the fall they gather in immense numbers on the telegraph wires which cross the swamplands and edges of the lakes, and roost

at night in the low bushes or reeds which cover the marshes. Sometimes tens of thousands gather to pass the night in the same marsh, associated more or less with other species of swallows. On the well-drained uplands where sand banks are very scarce and the soil mostly "hard pan," shale or rock, I have sometimes traveled miles and miles without seeing any of this species. In such localities the Barn swallow and Cliff swallow are the prevailing forms. On the shores of Lake Ontario, in the Genesee valley, in the Hudson valley and on Long Island, the "Sand martin" or Bank swallow is especially abundant.

Stelgidopteryx serripennis (Audubon)

Rough-winged Swallow

Plate 88

Hirundo serripennis Audubon. Orn. Biog. 1838. 4: 593

Stelgidopteryx serripennis A. O. U. Check List. Ed. 3. 1910. p. 205.
No. 617

stelgidópteryx, from Gr., scraper-winged; *serripénnis*, Lat., saw feathered

Description. *Resembles the Bank swallow, but larger; edge of the wing with sharp recurved hooklets, more easily felt than seen; upper parts grayish brown; throat and breast light brownish gray fading gradually into the white of the abdomen. The decidedly larger size, more brownish upper parts and entire absence of grayish band on the breast contrasted with the pure white throat, easily distinguish this species from the Bank swallow.*

Length 5.5-5.75 inches; extent 12-12.5; wing 4.12-4.35; tail 2.1; bill .19; tarsus .43.

Distribution. The Rough-winged swallow breeds from British Columbia, Minnesota and Massachusetts southward to the gulf coast; winters in the tropics. In New York it inhabits the river valleys and lake shores of all the southern, central and western portions of the State (see map volume I, page 24), being a fairly common summer resident of the Carolinian and lower Alleghanian zones. It was apparently unknown to Giraud and DeKay, as well as later naturalists in this part of the country, until about the year 1870, Doctor Mearns reporting it in 1872 from Highland Falls; Rathbun and Wright from Auburn in 1876; Bicknell from

Riverdale, 1876; DeLe Perier from New Utrecht in 1878; Ralph and Bagg from Trenton Falls in 1886; Burtch and Stone from Branchport, 1886. Now bird students and collectors find it at nearly every station. I have no doubt that the Rough-winged swallow has gradually extended its range in this part of the country and become common in localities where it was entirely absent 50 years ago, my own experience at Springville seeming to confirm this at least for that station. No Rough-winged swallows were found in that vicinity as late as 1884 when I ceased working there as a youth. When I returned to make a summer survey of the birds of that vicinity in 1900, I found the Rough-winged swallows common in many localities where they were wholly unknown 20 years before. Collectors in Niagara, Ontario and Monroe counties have told me similar tales of their experiences. I feel certain that my own experience was not due to overlooking these swallows in earlier days, for of all the specimens taken never was a Rough-winged swallow secured, and the especial pair which I expected might turn out to be Rough-winged swallows I found by reexamining my collection were Bank swallows as they had originally been labeled. This species arrives from the south from the 20th to the 30th of April but, as far as my experience goes in western New York, disappears very early in the summer. I have never seen one later than the 1st of August, although they may remain later, as is indicated by observers in other parts of the State. Chapman records them as late as September 1 to 10, and others in the Hudson valley report them as departing on August 12. It may be that after the breeding season is over they go to other localities, but they certainly are not found along the rivers and lake shores where they nest in May and June.

Haunts and habits. The flight of the Rough-winged swallow is slightly slower than that of the Bank swallow and not quite so irregular. The stroke of the wings is more deliberate. They nest in smaller communities, sometimes 5 or 6 pairs being found about the same gravel pit, along the same shale bank, or about the abutments of the same large culvert or stone bridge, but I have never seen more than 7 pairs nesting in the same imme-

diate vicinity, and these are not closely crowded together, as is the case in communities of Bank swallows. Along the central lakes the nest is usually in fissures of shale rock or around the stonework of bridges. The nest, like that of the Bank swallow, consists of straws and grasses, lined with feathers. The eggs are 5 to 7, occasionally 8, in number, pure white, averaging .72 by .52 inches in dimensions.

Famil: BOMBYCILLIDAE

Waxwings

Wing long and pointed; primaries 10, the first short; tail rather short, narrow and even; feet weak; plumage soft and blended; in our species the head is conspicuously crested; the secondaries and sometimes the tips of the tail feathers marked with curious red waxlike appendages. The young are somewhat spotted, especially on the breast, but the adults are plain in body colors. There are about 30 members of this family, inhabitants of the holarctic realm, 2 of which are found in America.

They are insectivorous in the nesting season, but passionately fond of ripe fruits, and in the winter subsist largely on mountain ash berries and other fruits left hanging on the trees. They are more or less gregarious in habit, especially in the winter, when flocks of hundreds sometimes make their appearance suddenly and disappear as soon as the food supply fails. They can scarcely be called migratory, but are wanderers, seeking not so much the warmer regions as those in which there has been a plentiful crop of fruit. Our waxwings during the summer season feed to a large extent on flying insects which they pursue from some conspicuous perch where they remain for half the afternoon, frequently giving chase to passing insects and returning again to the same station, much after the manner of flycatchers. Waxwings are extremely fond of canker worms and many varieties of caterpillars, even feeding to a large extent on the hairy species which are shunned by many birds. Thus, in spite of the cherries which they destroy in the fruit season, they must be regarded among our most beneficial species.

Bombycilla garrula (Linnaeus)*Bohemian Waxwing*

Plate 80

Lanius garrulus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:95

Bombycilla garrula DeKay. Zool. N. Y. 1844. pt 2, p. 43, fig. 57

A. O. U. Check List. Ed. 3. 1910. p. 295. No. 618

bombycilla, from Gr. and Lat., *bombyx*, silk worm, silk, hence little silky one; *garrula*, Lat., garrulous, talkative

Description. In general resembling the Cedar waxwing but larger. The *abdomen gray* instead of yellow; the forehead and *under tail coverts chestnut rufous*; the *secondaries tipped with white*, the *primaries tipped with yellow* on the outer web, these white and yellow tips on the wing being very conspicuous when the bird is at a considerable distance.

Length 8-9 inches; wing 4.6; tail 2.6.

Distribution. The Bohemian waxwing is holarctic in distribution inhabiting the colder portions of the northern hemisphere, in America breeding far northward and in the high mountains of the west, straggling irregularly southward in winter as far as the northern United States. In New York it is an irregular winter visitant. There are records from Long Island by Giraud, in 1830 and 1832; from Albany in 1835 by DeKay; Long Island, 1838, by Audubon; a specimen from Crow hill, 1851, is in the collection of the Long Island Historical Society; from Cold Spring in 1870 by Mearns; from Mexico January 3, 1876, and February 2, 1880, by Ruthven Dean; from Penn Yan, 1880, by James Flahive; from Lockport, February 22, 1882, by Davison; from Utica several seasons prior to 1886 by Ralph and Bagg; North Haven April 18, 1889, by Dutcher; in Madison county, February 4, 1896, by Embody; Syracuse February 10, 1899, by Johonnot; Saratoga, February 24 and March 2, 1891, by S. R. Ingersoll; and from Waterford February 24, 1904, by Will Richard. Beside these records of specimens, numerous accounts have been sent to me of Bohemian waxwings appearing in various localities in the State, all of them in the winter months, the latest date being the one by Dutcher, April 18th. It is probable that a few of this species may occur in the State nearly every

winter, and if flocks of Cedar waxwings were carefully scrutinized, I have no doubt that occasional specimens of this species might, by reference to plate 89, be accurately identified.

Bombycilla cedrorum Vieillot

Cedar Waxwing

Plate 89

Bombycilla cedrorum Vieillot. Ois. Amer. Sept. 1807 (1808). 1: 88. pl. 57
Bombycilla carolinensis DeKay. Zool. N. Y. 1844. pt 2, p. 44, fig. 56
Bombycilla cedrorum A. O. U. Check List. Ed. 3. 1910. p. 296. No. 619
cedrorum, Lat., of the cedars

Description. Head *conspicuously crested*; soft grayish brown changing to bluish gray on the rump, wings and tail; tail with even *terminal band of yellow*; eye masks, narrow band over the base of the bill and chin black; *abdomen yellow*; *under tail coverts whitish*; bill black; feet leaden gray. Old birds have the tips of tail feathers and *tips of the secondaries ornamented with scarlet* waxlike appendages.

Length 8 inches; extent 11.5-12; wing 3.7; tail 2.4; bill .4; tarsus .66.

Range. The Cedar waxwing inhabits North America, breeding from Virginia, and southward in the mountains, northward through the boreal zone. Only slightly migratory in habits. In New York it is a resident of all portions of the State but is very irregular in distribution in the winter time, wandering about wherever food is most plentiful, sometimes in large flocks of 300 or 400. I have found it a common breeding species along the swamps and streams of the Adirondacks, as well as throughout the orchards and shade trees of the more densely populated portions of the State.

It is one of our latest birds to nest, rarely beginning to build before the middle or the third week in June. Fresh eggs may be found from the 20th of June to the last of July. The nest is usually constructed in an apple tree or shade tree of any kind, at a height of from 10 to 30 feet from the ground. It resembles somewhat the nest of the Kingbird, constructed of grasses, cottony substances, leaves and strips of bark, lined mostly with rootlets, mosses and other fine materials. The eggs are 4 to 5 in number, of a bluish gray or clayey brown color, rather thickly spotted

with roundish spots of black, and blotches of umber and brown. Average size .88 by .62 inches in dimensions.

The Waxwing is usually voted one of the sleekest and softest colored of our birds. Its long pointed crest also gives it a distinguished appearance, and its sedate manner and gregarious habits also attract attention. They are called "polite birds" in many sections of the State because of the habit of bowing and "passing the word" along the line, and of passing a cherry. When the flock alights they ordinarily face all in the same direction. Occasionally before one will taste the fruit which has just been picked, he passes it to the next one on the limb and so it travels down the line, and on rare occasions has been seen to come back again along a limb full of birds, before any member of the company will deign to taste it. The flock usually takes wing in a body, all seeming to spring into the air at the same instant. They utter a continual *tse-tse-tse*, a high thin call, which is evidently for the purpose of keeping the flock together. When the breeding season approaches, the waxwings separate in pairs and begin the duties of housekeeping. As soon as the young are grown one will find the waxwings most commonly about swamps and edges of streams, where they occupy exposed perches late in the afternoon and sally forth in pursuit of insects much after the manner of flycatchers, sometimes pursuing them for several rods in the air and returning again to their chosen stand. In this way I have seen 2 or 3 dozen waxwings at the same time scattered about the shores of an Adirondack lake, all pursuing insects and returning to the dry top of some spruce tree to await the approach of further prey. In the fall and winter their gregarious habit may be of use in locating and feeding on the berries of mountain ash, winter berry, privet and other fruits, which are their principal food during the colder months. I have frequently seen a mountain ash tree which must have been loaded with several pecks of berries, stripped in a single day by a flock of these birds, then they scour the country in search of other trees and so journey on from one locality to another. They also feed in the winter to some extent on frozen apples and the fruit of the *Crataegus*. In the spring and summer they

are largely insectivorous, devouring immense numbers of measuring worms, canker worms and even hairy caterpillars, ranking close to the cuckoos and orioles in this respect. As soon as small fruits like sour cherries and berries begin to ripen they become a great nuisance to the fruit grower, destroying large quantities of cherries in a few days, this species and the Robin being the most destructive of small fruits of all our species of New York birds. Nevertheless, I believe they should be protected, on account of the great benefit they otherwise perform, except in special cases where they have become too destructive on the fruit farm.

Family LANIIDAE

Shrikes

Bill stout, notched and toothed, hooked at the tip, strongly mimicking that of the birds of prey; feet typically passerine in structure, not noticeably stronger than those of other perching birds; primaries 10 in number; rectrices 10; both the wings and tail moderately long and rounded; rictus bristled; nostrils circular, more or less concealed by tufts of bristly feathers.

The shrikes are stout, bold, quarrelsome birds; in them the predatory disposition reaches a climax among the Passeres. In cruelty and ability to destroy their weaker brethren, they fully equal the smaller hawks and owls. They are carnivorous and insectivorous in diet. The smaller varieties, such as our Migrant or Summer shrike, are mostly beneficial on account of their habit of destroying mice, grasshoppers and the larger beetles. The nests of shrikes are rather bulky affairs, the interior deeply cupped and lined with feathers. The eggs are 4 to 6, speckled, and of an elongated oval shape.

Lanius borealis Vieillot

Northern Shrike

Plate 93

- Lanius borealis* Vieillot. Ois. Amer. Sept. 1807 (1808). 1:80, pl. 50
Lanius septentrionalis DeKay. Zool. N. Y. 1844. pt 2, p. 127, fig. 81
Lanius borealis A. O. U. Check List. Ed. 3. 1910. p. 296. No. 621
lanius, Lat., a butcher; *borealis*, northern

Description. Upper parts *gray*; *wings and tail black*; a conspicuous *white patch in the wing* near the base of the primaries; the *outer tail feathers*

conspicuously tipped with white; tips of secondaries white; forehead, tips of scapulars and the upper tail coverts whitish; a broad black stripe from the nostril down the side of the head; under parts grayish white narrowly barred with blackish. Female: Similar but slightly smaller and the colors dingier. Young: Like the female, more or less washed with brown, having a tinge of buffy below.

Length 10.1-10.5 inches; extent 14-15; wing 4.55-5; tail 4; bill .7; tarsus .9.



Mouse impaled on thorn by Northern shrike

Distribution. The Northern shrike breeds from northwestern Alaska and northern Ungava southward to southern Saskatchewan and southern Quebec; winters southward as far as central California, Texas and Virginia. In New York it is purely a winter visitant, appearing from the north from the 20th of October to the 15th of November, and disappearing in the spring from the 18th to the 30th of March, occasionally lingering as late as the 12th of April. It is not a common species in any portion of the State, but is distributed rather uniformly throughout the coun-

try districts and often enters the limits of towns and cities to feed on the English sparrows which are easier prey than it can find in the wildernesses. I have not noticed the Butcher bird as common as it formerly was in western New York, during the last 15 years. Sometimes a whole winter passes without my seeing a single specimen while traveling about the country, but if I spend a day traveling over the broad uplands and across

the swampy districts, I am usually sure to see one or more of these birds.

Haunts and habits. In habits this shrike is more daring and bloodthirsty than its southern cousin. I have frequently stood in the edge of a thicket and watched the Northern shrike pursue Tree sparrows and juncos relentlessly for half an hour at a time, through the densest portion of the tangle and among the trees, until the little birds were apparently stupefied or nearly paralyzed with fright, when he struck them down with a sudden blow on the back of the head, fell with them to the ground and then carried them away to impale on some thorn or barbed wire fence, where he devoured, perhaps, a small portion of his victim and flew away to seek some other encounter. I have often found whole chickadees, Tree sparrows and juncos impaled upon thorns without being touched by this bloodthirsty assassin. However, he kills an equal or even greater number of meadow mice, and in the fall and spring large numbers of grasshoppers, crickets and other injurious insects. Considering the fact that he so often feeds upon English sparrows and meadow mice, I have no doubt he might be considered among our beneficial species in spite of the few song birds which he destroys.

The notes of the shrike are loud and harsh, rather varied but disconnected, a series of squeaks and whistlings; but late in the spring he occasionally bursts forth into an unexpected song which has been compared to that of the Catbird and which I myself on one occasion took for the song of a Mockingbird, having seen the performer in the distance flying from tree to tree, his gray, black and white varied colors, together with his song, having suggested the famous southern songster to my mind. I have since heard that some have gone so far as to suggest that both the colors and the notes of the shrike are a mimicry of the Mockingbird, but considering the difference in distribution of the two species, it seems to my mind a purely fanciful suggestion.

The late Austin F. Park thus describes the hunting of the shrike: "March 2, 1879, near the Delaware and Hudson Railroad shops, on Green

Island, N. Y., I saw a Butcher bird sitting on a telegraph pole. Thence he flew about 40 rods high over the railroad shops, chasing a flock of about 5 English sparrows. He chased an individual about 100 feet high and about 40 rods off, where he seemed to catch it, then flew and lit on the topside prongs of the lightning rod which is about 140 feet high on the tall chimney at the railroad shops, some 40 or 50 rods from where I was. I started to go toward the lightning rod, but in about one minute saw the Butcher bird descend from that direction and chase an English sparrow through the air within about 6 rods of where I was. After rising about 20 or 30 feet above the sparrow and within some 50 feet of the latter, the Butcher bird would rush for the sparrow, and after two or three such quickly repeated unsuccessful passes, caught it in the air about 15 feet from the ground and about 8 rods from me. The sparrow squealed as soon as caught and they fluttered directly down to the ground together, when the Butcher bird gave the sparrow two or three rips with his bill at intervals of about 4 seconds, and then in about one-third of a minute flew off past me with the sparrow in his claws. I then looked at the lightning rod and saw something upon one of its top prongs, and upon going near and examining it with a telescope found it to be a bird, seemingly a sparrow newly killed and impaled head first upon one of the lightning rod prongs, with its legs sticking out and toes expanded as if the bird had been stuck alive upon the prong, which seemed to be about 4 or 5 inches long and about one-fourth of an inch thick. Probably the Butcher bird had caught the first sparrow high in the air and at once flew up to the top prongs of the lightning rod and thereon impaled it, and then immediately flew down and caught the second sparrow of the flock as described above."

Lanius ludovicianus migrans W. Palmer*Migrant Shrike*

Plate 90

Lanius ludovicianus migrans Palmer. Auk. July 1898. 15: 248
A. O. U. Check List. Ed. 3. 1910. p. 298.

No. 622e

migrans, Lat., migrating, migratory

Description. Similar to the Northern shrike in coloration, but a darker gray on the upper part; the *under parts plain grayish white*, without any cross bars; *smaller*. Those who wish to distinguish this species from the Loggerhead or the White-rumped shrike, may consult Palmer's description above referred to.

Length 9.2 inches; extent 12.5-13; wing 4; tail about 4; bill .55; tarsus 1.

Distribution. The Migrant shrike breeds in eastern America from northern Minnesota, Michigan, southern Quebec, Maine and New Brunswick, southward to eastern Kansas, southern Illinois and western Virginia; winters from the Middle States to Mississippi and Texas. In New York this species is found as a summer resident in nearly all portions of the State except the Atlantic district, and may possibly breed occasionally in the lower Hudson valley or even on Long Island, but definite records to this effect are not yet before us. It is a fairly common breeder in western and central New York, in the Black River valley, Mohawk valley, and around the outskirts of the Adirondacks. The history of this species in New York is rather interesting. DeKay and Giraud knew nothing of it. The fact that DeKay speaks of the Northern shrike as breeding in the interior of the State might indicate that he confused the Migrant shrike with its northern relative, but similar statements of his regarding Yellow-legs, Whistling swan and numerous other species, which were reported on hearsay evidence, were undoubtedly errors, and his remarks about the breeding of shrikes may also be in error. At any rate, this species has become more numerous in the interior of New York State since 1869 when it was reported by Allen in the American Naturalist, page 579,

as breeding near Buffalo; in 1860, Mellwraith in his "Birds of Ontario," page 346, reports that it was first seen at Hamilton in 1860, and after 1866 was a regular breeder in southern Ontario; it was noted by Coues from New England in 1868; by Purdy in 1873; and by Maynard in 1875; reported by Brewer as breeding in Maine in 1877, and in Vermont the same year. It is probable that the early records of Northern shrikes breeding in New



Migrant shrike on nest

Photo by James H. Miller

England and in New York are attributable to this species, and it is barely possible that the Migrant shrike was overlooked for many years on account of its comparative rarity; but it seems certain if it was as common a bird as it is at the present day in the interior of New York, it would have been reported earlier than 1869. From that date onward, records of the breeding of this species increase both in western, central and eastern New York,

and it may unquestionably be set down as one of those species of birds which have gradually increased in numbers since the clearing of the country, like the Prairie horned lark, having invaded the region principally from the Mississippi valley. The Migrant shrike arrives from the south from the 20th to the 30th of March, and usually disappears in the fall during the month of October, but a few evidently remain through the winter, as Dutcher has a Long Island specimen taken on the 21st of November. The author once saw a bird of this species on New Year's day in the town of Concord, Erie county. The bird alighted on a telegraph wire not more than 2 rods from the observer and was viewed in the best possible light, both the size and all the markings indicating this species beyond a doubt; but those are the only two winter records which are before me. On Long Island the Migrant shrike appears as a transient, usually during the last week in August, sometimes as late as the 30th of September, evidently those birds which breed in eastern New England and Maine migrating along the Atlantic coast. Except for a single record given by Fisher (N. O. C. Bul., 4:61) when a young bird was captured at Ossining, June 16, 1877, there seems to be no definite record of the breeding of this species in southeastern New York, and it is extremely rare both in the lower Hudson valley and in the vicinity of New York City except during the fall migration, as above stated.

Haunts and habits. This species prefers open fields with sparse growth of apple and thorn trees. It is usually seen seated on the top of a dead branch, on a telegraph wire or a fence post awaiting insects or small birds to make their appearance. Its flight, like that of the Northern shrike, is rather low and undulating, and when about to alight usually shoots upward some distance to choose an elevated stand. The nest is commonly placed in a dense apple tree or thorn bush from 5 to 15 feet from the ground, usually so low that the observer can look into it while standing on the ground. It is a bulky structure, composed of sticks, weed stalks, coarse grasses and a few leaves, lined with softer materials, bark, patches of hair, feathers and wool. The eggs are 5 to 7 in number,

of an elongated ovate shape, grayish or creamy white in ground color, rather thickly and uniformly spotted with brown and lavender. They average .98 by .78 inches in dimensions. In western New York I have found the first sets of this species laid as early as the 1st to the 15th of May and later sets are frequently found late in June or in July which seem to indicate that two broods may be reared in a season. I can not understand why this bird does not increase more rapidly in numbers, for it is abundantly able to protect its nest and, furthermore, the nest is usually very perfectly protected by the dense cover of the thorn bush in which it is situated. The young, in my experience, are almost always safely reared, 5 or 6 of the youngsters being frequently seen under the care of the old birds in the localities which they frequent; but in any locality which I have watched as the seasons go by, there seem to be no more breeding pairs than there were 20 years ago. It may be that the fearless disposition of this little warrior makes him an easy prey to such birds as the Cooper and Sharp-shinned hawks, but they seem such hardy birds that it is impossible to believe that unfavorable weather conditions can affect them seriously. Fortunately, this species being smaller than the Northern shrike, rarely destroys our smaller song birds, although it occasionally does so and frequently kills and impales meadow mice on the thorn bushes near its home; but large beetles and grasshoppers seem to be its favorite food. Consequently, it can be ranked as a beneficial species.

Family VIREONIDAE

Vireos

Wing of moderate length with 10 primaries, the first short or rudimentary; tail of moderate length; bill shorter than the head, rather stout, compressed, hooked and notched at the tip; nostril exposed but with an overhanging scale; rictus conspicuously bristled; tarsus equal in length to middle toe and claw scutellate in front, undivided on the side; middle toe joined for half the first joint to the inner and to the second joint of the outer; size small; plumage not conspicuously variegated, greenish on the upper part and frequently yellowish on the under parts; young without spots; sexes alike; diet insectivorous, hence the species are migratory.

The family consists of about 75 species, all confined to the Western Hemisphere. Evidently the group is of neotropical origin, but several species have invaded the nearctic region, migrating as far north as Canada.

Vireos are more sedate in habits than warblers, although like them they are characteristically birds of the forest and feeders among the foliage; but they do not flit so much among the branches, hanging more with their feet and peering about among the leaves and in the axils of the buds searching for caterpillars, plant lice, beetles and all species of insects found among the foliage. They must be reckoned among our most beneficial species. The family is more melodious than the Wood warblers, some of the species being our most persistent musicians throughout the summer, although they can not compete in voice with some of the thrushes, thrashers and finches. They all build pensile nests of delicate construction. The eggs are usually 4 in number, white, sparingly spotted with dark brown.

For detailed accounts of the food of vireos, see Bulletin 17 (Judd, Birds of a Maryland Farm), Biological Survey, United States Department of Agriculture; also Yearbook for 1906, pages 194-95.

Vireosylva olivacea (Linnaeus)

Red-eyed Vireo

Plate 91

- Muscicapa olivacea* Linnaeus. Syst. Nat. Ed. 12. 1766. 1:327
Vireo olivaceus DeKay. Zool. N. Y. 1844. pt 2, p. 124, figs. 79 and 75
Vireosylva olivacea A. O. U. Check List. Ed. 3. 1910. p. 298. No. 624
vireosylva, forest vireo; *olivacea*, olive-colored

Description. *Upper parts olive green; the crown ash, bordered on the sides by a blackish line, below this a whitish superciliary line, and below that a dusky line through the eye; under parts white slightly tinged with greenish yellow along the sides; iris red; legs leaden blue; bill dusky, paler below. Sexes alike.*

Length 6-6.25 inches; extent 9.75-10.75; wing 3-3.3; tail 2.35-2.5; bill .66; tarsus .75.

Range. This vireo breeds from British Columbia, southern Mackenzie, northern Ontario and Cape Breton, to Montana, eastern Colorado and Florida, and farther south along the Rocky mountains; winters in

northern South America. In New York it is uniformly distributed throughout the State, being the commonest species of the family. It is a summer resident, undoubtedly, of every county. Every grove and woodland in southern and western New York harbors this species, and I have found it breeding in the Adirondacks as high as the summit of the Bartlett ridge, the Geological cobble and Mt Colvin. It seems to be nearly as common in the North Woods as it is in the groves of western New York, but is not so generally distributed among the shade trees and orchards of the culti-



Red-eyed vireo ♀ incubating

vated districts as one would expect, in these localities being largely replaced by the Warbling vireo. The spring migration begins from April 28 to May 12. In the fall it disappears from October 4 to 25.

Haunts and habits. As already indicated, this species is arboreal in habit, and is usually found singing and feeding in the tree tops. It has frequently been called the "preacher bird" from his habit of keeping up his little refrain with almost singsong monotony throughout the day, almost throughout every day of the summer. The song consists of a short

bar of two to four notes warbled in rather full voice, then a short rest, and a similar strain repeated. One might imagine he said, as has already been written, "Here I am; look here; in the tree top; do you see me; way up here; in the tree top?" Or, "See me; up here; in the tree," over and over again.

In habits, this bird, like most of the family, is less nervous than the warblers. He flits less, but sits quietly in the tree, peering about beneath the leaves, and hops from twig to twig in search of smooth caterpillars, beetles and other insects.

The Red-eye's nest is suspended from a forked twig in a bush or the low limb of a tree, from 5 to 10 feet from the ground. It is basket-shaped, woven of grasses and strips of bark and pine needles, lined with finer strips and needles. The outside is ornamented with spiders' webs and nests, occasionally with bunches of other cottony substances. The eggs are usually 3 or 4 in number, elongated oval in shape, white in ground color, sparingly spotted with black, amber and reddish brown. They average .82 by .53 inches in dimensions. The Red-eye is very commonly parasitized by the Cowbird and usually succeeds in rearing its own young only on a second attempt made in midsummer.

Vireosylva philadelphica Cassin

Philadelphia Vireo

Plate 91

Vireosylva philadelphica Cassin. Proc. Acad. Nat. Sci. Phila. 1851.
5: 153, pl. 10, fig. 2

Vireosylva philadelphica A. O. U. Check List. Ed. 3. 1910. p. 209.
No. 626

philadelphica, in honor of Philadelphia

Description. Our smallest vireo. Colors similar to the Warbling vireo, but the *whitish superciliary line* and the *dusky line through the eye* more conspicuous, almost as in the Red-eyed vireo; under parts noticeably washed with sulphur yellow, the *breast decidedly yellow*, but the throat and the center of the abdomen nearly white. This species has no apparent spurious quill in front of the first primary.

Length 4.8-5.1 inches; extent 8-8.5; wing 2.66; tail 2.15; bill .44.

Distribution. The Philadelphia vireo breeds in eastern North America from Labrador, northern Manitoba, northern Ontario, New Brunswick and Maine to northern Michigan and northern New Hampshire; winters in Central America and Colombia. In New York this species is a migrant, in spring and fall fairly common about Rochester and in the lower Hudson valley. During May and September it undoubtedly occurs in all parts of the State, but is overlooked by the amateur observer. The spring dates before me range from May 7 to May 28; the fall dates from August 24 and September 12 to 26 (and October 20 at Ossining). Doctor Mearns noted this bird as a fairly common migrant in the Catskills, Hunter mountain, August 29, 1896; Reginald H. Howe at Chateaugay lake August 24 to September 7; and I have noted the same thing in Monroe and Ontario counties September 12 to 28. In the spring it seems to be less abundant as far as my observations go, but I expect to see it at least once or twice each season during the second and third weeks in May, wherever I happen to be observing birds in western New York. Mr Fuertes and Doctor Reed have found it migrating at Ithaca; Mr Davison at Lockport; Mr Miller at Mayville; Mr Embury in Madison county; Doctor Fisher at Lake George and Ossining; Mr Bruce at Brockport; Mr Worthington at Shelter island; Mr Cherrie in Kings county; Mr Dutcher at Fire Island Light and Shinnecock Light; Doctor Merriam at Fairhaven, Lake Ontario; Mr Ridgway at Far Rockaway; Mr Park at Troy and Cohoes; Doctor Mearns at Cold Spring. These records are all based on specimens taken. Mr Bruce states that it is an uncommon summer resident, but as he makes no mention of finding its nest in the region about Brockport, it is perfectly evident that he unwittingly put it down as a summer resident. Having taken it late in May, he supposed it to remain through the summer. During the summer of 1905 I made a careful search for this vireo throughout all the region about Mt Marcy, in the country about North river, and the western Adirondacks, with the assistance of several young men who were perfectly qualified to recognize the bird on sight, but we failed to locate it in this region. It is possible that it nests in the northern Adirondacks,

but it seems strange it has never been found there in summer by any of the bird students who have visited the region.

Vireosylva gilva gilva (Vieillot)

Warbling Vireo

Plate 91

Muscicapa gilva Vieillot. Ois. Amer. Sept. 1807 (1808). 1: 65, pl. 34

Vireo gilvus DeKay. Zool. N. Y. 1844. pt 2, p. 123, fig. 74

Vireosylva gilva gilva A. O. U. Check List. Ed. 3. 1910. p. 299. No. 627

gilva, Lat., yellowish (but it is the least yellowish of our native vireos)

Description. Decidedly smaller than the Red-eye; *upper parts olive green*, not so bright as in the Red-eyed vireo, more *mixed with gray*, especially toward the head, the crown being practically ashy in color but not sharply distinguished from the more olive green of the back, as in the Red-eyed vireo; *under parts white*, slightly *tinged with greenish yellow on the sides*; an indistinct white superciliary line and an obscure dusky one through the eye; no wing bars, and no decided markings of any kind; one of our most neutral tinted birds.

Length 5.5-6 inches; extent 9; wing 2.8; tail 2.25; bill .4; tarsus .65.

Distribution. The Warbling vireo breeds in eastern North America from southeastern Alberta, northern Manitoba, Ontario and Nova Scotia, to northern Texas, southern Louisiana and North Carolina; winters somewhere south of the United States. In New York the Warbling vireo is a common summer resident of the Carolinian and Transition areas, except in the northern and colder portions. It is not quite so generally distributed as the Red-eyed vireo, but undoubtedly breeds in every county of the State with the exception of the interior of the Catskill and Adirondack districts. Mr Batchelder informs me that he has found it nesting in the shade trees of Elizabethtown in Essex county, and Doctor Merriam also found it at Plattsburg and in Lewis county, and I have noticed it about the edges of the Adirondack forest, so that it may nest even in the southeastern corner of Hamilton county, but no records to this effect are before me.

Haunts and habits. In southern and western New York, this is one of our common birds of the orchard and shade trees. Almost every village, city and parkland boasts pairs of the Warbling vireo. Every few blocks it can be located by the song of the male as one journeys about the streets. As to the birds themselves, they are very rarely seen, even by the inhabitants in front of whose houses they build their nests. The song of this species is a rolling warble longer than the strain of the Red-eyed vireo and not so frequently repeated. It reminds one somewhat of the song of the Purple finch but is not so full and is delivered with less intensity and variety.

The nest of the Warbling vireo is suspended from the fork of an apple tree, maple or some other shade tree, at a height of from 15 to 40 feet from the ground. In structure it resembles slightly the nest of the Red-eye, but is smaller and more compactly put together and not ornamented on the exterior so uniformly with spiders' nests and other downy bunches. The eggs, deposited from May 23 to June 15, are usually 4 in number, white, less sparingly spotted than those of the Red-eye with specks of black, umber and reddish brown. They average .76 by .55 inches.

The spring arrival dates from April 30 to May 8, rarely as early as April 26, and it disappears in the autumn from September 10 to 22.

Lanivireo flavifrons (Vieillot)

Yellow-throated Vireo

Plate 91

Vireo flavifrons Vieillot. Ois. Amer. Sept. 1807 (1808). 1:85. pl. 54

DeKay. Zool. N. Y. 1844. pt 2, p. 120. fig. 77

Lanivireo flavifrons A. O. U. Check List. Ed. 3. 1910. p. 300. No. 623
flavifrons, Lat., yellow fronted

Description. *Upper parts olive green gradually giving way to gray on the scapulars, rump and tail coverts; wings and tail dusky; secondaries and outer tail feathers margined with white; 2 distinct white wing bars; throat and breast bright yellow; abdomen, under tail coverts white; line from the nostril to the eye and the eye ring, yellow; bill and feet dark leaden blue.*

Length 5.75-6 inches; extent 10; wing 3; tail 2.2; bill .55; tarsus .76.

Distribution. The Yellow-throated vireo inhabits eastern North America from southern Saskatchewan, Manitoba, southern Ontario and Maine southward to Texas, Louisiana and Florida, and winters from southern Mexico to Colombia. In New York this species is quite generally distributed as a summer resident throughout the Carolinian and Transition zones, but it is rather uncommon in the colder portions of the Transition zone and is scarcely found at all in the Catskill and Adirondack districts. During the migration period it is somewhat commoner in the southern part of the State than through the summer, arriving from April 27 to the 10th of May in the different counties, and departing in the fall from September 16 to 30.

Haunts and habits. Like the Warbling and Red-eyed vireos, this species is a bird of the tree tops, spending most of its time amid the denser foliage and frequently warbling in full contralto voice his short message translated by Chapman "See me? I am here. Where are you?" Occasionally, especially when the nest is disturbed, he utters a series of noisy, harsh notes and frequently, while singing, a buzzing note is introduced in the song. The nest is suspended from a forked branch 15 to 30 feet from the ground. It is composed of plant fibers, grasses, shreds of bark, and lined with bits of lichens and spiders' nests. The eggs are 3 or 4 in number, white, rather sparingly spotted with black, umber and reddish brown, and average about .80 by .60 inches. The first sets of fresh eggs are usually noticed from May 25 to June 6. Occasionally later nests are found even to the 10th of July. I found this vireo nesting in Central Park, New York City, and in the shade trees of Rochester, Medina, Canandaigua and Buffalo. It also nests in the forests at some distance from the abodes of man, but can not be considered as characteristically a forest species as the Solitary vireo or even the Red-eyed. In the more thickly populated portions of New York this vireo ranks next after the Red-eyed and Warbling vireos in abundance, but is not so generally distributed as the Red-eye. I have found that in some localities where it was common years ago it has practically disappeared and made its appear-

ance in other localities where it was formerly unknown. This shifting of its centers of abundance is difficult to explain, but I have noticed in certain small parks and about many groves and on certain streets where it has been carefully watched, this species has disappeared the next season after it was unsuccessful in rearing young, due to its having been parasitized by the Cowbird. Probably this cause and other unfavorable circumstances like the destruction of its brood by Screech owls or unfavorable weather conditions, left no descendants to repeople the accustomed grove. Wherever the Yellow-throated vireo is present, he can scarcely be overlooked, on account of his loud and characteristic song which will surely attract the attention of all nature lovers. His food habits entitle him to the strictest protection of the agriculturist.

Lanivireo solitarius solitarius (Wilson)

Blue-headed Vireo

Plate 91

Muscicapa solitaria Wilson. Amer. Orn. 1810. 2: 143, pl. 17, fig. 6

Vireo solitarius DeKay. Zool. N. Y. 1844. pt 2, p. 121, fig. 76

Lanivireo solitarius solitarius A. O. U. Check List. Ed. 3. 1910.
p. 300. No. 629

lanivireo, "shrike-vireo"; *solitarius*, Lat., solitary

Description. *Top and sides of the head bluish gray; upper parts otherwise olive green somewhat mixed with gray on the back; wings and tail dusky, slightly edged on the outer webs with greenish, the secondaries and outer tail feathers narrowly margined with white; 2 distinct white wing bars; throat and central portion of abdomen clear white; sides greenish yellow slightly overwashed with olive; line from nostril to eye and eye ring pure white; iris brown; bill and feet dark plumbeous.*

Length 5.25-5.75 inches; extent 8.5; wing 2.75-3; tail 2.3; bill .4; stout; tarsus .73.

Distribution. The Blue-headed vireo breeds in eastern North America, from southern Alberta, southern Mackenzie, southern Quebec and Cape Breton island southward to North Dakota, Michigan and the mountains of Pennsylvania. Winters from South Carolina to Texas and southward to Guatemala. In New York this species is a summer resident of the

Canadian zone and presumably of the colder portions of the Alleghanian area, but I have no evidence of its nesting in this area except the record of Bicknell and others in the Catskill district, and of Fuertes at Ithaca in 1893 and of Allen at Ithaca in 1913. My own experience throughout the hills, gullies and swamps of western New York is that this species is absent as a breeding species from the whole region, even where juncos, Hermit thrushes and Blackburnian warblers are fairly common breeders, and does not occur in any numbers until the Canadian zone is reached at the edge of the Adirondacks. I found it nesting in Essex county about the Ausable lakes and on the slopes of the Bartlett ridge up to an elevation of 2500 and 3000 feet. The nests were mostly attached to the small forks and horizontal limbs of beech and birch trees only a few feet from the ground and had young in the nest on the 30th of June to the 10th of July, of a size which would indicate that the fresh eggs would be found about the 10th of June. The eggs are 3 or 4 in number, white like those of all the other vireos, slightly spotted with black, amber and reddish brown thickest near the larger end. They average .80 by .53 inches in dimensions. In nearly all portions of the State this vireo is a fairly common transient visitant, arriving from the 20th to the 30th of April, sometimes as late as the 8th of May in the colder counties. Throughout the warmer districts it passes on to the northward from the 14th to the 24th of May. It returns again about the 8th to the 16th of September and leaves us for the south from the 10th to the 25th of October. On Long Island and in some other localities of southeastern New York this species is much less common as a migrant than it is in the western counties, but the dates agree very closely with those from central New York.

The song of the Solitary vireo to my ear is a more melodious performance than that of the Red-eyed and Yellow-throated species. Bicknell describes it as a "prolonged, interrupted warble followed by loud notes, matchless for tenderness and cadence." The song is rarely heard during the migration season, but in the nesting haunts it is frequently delivered in the morning and late in the afternoon.

Lanivireo solitarius plumbeus (Coues)*Plumbeous Vireo*

Vireo plumbeus Coues. Proc. Acad. Nat. Sci. Phila. 1866. 74

Lanivireo solitarius plumbeus A. O. U. Check List. Ed. 3. 1910. p. 300. No. 629b

Distinguishing characteristics. *Upper parts leaden gray*, the crown not sharply contrasted in color with the back; rump glossed with olive; line from base of bill to the eye and eye ring pure white; flanks with a mere trace of olivaceous; slightly larger than the Blue-headed vireo.

This subspecies inhabits the southern Rocky Mountain region from Nevada and northern Wyoming and southwestern South Dakota to southwestern Texas and Vera Cruz. It is purely accidental in the eastern states, a single individual — an adult female — having been collected at Peterboro, N. Y., September 24, 1893, by Gerrit S. Miller jr (see Auk, 11:79).

Vireo griseus griseus (Boddaert)*White-eyed Vireo*

Plate 91

Tanagra grisea Boddaert. Table Pl. Enl. 1783. 45

Vireo noveboracensis DeKay. Zool. N. Y. 1844. pt 2, p. 122, fig. 78

Vireo griseus griseus A. O. U. Check List. Ed. 3. 1910. p. 301. No. 631

vireo, Lat., "I am green," referring to the prevalent color of the upper parts; *griseus*, new Lat., gray

Description. *Upper parts olive green; under parts whitish; the sides, flanks and crissum yellow; line from nostril to the eye and eye ring yellow; wings have 2 whitish bars; iris white; bill and feet dusky leaden color.*

Length 5-5.3 inches; extent 8; wing 2.35-2.5; tail 2; bill .5; tarsus .75.

Distribution. The White-eyed vireo inhabits eastern United States from eastern Nebraska, southern Wisconsin, southern New York and Massachusetts, to Texas and Florida; winters from South Carolina and Texas southward to Guatemala. In New York this bird is practically confined to the Carolinian district, being a common or abundant summer resident on Staten Island, Long Island and in the lower Hudson valley, but is uncommon in central and western New York, very few unquestioned

records being before me, but its nest has been taken near Auburn, Buffalo, Lockport and Dunkirk. Doctor Heimstreet also records it as a summer resident at Troy; C. L. Avery at Herkimer; and W. J. Youngs in Delaware county. It is a very curious circumstance that David Bruce sets it down as an abundant summer resident at Brockport, N. Y. On several visits in that vicinity I have been unable to meet with a single specimen of the species, nor have I ever seen it in western New York except on one occasion in the vicinity of Rochester during 11 years of observation. Therefore, it seems to me that this bird is more southerly in distribution than the Orchard oriole, the Yellow-breasted chat or the Louisiana water-thrush in New York State.

Haunts and habits. The haunts of the White-eyed vireo are thickets and damp tangles. It remains near the ground. It seems more like one of the small flycatchers in habits than the other species of vireos. When its haunts are invaded, it shouts a curious questioning or protesting note as if he asked abruptly, "What do you want, you?" Also a scolding note and whining is suggestive of the Catbird. His song is described by Bicknell as brief and emphatic, at least two distinct changes, a voluble, confused outpouring of singularly involved and varied notes heard through the latter part of May and the month of June, rarely noticed in July and August, but the autumnal revival song occurs about the first of September.

The spring migration of this species begins from the 29th of April to the 12th of May in southeastern New York; in the fall it disappears between September 20 and October 10. Nests with eggs are found between May 24 and June 12, later nests sometimes being discovered until the middle of July. They are placed near the ground, suspended from the forked branch of laurel, briars or small bushes. The exterior is composed of light materials like bits of rotten wood, spiders' nests, bits of newspapers, bits of down from weeds, and almost any article found about. The framework of the structure is woven from grass blades and fine strips of bark. The eggs are 3 or 4 in number, white, sparingly spotted with black and reddish brown. They average .75 by .55 inches in dimensions. This is

the species called Politician by Wilson on account of its habit of ornamenting the exterior of the nest with bits of newspaper, but in the few nests which I have seen it was not evident that it ornamented the exterior of its nest to any greater extent than I have observed of the Red-eyed vireo.

Family *MINIOTILTIDAE**Wood Warblers*

Primaries 9, tail feathers 12; bill "conoid elongate"; rictus more or less bristled; tarsus scutellate; size small; plumage usually variegated and brightly colored, yellows, greens and blues often predominating.

As many have remarked, this family is difficult to characterize by positive description, the fact that they are unlike all the other 9 primaried song birds distinguishing them sufficiently. Within the family itself there is great variety both in the details of structure and in color and habits. Some of the birds are exclusively arboreal, feeding among the foliage of trees; others are scansorial, much like the creepers; others are terrestrial and have acquired a walking gait like the wagtails; others approach the flycatchers both in appearance and habits and in the bristling of the rictus and flattening of the beak. In nesting habits they vary as much as in their feeding. Some build a bulky nest upon the ground; others make felted nests of exquisite structure in the tree tops; others nest in the hollows of trees; while some even build pensile nests among the branches. The family is exclusively American, being evidently of neotropical origin, but has invaded the nearctic region in considerable numbers, ranking as the second largest family in the United States, and inhabiting the boreal region almost to the limit of trees. They are insectivorous in habit and consequently migratory birds. There is often a sexual differentiation in color, as well as in seasonal plumage, the young commonly resembling the female through the first season. About 150 species are recognized.

Mniotilta varia (Linnaeus)*Black and White Warbler*

Plate 92

Motacilla varia Linnaeus. Syst. Nat. Ed. 12. 1766. 1:333

Mniotilta varia DeKay. Zool. N. Y. 1844. pt 2, p. 52, fig. 89

A. O. U. Check List. Ed. 3. 1910. p. 304. No. 636

mniotilta, from Gr., meaning moss-plucking; *varia*, Lat., variegated

Description. *Striped with black and white*, the crown showing 2 broad black stripes, with a central and 2 lateral white stripes, but the whole appearance of the upper parts, breast and sides is of a conspicuously black and white striped bird; 2 diagonal white wing bars caused by the white tips of the coverts; ear region mostly black, likewise central portion of the upper tail coverts; outer tail feathers with conspicuous white patches on their inner webs; center of the breast and belly white. *Female:* Similar but *less sharply streaked*, with decidedly less black on the throat and sides of the head, and the whole plumage more or less *washed with brownish*. *Young males:* Similar to the adult, but with less black on the cheeks, throat and breast. *Young females:* Like the adult female.

Length 5.3 inches; extent 8.54; wing 2.73; tail 2.03; bill .37.

Distribution. This warbler inhabits eastern America from central Mackenzie, northern Ontario, Nova Scotia and Newfoundland, to northern Georgia, Louisiana and eastern Texas, and winters from Colima and Neuva Leon to Colombia, Ecuador and Venezuela, and occasionally in southern Florida, the Bahamas and the West Indies.

In New York it is generally distributed throughout the State, occurring as a common migrant in all the southern portions, and as a local or fairly common summer resident from Long Island, the southern Hudson valley and the lower portions of western New York, to the edges of the Catskills and Adirondacks. Within the cooler portions of the Alleghanian zone and throughout the Canadian zone of New York it is a common summer resident. In the district about Mt Marcy, I found this bird nesting on the Indian head, the Geological cobble, Bartlett ridge, Marcy trail by the old McIntyre lumber camp, Skylight camp, Colden trail, Elk Lake road, and at the timber line on both Skylight mountain and Mt Marcy.

Several nests and broods of young were found in all these localities. Thus it will be seen that although this warbler breeds almost throughout the State, it belongs more characteristically to the Canadian fauna; and in western New York, during 25 years of field experience, I have found only a few breeding pairs in Erie, Monroe, Ontario, Genesee and Wayne counties except about the margins of the larger swamps and along the ravines of the lake region and the northern slopes of the higher hills. Nevertheless, in eastern New York it is reckoned a common summer resident by the observers on Long Island, especially in Suffolk county, and a common summer resident by Chapman near New York, and by Fisher in the lower Hudson valley.

Migration. This is one of our earlier warblers, arriving in southeastern New York from the 18th to the 30th of April, and in western New York from the 24th to the 30th of April, some years being recorded not earlier than May 3. In northern New York the dates of arrival range from April 30 to May 8. It is one of the common warblers in migration, both in the eastern part of the State and throughout western New York, often as many as 20 or 30 individuals of the species being seen about the shade trees of our village streets and parks in a single morning. In August and September the numbers of this species are considerably augmented by migrants from the north and the last individuals are seen between the 1st and the 14th of October, stragglers sometimes appearing as late as the 24th of the month.

Habits. The Black and white warbler, or Black and white creeper as it is frequently called, is one of the most restless members of this restless family. He is incessantly hopping about on the trunks and larger branches of the trees or clinging for a moment to the twigs and branches in search of plant lice and small insects and flitting to another tree and continuing his search. In creeping over the trunks of trees he resembles somewhat the Nuthatch in habits, but his progression is more jerky and at each hop or hitch he almost invariably faces in a different direction, whereas the Nuthatch keeps calmly ahead without looking first one way

and then the other. This species is more confined to the trunks and larger branches than any of the other creeping warblers, such as the Yellow-throated warbler or the Pine warbler.

The preferred haunts of the species are open woodlands of deciduous trees or mixed growth, with abundance of brushy vegetation, or the tangles of brush and vines on the edges of ravines or slashings where only a few trees have been left. Here its nest is usually found on or near the ground, concealed under the edge of a mossy log or stone or among roots of a stump or at the foot of a sapling. It is a rather bulky structure composed of leaves, grasses and strips of bark, lined with fine rootlets, a few grass blades and long hair. The eggs are 4 or 5 in number, of a rounded oval shape and rather bluntly pointed, of a grimy or milky white ground color rather heavily and profusely spotted with reddish brown, chestnut, hazel and lilac, as usual in the family, tending to form a wreath near the larger end of the egg. The dimensions average .66 by .53. In southeastern New York the eggs are laid from the 10th to the 20th and 30th of May; in western New York the first are commonly found between the 20th of May and the 12th of June. Birds were found near Mt Marcy feeding their young on the 1st of July, which would seem to give June 5th or 10th as the proper date for that year in the Adirondacks.

Mr Gerald Thayer writes the song "*ssee-wwee, ssee-wwee, ssee-wwee, ssee-wwee*" with a slight emphasis on the second note of each couplet. Doctor Mearns has heard it sing a little ditty almost exactly like the Redstart's during the full tide of migration. In any case, the song of the Black and white warbler is described as a feeble refrain, thin and wiry in quality. Many people can not hear the song at a distance of more than 3 or 4 rods. The common call note of the bird is written by Allison as "*dzt, dzt, dzt*" and often it is repeated several times in rapid succession. This is the note commonest heard during the migrations. About the nest a sharp "pit" or chip of alarm is usually heard.

Protonotaria citrea (Boddaert)*Prothonotary Warbler*

Plate 62

Motacilla citrea Boddaert. Table Pl. Enl. 1783. 44

Protonotaria citrea A. O. U. Check List. Ed. 3. 1910. p. 305. No. 637

protonotaria, a mongrel name from *πρωτος*, first, and *notarius*, a notary, the application of the name also fanciful; *citrea*, pertaining to citron, yellow

Description. Bill slim and pointed; *whole head, breast and most of the under parts orange-yellow*; wings, tail and rump gray; the concealed portion of the wing feathers black; the inner webs of the tail feathers mostly white except the tip which is blackish; belly and under tail coverts white; back, scapulars and a portion of the lesser wing coverts yellowish green; bill black. *Female:* Slightly duller than the male. *Young:* Similar to female. Adult male in the fall has the back of the head washed with dusky.

Length 5 inches; wing 2.85; tail 1.88; bill .56.

Distribution. This species is confined to the warmer portions of the eastern United States, breeding from eastern Nebraska, southeastern Minnesota, southern Michigan, Ohio and central Delaware south to northern Florida and eastern Texas. Winters from Nicaragua to Venezuela, crossing the Gulf of Mexico in migration. Wanders northward, especially during the spring migration, as far as Ontario, New England and New Brunswick.

There are several records for New York State: A specimen taken at Jamaica, Long Island, in May 1849; one at Montauk Point, August 26, 1886; and Montauk, April 1888 (Dutcher, *Auk*, 10:276); another at Yonkers, June 2, 1895 (Bicknell, *Auk*, 12:307); two seen near Binghamton, May 9, 1905, reported by Lilian Hyde; one seen in Central Park, New York City, May 4 and 5, 1908, recorded in the *Auk*, 25:320, by Anne A. Crolius and a specimen observed at Ithaca (male), May 31, 1910. This last bird was singing and carrying building materials but its mate was not observed (Allen, *Auk*, 28:115). Thus it is evident that this bird is only an accidental visitant to New York, and possibly has never bred within our limits, but it reaches us occasionally during migration and should be put in the catalog of rare or accidental visitants.

Haunts and habits. The haunts of the Prothonotary warbler are in the swampy forests of the Mississippi valley and kindred localities. The bird observed at Ithaca was in the partly flooded swampland at the head of Cayuga lake. It builds its nest in hollow trees and deserted woodpecker or chickadee holes, usually not far above the stagnant water of the swamp. In activity and restlessness it has few equals. Its food is usually sought low down among the thickets, logs and debris which has been deposited in the swamp during the floods of spring. Its flight is similar to that of the water thrush "remarkably swift, firm and decided." Its note resembles somewhat the call of the Solitary sandpiper, the commonest syllables being a simple "*peet, tweet, tweet, tweet.*" A common *tschip* of recognition occurs when the birds meet each other among the foliage. The song is of startling intensity when compared with the notes of most of our common warblers. The alarm or distress note is similar to that of the Louisiana water thrush. (See Brewster, N. O. C. Bul. 3:153.)

Helmitheros vermivorus (Gmelin)

Worm-eating Warbler

Plate 92

Motacilla vermivora Gmelin. Syst. Nat. 1789. 1:951

Vermivora pennsylvanica DeKay. Zool. N. Y. 1844. pt 2, p. 82, fig. 124

Helmitheros vermivorus A. O. U. Check List. Ed. 3. 1910. p. 306.
No. 639

helmithérus, Gr., worm-hunter; *vermivorus*, Lat., worm-eating

Description. Sexes alike; *crown conspicuously streaked* with black and light buff or olive buff. These streaks are, 3 buffy, 1 median and the other 2 just above the eyes; the black streaks are 4, 2 on the sides of the crown and 2 through the eyes. *Upper parts olive green; under parts creamy buff; white around the throat; no white wing bars or tail spots.*

Length 5.5 inches; extent 8.75; wing 2.78; tail 2.05; bill .39; tarsus .7.

Distribution. This warbler inhabits eastern North America from northern Illinois, western Pennsylvania, and the lower Hudson and Connecticut valleys, south to Missouri, Tennessee, Virginia and the mountains of South Carolina, wintering from Chiapas to Panama, and sometimes in

Florida, the Bahamas and West Indies. In New York, as is shown by the distribution map on page 25, volume 1, this species is almost entirely confined to the lower Hudson valley where it is common in a few localities near New York, in northern Westchester county, nesting also at Nyack and Catskill, and a few stations on Long Island (Bellport, Miller's Place) where it has been reported as rare. It has occurred in a few localities of western New York, especially near Oneonta, May 9 to August 1900; Ithaca, May 6, 1909; Binghamton, May 14, 1905; Elmira; Corning; Branchport; Penn Yan; Rochester; Herkimer; and Lockport; but although it was seen by Mr Stone carrying building material near Branchport, no nest of the species, as far as I know, has ever been found in western or central New York. It is, therefore, strictly confined to the Carolinian faunal area of the State except during migration when a few individuals overreach their normal range but fail to establish themselves as breeding species. The migration dates for southeastern New York show that it arrives from the 3d to the 16th of May, and in the fall it disappears usually between the 1st and the 16th of September, although specimens have been taken as late as September 21, and in some localities it has not been noted later than the 15th to the 23d of August.

Habits. The Worm-eating warbler seems to prefer dense undergrowth in swampy thickets and wet places grown up to huckleberries; wooded hillsides and ravines; and dense undergrowth of woodland. It spends the greater portion of its time on the ground, walking instead of hopping, with slow and deliberate motions, among the dry leaves, with its tail tilted rather high, often rustling among the dead leaves and occasionally creeping up the trunks or inclined logs and on the larger branches of trees to the height of 10 to 20 feet, but it is preeminently a ground warbler. It is very shy and difficult to capture. Mr Brewster remarks that the slightest sound would frighten the bird to a different part of the wood. Nearly all observers agree in comparing the song of this species to that of the Chipping sparrow, Mr Thayer remarking, however, that it is shorter, weaker and distinctly more insectlike in tone. The call note is a sharp

"*dzt*," similar to that of the Black and white warbler, uttered at all times and seasons (Allison). The alarm note is a quickly repeated chip.

The nesting site is on the ground, usually on the steep side of a ravine or near the edge of a swamp or stream at the foot of a bush or by the side of a mossy log or at the edge of a stone amid the ferns, berry bushes or Solomon's seal. The nest is composed of leaves, grasses, strips of bark, rootlets, usually lined with fine grass and hair or with the stems of maple seed or the stalks of hair moss. The eggs are 5 in number, white in ground color more or less profusely marked with spots of brown, reddish and lilac tending to form wreaths near the larger end, but in many cases rather evenly distributed. They are rounded oval in shape but usually more pointed than those of the Black and white warbler. The average size is .69 by .53 inches. The nesting dates for southeastern New York are from May 20 to June 5 and June 17.

Vermivora pinus (Linnaeus)

Blue-winged Warbler

Plate 93

Certhia pinus Linnaeus. Syst. Nat. Ed. 12. 1766. 1:187

Vermivora solitaria DeKay. Zool. N. Y. 1844. pt 2, p. 83, fig. 125

Vermivora pinus A. O. U. Check List. Ed. 3. 1910. p. 306. No. 641

vermivora, worm-eating; *pinus*, a pine tree

Description. *Upper parts mostly olive green; the forehead, crown and under parts yellow; wings and tail bluish gray, the wings with two conspicuous white bars, and 3 outer tail feathers with white spots on their inner webs; a black line from the base of the bill through the eye. Female and young: Very similar to the adult male, but the crown and under parts not so bright yellow and the eye streak dusky instead of black.*

Length 4.85 inches; extent 7.3; bill .45; wing 2.45; tail 1.9; tarsus .67.

Distribution. Breeds in eastern North America from southeastern Minnesota, southern Michigan, Connecticut and Massachusetts southward to Missouri, Kentucky and Delaware; winters from southern Mexico to Colombia. In New York it is a common summer resident in the coastal district, especially in western and northern Long Island and the lower

Hudson valley, arriving from the south from the 1st to the 12th of May, average date May 5; and departing for the south from the 1st to the 8th of September. It is uncommon or local on southern and eastern Long Island and in the central Hudson valley and the valley of the Delaware. Davison's record for Niagara county evidently establishes a western New York breeding date; but although the species has been observed and specimens taken at Penn Yan, Buffalo, Ballston Spa, Canandaigua and Rochester, it is certainly rare as a migrant and extremely rare as a breeding species in central and western New York, like the Worm-eating warbler being practically confined to the typical Carolinian fauna (see map, page 25, volume 1).

Haunts and habits. The Blue-winged warbler frequents swampy thickets and wooded valleys but is sometimes found among the scrubby second growth of the hillsides and the undergrowth of the dense woods. It is deliberate in its movements as compared to the other warblers, acting more like a vireo than a member of this family.

The song is insignificant, a wheezy performance of notes resembling the syllables "*swee-e-e-e-e, chee-chee-chee-chee,*" the first inhaled and the second exhaled. Another song described by Jones is more varied, rendered by Mr Chapman as "*wēē, chī-chī-chī-chī-, chūr, chee-chūr.*" Another song mentioned by Burns suggests the Chickadee's "*che-de-de-e, che-de-de-e.*"

The nesting site of this warbler is on the ground in a bunch of herbs or at the foot of a small bush. The nest is surrounded by the grass, weeds, ferns or vines which screen it effectively from view. The eggs are 4 to 6 in number, usually 5, white or creamy white in ground color with specks and spots of dark umber, brown, lavender and purple, the amount of spotting varying considerably, but usually forming a wreath near the larger end of the egg. Size averages .64 by .51 inches. The earliest nesting date in my records is May 15, from Long Island, the usual dates for New York ranging from May 23 to June 16.

Vermivora chrysoptera (Linnaeus)*Golden-winged Warbler*

Plate 93

Motacilla chrysoptera Linnaeus. Syst. Nat. Ed. 12. 1766. 1:333

Vermivora chrysoptera DeKay. Zool. N. Y. 1844. pt 2, p. 84, fig. 118

A. O. U. Check List. Ed. 3. 1910. p. 307. No.

642

chrysoptera, Gr., meaning golden-winged

Description. *Upper parts mostly gray or dull bluish gray; the crown and conspicuous wing bars yellow, the bars forming almost a solid patch, a line running from the bill through the eye and spreading to a broad patch on the cheek, and the throat jet black; line over the eye and a broad line separating the black cheek patch from the black throat, pure white; breast and belly white; outer tail feathers with white spots in their inner webs. Female:* Similar to the male but the yellow crown and wing patch less brilliant, the black cheek and throat patches replaced by dusky gray. *Young:* Similar to the adults but duller.

Length 5.1 inches; extent 8.1; bill .45; wing 2.46; tail 1.94; tarsus .7.

Distribution. Breeds in eastern North America from central Minnesota, southern Ontario and Massachusetts to Iowa, northern Illinois, northern New Jersey, and in the mountains to northern Georgia. Winters from southern Mexico to Guatemala and Colombia. In New York it is a rare summer resident on Long Island and in Westchester county, but is a fairly common summer resident locally in the highlands and in various localities in the Hudson valley, central and western New York, especially near Highland Falls (Mearns), Greenbush, Rensselaer county (Heimstreet), Medina and Maplewood (Short), Howland Island (F. S. Wright), Irondequoit, Monroe county, and West River, Yates county (Eaton), Corning (Hollister), Kenwood, near Albany (Richard), Potter swamp, Yates county (Burtch and Stone). During the migration season it is occasionally observed at various stations in the Hudson valley and throughout central and western New York except in the highlands above 1200 feet. At this season it is also more common on Long Island and in the vicinity of New York City, the arrival dates ranging from May 10 to 17, and the date of departure from the 15th to the 29th of August.

Like the Blue-winged warbler, this species is an inhabitant of swampy thickets and the second growth of damp bushy fields, but as far as my experience goes is not so likely to be found in densely forested regions but in open forests with dense growth of shrubbery and always in low lying situations. Its song is a "lazy *zee-zee-zee*." It has also an insect-like call note, and a sharp *chip* alarm note like that of the Chipping sparrow. Jacobs says that the song, when heard near at hand, sounds like the syllables "*zee-ŷ-ee'*, *zee-ŷ-ee'*, *zee-ŷ-ee'*, *zee-ŷ-zwee'*." The nesting site is thus described by Mr Stone from numerous examples discovered by himself and Mr Burch in Potter swamp:

"Until 1905 the Golden-winged warbler had not been observed here, but as extensive clearings had been made in Potter swamp (Yates county) an ideal nesting area for warblers was created. Mourning and Canadian warblers became more numerous and in 1906-7-8 the Golden-winged warbler was not an uncommon breeder.

"Since 1908 the clearings have rapidly grown up with dense bushes and tangled vines, the old logging roads have become obliterated, while the Golden-wings have nearly forsaken the place, which is now (1912) converted into a typical nesting haunt for such as the Chestnut-sided warbler and Alder flycatcher.

"The illustration is a typical nesting of this interesting warbler, the nests being placed upon the ground, well concealed at the base of and in a bunch of weeds or ferns within the shadow of heavy timber, so that



Photo by Verdi Burch
Golden-winged warbler's nest and eggs

it is rarely seen until the weeds are parted and the searcher looks directly down upon the nest.

"It is evident that this warbler begins nest construction about May 20 as fresh sets are found as early as June 2. The nests are neatly made of thin, flat, broad blades of swamp grass and strips of weed bark, lined with fine, round stemlike grasses, giving the interior a reddish appearance. Nests measure close to $3\frac{1}{2}$ inches high, 4 inches in diameter outside and 2 inches deep by $2\frac{1}{4}$ diameter inside.

"Eggs 4 or 5, rarely 6, noticeably rounded in shape, with no gloss and variously speckled or spotted mostly with vinaceous-cinnamon."

Vermivora lawrenci (Herrick)

Lawrence Warbler

Plate 93

Distinguishing characteristics. Like the Blue-winged warbler except the *throat and checks* which have the *black patches* of the Golden-winged warbler. There are different degrees of intergrading in the coloration of this form between the Blue-winged and the Golden-winged warblers, but the typical Lawrence warbler is practically as stated above. Some resemble the Golden-winged warbler more, but all show a greater or less amount of yellowish green above and yellow below, with black cheek and throat patches in the male or dusky gray in the female, as in the Golden-winged warbler.

The Lawrence warbler was described as a distinct species and was held for many years in the hypothetical list of the A. O. U., but has now been dropped, the consensus of opinion being that it is a hybrid between the species *p i n u s* and *c h r y s o p t e r a*. This conclusion is strengthened by the fact that nearly all the specimens of this bird which have been procured were taken in the strip of country which represents the overlapping of the Blue-winged and Golden-winged warblers' breeding ranges. Most of these specimens come from central and southern Connecticut and extreme southeastern New York or northern New Jersey. New York specimens have been recorded from Highland Falls, July 7, 1870, a female collected by Colonel Mearns (Brewster, N. O. C. Bul., 6: 220); an adult male from Rye, Westchester county, August 31, 1888, reported by C. J. Voorhees (Auk, 5:427); a male from Cold Spring Harbor, Long Island, May 8, 1902, reported by Doctor Braislin (Auk, 20:53); a male mated with a female Blue-winged warbler was observed by William C. Beebe breeding in Bronx Park, May 15, 1903; on June 16 the

young left the nest successfully (Auk, 21:387); on May 18, 1904, he or one of his descendants returned to the park (Bildersee, Bird Lore 6:131; Hix, Wilson Bul., 51, 41). A male was taken at Richmond, Staten Island, May 11, 1907 (Chapin, Auk, 24:343).

Vermivora leucobronchialis (Brewster)

Brewster Warbler

Plate 93

Distinguishing characteristics. Like the Golden-winged warbler but *lacking the black patches on the cheek and throat*, having the black eye streak of the Blue-winged warbler and sometimes showing more or less traces of *yellow on the breast* and under parts, and traces of yellowish green on the back, but retaining the *yellow crown and yellow wing bars* of *chrysoptera*.

This interesting warbler is now regarded like the Lawrence warbler as a hybrid between the Blue-winged and Golden-winged warblers. It is much more common in collections than the Lawrence warbler, numerous examples having been taken in Connecticut and southeastern New York, as well as in northern New Jersey, and even eastern Massachusetts. Doctor Fisher collected 6 specimens near Ossining, N. Y. (N. O. C. Bul. 4:234; 2:378; and 6:219; Auk, 2:378). Mr Howell took a specimen at Parkville, Long Island (Auk, 9:306), and another was taken at Nyack (Brewster, N. O. C. Bul. 6:219; Ricker, Auk, 2:378). The earliest specimen in New York is evidently a male collected by Bell at Rockland in the spring of 1832 (Trotter, N. O. C. Bul. 44:459; Auk, 2:361). There seems little doubt that this warbler is a hybrid like the Lawrence warbler, but unfortunately it has not been absolutely determined upon sufficient observation of birds reared by parents of these two species, an observation which could easily be performed if mated birds of these species were carefully watched and, instead of collecting the nests and eggs, the young birds were studied in the nest, for their early plumages show the characteristic pattern of the adults.¹

¹ Since the foregoing paragraph was written Doctor Faxon has proved satisfactorily that this warbler is a hybrid of the Golden-winged and Blue-winged warblers (See Mus. Comp. Zool. Mem. 40; 31 and 16).

Vermivora rubricapilla rubricapilla (Wilson)*Nashville Warbler*

Plate 93

Sylvia rubricapilla Wilson. Amer. Orn. 1812. 6:15*Vermivora rubricapilla* DeKay. Zool. N. Y. 1844. pt 2, p. 86, fig. 104*Vermivora rubricapilla rubricapilla* A. O. U. Check List. Ed. 3.
1910. p. 307. No. 645*vermivora*, Lat., worm-eating; *rubricapilla*, reddish-haired or reddish-crowned

Description. *Head and back of the neck gray; a chestnut patch on the crown, sometimes tinged with gray; eye ring white; back, wings and tail (their visible portions) olive green; breast and most of under parts yellow; lower belly whitish. Female:* Very similar to male but paler and the chestnut crown patch smaller or wanting. *Fall specimens* are browner or grayer than in the spring.

Length 4.5-4.8 inches; extent 7.5; wing 2.33-2.50; tail 1.75-2; bill .36.

Distribution. Breeds from southern Saskatchewan, central Quebec and Cape Breton southward to Nebraska, northern Illinois, northern New Jersey and Connecticut; winters from southern Texas and Vera Cruz to Guatemala. In New York this species is a common transient in nearly all portions of the State, arriving in the spring from the 1st to the 12th of May, usually by the 4th in the southern counties, and rarely as early as the 28th of April. The greater number pass farther northward between the 20th and 30th of the month. In the fall they return from the nesting grounds from the 11th to the 30th of August and depart for the south from the 5th to the 15th of October. In the northern portions of the State it is locally a common summer resident, and locally in the eastern counties which lie in the Alleghanian area — Highland Falls, Black Dome, Cohoes. Throughout central and western New York it is extremely rare as a summer resident, as far as my experience goes. I never met with a breeding pair in any of the western counties of the State, although other collectors have secured a few nests containing eggs; Chili, E. H. Short; Onondaga county, C. H. Wilder; and South Hill, Tompkins county, May 27, 1905, and June 6, 1906 (Reed and Wright, Vertebrates of the Cayuga Lake Basin, Am. Phil. Soc. Proc. 48:444).

Haunts and habits. In the breeding season it seems to prefer a second growth of birch and poplar or other deciduous saplings in young or open woodland. Of its song, Gerald Thayer writes: "It has two main perch songs and a flight song, all subject to a good deal of variation. It belongs decidedly among the full-voiced warblers. Its commoner perch song consists of a string of 6 or 8 or more lively, rapid notes, suddenly congested into a pleasant, rolling twitter lower in key than the first part of the song and half as long. In the other perch song, the notes of what correspond to the rolling twitter are richer and the second part of the song is longer and more noticeable than the first, whose notes are few and slower, while the whole is more languidly delivered. The flight song, a fairly common performance in late summer, is sung from the height of 5 to 40 feet above the low treetops. It is like the commoner perch song but more hurried and slightly elaborated, often with a few chipperings added at both ends. Among the Nashville's calls, a very small, dry "*chip*," and a more metallic, louder chip, somewhat Water thrushlike, are noteworthy."

During the migration season the Nashville is one of our generally distributed species, frequenting the blossoming orchards and the deciduous shade trees of our lawns and village streets. Even in migration time it seems to show a decided preference for rows of white birches or the scattered birch trees on village lawns, every tree during the season exhibiting each morning from 1 to 5 or 6 of these warblers among its budding leaves. Sometimes during the second week of May the orchards are fairly alive with this species, 50 or 60 often being counted in an hour's excursion. It is a very restless species, continually peering about among the blossoms and foliage and flying from bough to bough or from tree to tree.

The nest is placed upon the ground, usually at the foot of a bush or on a grassy bank in the open woodland. The eggs are white or creamy white in ground color, spotted and speckled with reddish brown and lilac of different shades, usually forming a distinct wreath, and the average dimensions are .64 by .46 inches. Mr C. F. Stone describes the only nest he has ever seen in Yates county as follows: "On May 26, 1912, W. A.

Tuttle conducted me to a nest of the Nashville warbler which was hidden by a tuft of dead grass among a growth of sumacs along the edge of a sloping field near a hemlock wooded gully. The surroundings were quite open. The nest is very flimsy, fragile and shallow-cupped, made of thin dead grasses and bits of moss, lined with a few reddish tendrils and hair. It contained 5 eggs."

Vermivora celata celata (Say)

Orange-crowned Warbler

Plate 63

Sylvia celatus Say. In Long's Exped. 1823. 1:169 (note)

Vermivora celata DeKay. Zool. N. Y. 1844. pt 2, p. 87

Vermivora celata celata A. O. U. Check List. Ed. 3. 1910. p. 308.
No. 646

celata, Lat., concealed, referring to the more or less hidden crown patch

Description. Upper parts *olive green*, more or less washed with grayish except on the rump which is brightest; a crown patch of orange brown more or less concealed by gray and olive green; eye ring and a narrow line over the eye dull yellowish; the outer tail feathers frequently have the inner edge of the inner web margined with whitish; *under parts dull greenish yellow obscurely streaked with dusky*.

Distribution. Breeds from Alaska to central Keewatin, and Manitoba, and in the Rocky mountains locally to New Mexico; winters in the South Atlantic and Gulf States and Mexico. In New York this species is only a transient visitant, rare in eastern New York in the spring but more often observed in the fall. In western New York, however, it is a regular migrant, though in small numbers, in the spring, arriving from the 12th to the 17th of May, and disappears from the 18th to the 21st. Mr E. S. Woodruff took one at Paul Smith's in the Adirondacks, May 17, 1908. In the fall, migration takes place between the 25th of September and the 12th of October. It is decidedly less common than the Tennessee warbler both in the spring and fall as would be expected from the remoteness of its breeding range to the northwestward.

During migration it is found in the orchards, shade trees and groves in situations similar to those frequented by the Nashville and Tennessee

warblers. Its call note is a sharp *chip*. Its song is described by Seton as much like that of the Chipping sparrow. Jones describes it as not very high pitched but full and strong, ending abruptly on a rising scale like the syllables "*chee-chee-chee, chw'-chw'.*"

Vermivora peregrina (Wilson)

Tennessee Warbler

Plate 93

Sylvia peregrina Wilson. Amer. Orn. 1811. 3:83. pl. 25, fig. 2

Vermivora peregrina DeKay. Zool. N. Y. 1844. pt 2, p. 85, fig. 105

A. O. U. Check List. Ed. 3. 1910. p. 309. No. 647

peregrina, Lat., wandering, alien

Description. *Upper parts bright olive green; the crown and nape grayish blue; a whitish line over the eye and usually a dusky line through it; inner webs of the 2 outer tail feathers with a margin of white; under parts dull white, the breast often tinged with buffy yellowish; sides greenish. Female:* Similar to the male, but the crown washed with the color of the back and the under parts more yellowish. *Female and young in the fall:* Entirely bright olive green above. *Adult male in the fall:* Less distinctly bluish gray on the head and neck and under parts more tinged with yellowish.

Length 4.50-4.80 inches; extent 7.50-8; wing 2.7; tail 1.8; bill .4.

Distribution. Breeds from southern Mackenzie, central Keewatin, southern Ungava and Anticosti to southern British Columbia, Manitoba, northern Minnesota, Ontario, northern Maine and New Hampshire; winters from Oaxaca to Colombia and Venezuela. In New York this species is a fairly common transient in the fall, even in the eastern portion of the State, but a rare migrant in the spring in southeastern New York, though not especially uncommon in the western portions of the State, arriving in the spring from the 10th to the 18th of May, passing northward from the 22d to the 27th, and appearing in the fall from the 15th to the 31st of August, departing southward from September 25 to October 8. The latest edition of the A. O. U. Check List records it as breeding in the Adirondacks, as does also Ridgway's "Birds of North and Middle America," evidently on the authority of Doctor Merriam's list of Adirondack birds

found in N. O. C. Bul. 6:227; but the full text of Doctor Merriam's notes, which was not published in the Bulletin, does not indicate that the nest of the Tennessee warbler was found in Lewis county, or that it was even seen there later than May 29, which may well be merely a migration date. The only other testimony we have which would indicate its breeding in New York State is the statement in Roosevelt and Minot's "List of the Summer Birds of Franklin county," where it is included doubtfully as a breeder. Mr E. H. Short writes that a nest, evidently of this species, was found by Mr Robbins at North Cohocton. Thus it is clear that we are lacking sufficient evidence to include it as a summer resident of the State. It seems probable, however, that it may be found breeding in the North Woods as it has been noted both in Maine, New Hampshire and, on July 15, 1888, by Faxon on Greylock mountain, Massachusetts. The Tennessee warbler is one of those species which breed most abundantly in the interior of the boreal zone, and like the Connecticut and Orange-crowned warblers, which it resembles in this respect, is much more common in New York during the fall migration, although, as stated before, it occurs regularly in western New York during the spring.

Haunts and habits. Like the Nashville, it nests upon the ground, but according to the testimony of Brewster and others it is found during the nesting season in thick growths of black spruce, balsam, mountain ash and other trees of that association. During the migration it is found more among the deciduous trees, as is the Nashville warbler. Its song, as described by Farwell in Chapman's "Warblers of North America," is "very loud, beginning with a sawing, two-noted trill, rather harsh and very staccato, but hesitating in character increasing to a rapid trill almost exactly like a Chipping sparrow, a noticeable but not musical song."

Compsothlypis americana americana (Linnaeus)*Parula Warbler*

Plate 94

Parus americanus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:100
Compsothlypis americana americana A. O. U. Check List. Ed. 3.
 1910. p. 309. No. 648
compsóthlypis, Gr., *zozúōz*, exquisite, and *θλoπi*, an unknown bird

Distinguishing characteristics. Duller than the Northern parula, the dusky chest band indistinct or wanting; no conspicuous chestnut or reddish on the breast; bill longer; size smaller.

Wing ♂ 2.3, ♀ 2.18 inches; tail ♂ 1.68, ♀ 1.56; bill .44.

According to the A. O. U. Check List, this subspecies ranges from the District of Columbia south to Alabama and Florida, wintering probably in Florida and the West Indies. The subspecies grades almost imperceptibly into the subspecies *usneae*, but Ridgway, in his "Birds of North and Middle America," part 2, page 482, states that numerous specimens of the Parula warbler from Ossining and Shelter Island must be assigned to the southern subspecies. It may, therefore, be considered an inhabitant of New York State in the coastal district, but can be distinguished from the common northern form only by careful measurement and comparison with museum specimens.

Compsothlypis americana usneae Brewster*Northern Parula Warbler*

Compsothlypis americana usneae Brewster. Auk. Jan. 1896. 13:44
Sylvicola americana De Kay. Zool. N. Y. pt 2, p. 97, fig. 108
Compsothlypis americana usneae A. O. U. Check List. Ed. 3. 1910.
 p. 309. No. 648a

americana, American

Description. Upper parts *ashy blue*; middle of the back *with a greenish yellow patch*; lores dusky; an incomplete eye ring; wings and tail blackish but edged with the color of the upper parts; *2 broad white wing bars*; *2 outer tail feathers with large white patches on the inner webs near the tip*; *throat and breast yellow*; an *orange brown and blackish collar band crossing*

the lower throat; lower belly white. *Female*: Like the male but duller in coloration; the blue more or less veiled with greenish. *Young*: Resemble the female.

Length 4.50-4.75 inches; extent 7-7.50; wing ♂ 2.42, ♀ 2.25; tail ♂ 1.7, ♀ 1.62; bill .41.

Distribution. Breeds from northern Minnesota, central Ontario, and Cape Breton, to Texas, Alabama and Virginia. Winters in the West Indies, Mexico and Central America. This species breeds throughout New York State, but is local in distribution during the nesting season, being confined to swamps and gullies which produce a growth of gray moss or usnea. It is probably commoner as a breeding species in the swamps of Long Island and in the Catskill and Adirondaek districts than in other portions of the State, although I have noticed a few pairs nesting in the gullies of the Finger Lake region and in various scattered peat swamps of western New York. In the North Woods it is fairly common, as I noticed in the swamps about the Ausable lakes, Elk lake and the Boreas ponds and as my assistants found in nearly every portion of the Adirondaeks, yet it is by no means generally distributed in the North Woods, but almost entirely confined to the swamps. During the migration season it is a common transient in nearly all portions of the State, arriving in the spring from the 1st to the 10th of May, the average date in southern New York being the 5th, but sometimes appearing by the 26th or 27th of April. In the fall the return migration begins the 15th to the 31st of August and ends between the 5th and the 20th of October.

Haunts and habits. During the migrations, the Parula warbler associates with the Dendroicæ among the foliage of our shade trees and orchards, being most common about the time of the bursting of the apple blossoms, usually seen in about equal abundance with the Chestnut-sided warbler in most localities of central New York. As soon as he reaches his summer home, however, he is practically confined to the swamps and bogs of the Catskills and Adirondaeks, and the damper localities of our swamps and ravines in western New York, and in similar situations along the coastal district, preferring, during the nesting season, evergreen trees,

although occasionally found in mixed groves where the deciduous species predominate. It is practically confined to the localities where usnea moss is fairly abundant, although in the ravines on Canandaigua and Seneca and Cayuga lakes I have found it nesting where the atmosphere was damp on the south side of the gully and the hemlocks rather abundant, but almost no usnea was visible. In the Adirondacks we found it in the spruce swamps where this moss was particularly abundant. The nest is almost always concealed in a large hanging bunch of usnea, largely composed of filaments of the bunch itself as it hangs from the twigs, but also interwoven with soft plant fibers and bits of usnea brought from neighboring trees. The nest is thus pensile and softly lined with cottony substances.

"The salient feature of the Parula warbler's song in all its many variations is a guttural *buzz*. The song may be one uninterrupted buzz uttered in an evenly accented scale or broken into separate notes at the beginning or end; but the buzz is always apparent in some portion and always serves to distinguish it from the song of *Dendroica blackburniae*, which sometimes approaches it quite closely in form. The call is a *chip* not very characteristic" (Thayer MSS.). Chapman has characterized the song of the Parula warbler very aptly as a "sizzling gurgle."

***Dendroica tigrina* (Gmelin)**

Cape May Warbler

Plate 93

Motacilla tigrina Gmelin. Syst. Nat. 1789. 1:985

Sylvicola maritima DeKay. Zool. N. Y. 1844. pt 2, p. 104, fig. 132

Dendroica tigrina A. O. U. Check List. Ed. 3. 1910. p. 310. No. 650

dendroica, from Gr., meaning tree inhabitant; *tigrina*, Lat., striped

Description. *Adult male:* Side of neck bright yellow; a conspicuous chestnut or orange-rufous ear patch which frequently reaches forward both below and above the eye; crown black; rump yellow; back greenish olive spotted or obscurely streaked with black; under parts principally yellow, changing to white on the belly, conspicuously streaked on the breast and sides with black; wings and tail black edged with the olive green color of the back; a conspicuous white wing patch formed by the tips of the greater

and lesser wing coverts, sometimes tending to form 2 white wing bars. *Adult female:* Upper parts *grayish olive*; *under parts yellowish white streaked* on the breast and sides *with blackish* but much less conspicuously than in the male; wing bars grayish white, not forming the conspicuous white patch seen in the male; side of the neck and line over the eye and rump vary from yellowish to olive green. *Young male:* Lacks the black crown and chestnut ear patches; upper parts grayish olive green obscurely spotted with black; rump dingy yellow; the wing bars grayish white; under parts dull yellow streaked less conspicuously than in the adult. *Young female:* Similar to the adult female but less yellow and the streaks more obscure. Adult males and females are both more obscurely colored in the fall plumage, being tinged with grayish. The adult female similar to the spring, but yellower on the rump and more tinged with whitish on belly.

Length 5-5.2 inches; extent 8.32; bill .3; wing 2.62-2.7; tail 1.9; tarsus .75.

Distribution. The Cape May warbler ranges in summer from Nova Scotia, New Brunswick, Hudson bay and Great Slave lake, southward to the northern portion of Maine, northern New Hampshire, Minnesota and westward to Manitoba and Assiniboia. It has been reported on good authority that a few breed in the island of Jamaica. The winter range of the species is the West Indies and Central America.

In New York State this species is only a transient visitant and for more than a century has been considered a rare species, but of recent years has apparently increased perceptibly in numbers so that for the last 3 or 4 years it has been a positively common migrant in various sections of western New York, as I have found it in Monroe, Ontario and Erie counties. On several mornings in the spring of 1912, the author was able to see, within a space of two hours, from 12 to 20 different individuals each morning, often as many as 8 or 10 males being in sight at the same time. I believe that this really indicates an increase in the species and that it has not been overlooked in past years as it is quite conspicuous and easy to observe wherever it occurs, and is one of the most frequently reported by amateur observers who are unfamiliar with it, but are able to describe it so that it can be positively recognized. The migrations in New York begin between the 4th and the 10th of May. In some portions, however,

it is not reported earlier than the 20th. The average date of arrival for several years has been May 9 in western New York. Between the 20th and 30th of May it disappears on its northward migration. After the 20th of the month very few, if any, males are seen; but on Decoration day, during 2 or 3 years of my experience, I have seen from 3 to 5 females near the southern shore of Lake Ontario in Monroe county. Although, as stated above, this warbler is known to breed in corresponding latitudes, we have been unable as yet to record it positively as a breeding species in the Adirondack district, although the author searched for it diligently during the spring and summer of 1905, and various bird students who are perfectly familiar with the species have looked for it in the same region without success. In the fall, migration begins between the 5th and the 12th of September and the last of the species is usually seen between the 15th and the 20th of that month.

Haunts and habits. This warbler is slower and more deliberate in movements than most of the genus *Dendroica*, but it seems to have a predilection for the tree tops during the migration season, although I have seen it in considerable numbers in cherry orchards and shrubbery, especially on cool, damp mornings. Brewster and Gerald Thayer have both called attention to the fact that it is a loud and persistent singer, and that it frequently remains in isolated trees near houses during the migration. Its song has been called a "remarkable jingling noise," and some have considered it usually a mute species, which has been the author's experience with the migrating birds of western New York. On its breeding grounds, however, the song is fairly conspicuous, resembling considerably the Black and white warbler's penetrating note. Comparatively little is known of its breeding habits, but most of the nests found have been placed in low, evergreen trees, usually in rather open fields or pastures. The nest is rather loosely and roughly constructed, though more compact than that of the Magnolia, according to Chamberlain, and "the lining is almost entirely of horse hair, the brim being turned with exquisite grace." The eggs have been compared in ground color to those of the Magnolia warbler,

but the Cape May's are less pyriform and the point less acute. The markings are different shades of lilac and reddish brown, and the dimensions of the eggs average .67 by .49 inches.

Dendroica aestiva aestiva (Gmelin)

Yellow Warbler

Plate 95

Motacilla aestiva Gmelin. Syst. Nat. 1789. 1:996

Sylvicola aestiva DeKay. Zool. N. Y. 1844. pt 2, p. 99, fig. 130

Dendroica aestiva aestiva A. O. U. Check List. Ed. 3. 1910. p. 311.
No. 652

aestiva, Lat., summer

Description. Color principally yellow; the head and under parts rich *golden yellow streaked on the breast and sides with rufous* or reddish brown; *upper parts principally greenish yellow*; wings and tail dusky, but margined and overlaid with the color of the back; inner webs of the tail feathers yellow; wing bars yellow. *Female:* Decidedly *less yellow than the male*; upper parts a yellowish olive green; under parts much paler yellow than the male and the reddish brown streaks scarcely discernible. *Fall plumage:* Less bright than in the spring, especially on the top of the head and under parts, the reddish brown streaks obscured. *Young* in the fall resemble the adults but streaks on the under parts mostly wanting.

Length 5.1 inches; extent 7.8; bill .4; wing 2.43; tail 1.9; tarsus .74.

Distribution. This species inhabits the greater portion of the United States and British America with the exception of the southwestern states and the Florida peninsula. It is also absent from the Arctic zone and the higher portions of the mountains. It spends the winter from southern Mexico to Peru and Brazil. In New York it is a common summer resident in all portions of the State except the spruce and balsam forests of the Catskills and Adirondacks, but it penetrates those regions as far as the clearings and river valleys extend. The spring migration begins between April 18 and May 9, the average date for southeastern New York being May 1, and for northern New York, May 5. In western New York it rarely appears before the 23d of April. In the fall it is last seen between the 2d and 20th of September.

Haunts and habits. The Yellow warbler or Summer yellow bird is the most familiar member of the family, inhabiting our gardens, shrubbery and shade trees, making its nest even among the parks and trees of the city streets. It seems to be one of the merriest and mildest in disposition of the whole warbler family and is commonly regarded as a bit of the sunshine which it resembles. Its cheery song of "*weé-chee, weé-chee, weé-chee,*" or "*weechee, chee, chee, chur-wee,*" or "*sweet, sweet, sweet, sweetie*" being well known to bird lovers throughout the State. According to Bicknell the song period lasts from late in April through the month of July, sometimes nearly until the middle of August, but in my experience its song is rarely heard after the 12th of July; but after the song has ceased there is no period of revival before the warbler's departure in the fall. The common call note of the Yellow warbler heard in the spring is "*dzt.*" so common to many members of the family, and a mild chip similar to that of the Parula warbler.

The nest is usually placed in a shrub or low tree within a few feet of the ground, but sometimes is found in the branches 30 or even 40 feet above the ground. It is a neatly woven, symmetrical, cup-shaped structure of fine vegetable fibers, especially the bark of the milkweed, fine grasses and down from willows, poplars, ferns and various other plants, lined with fine grasses, plant down, hairs, and feathers. The eggs are 4 or 5 in number, of a grayish white or pale greenish ground color, rather thickly sprinkled with spots, blotches and irregular markings of umber, black, lilac and purplish, usually tending to form a wreath near the larger end. They average .69 by .50 inches in size. The first sets in southern New York are completed from May 17 to 30, and about a week later in the northern counties. Sets are frequently found also from the 20th to the 30th of June, or even the 10th of July, indicating that a second brood is probably reared in many instances. This species is one of those most frequently selected by the Cowbird as a foster mother for its offspring, but the warbler often outwits the Cowbird by building a second lining over the intruder's egg and laying her own on the new lining, thus

forming a two-story nest, or, in one or two cases which have been called



Photo by Ralph S. Paddock

Yellow warbler's nest and eggs, with egg of Cowbird

to my attention, even a three-story nest, so that the egg of the Cowbird

is not hatched and the warbler's brood is saved from destruction. Although I have noticed many of our native birds desert their nests when they have been parasitized by the Cowbird, the Yellow warbler is the only one that I have noticed which builds a new lining over the interloper's egg.

The food of the Yellow warbler consists largely of smooth caterpillars, plant lice, small beetles, various flies, especially the Ephemerae and the smaller Hymenoptera. During the migration season I have watched the Yellow warbler in company with other species devouring plant lice in apple trees and shade trees about our lawns, and, before the young have left the nest, have noticed them bringing large numbers of measuring worms and green caterpillars, gall flies and lake flies. Aside from the destruction of a few beneficial beetles and parasitic Hymenoptera, this beautiful little bird does no damage at all and in general it must be considered a very beneficial species, and it is at the same time one of the most beautiful and interesting of those which nest about our gardens and orchards.

Dendroica caerulescens caerulescens (Gmelin)

Black-throated Blue Warbler

Plate 94

Motacilla caerulescens Gmelin. Syst. Nat. 1789. 1:960

Sylvicola canadensis DeKay. Zool. N. Y. 1844. pt 2, p. 98, fig. 109 and 131

Dendroica caerulescens caerulescens A. O. U. Check List. Ed. 3. 1910. p. 312. No. 654

caerulescens, Lat., bluish, beginning to be blue

Description. *Adult male:* Upper parts grayish blue; cheeks, throat and sides black; lower breast and belly pure white; wings and tail blackish but edged and overlaid with the color of the back so that when closed the whole upper parts seem nearly uniform in color; a conspicuous white spot in the wing formed by the white bases of the primaries; the 3 outer tail feathers with conspicuous white spots on their inner webs. *Adult female:* An inconspicuous, neutral colored warbler; upper parts dusky olive green with only a tinge of bluish on the crown and tail; an obscure whitish line over the eye; dingy white spot in the wing at the base of the primaries in the same position as the pure white spot in the male's wing; under parts

pale buffy whitish; outer tail feathers with white spots. Young female: Similar to the adult but greener above with no trace of bluish; white wing spot barely discernible; white in the tail much reduced.

Distribution. Eastern North America from Hudson bay and Newfoundland south to the Northern States, and in the highlands and mountains to Massachusetts, Connecticut, Pennsylvania and Maryland. Its breeding range in New York State is shown by distribution map on page 25, volume I, of this work. In all parts of the State where it is not a summer resident it is a common or even an abundant transient, arriving in the spring from April 25 to May 8 and passing northward from May 20 to 30, reappearing in the fall from August 27 to September 17, and departing for the south from September 28 to October 17. On rare occasions it will be noted as late as the 20th or 30th of November. Throughout the Catskill and Adirondaek districts it is a common summer resident, but prefers mostly the deciduous and mixed woodlands to the forests of spruce and balsam. On the colder hillsides and gulleys of central and western New York it is rather scarce as a breeding species, but nearly every ravine in the central lake district has from one to three pairs of breeding birds.

Haunts and habits. The Black-throated blue warbler, though not so brilliantly colored as many members of the family, is one of the neatest and best groomed of all the warblers. He usually arrives in our State before the foliage of our deciduous trees is formed, and as he flies from bough to bough or from bush to bush he displays to fine advantage the clear black and white and blue coloration, the white spots in the wing and tail flashing like the wings of a butterfly. He carries his wings and tail partially spread somewhat in the manner of the Redstart. His song, though very versatile, is among the thinnest and most nonmelodious of the family. Gerald Thayer has noted several different variations of the strain beside the " *zee-zee-zee* " so often found in the bird books. One of the songs he compares to the explosive song of the Blue-winged warbler, resembling the syllables " *zee-chir-r-r-r* " or " *wher-w-e-e-e-e* "; another is " *wher-wher-whoee-ee* " uttered with deliberation; another he renders by

the syllables "hi-hi-hi-hi-hi-hi-hi" ending in a high-pitched long drawn "whee-ee"; another he writes "bsss-bsss-bsss-bsss-bsss," a "weak, insectlike grating." In all these variations Mr Thayer recognizes a "characteristic, full-voiced huskiness" which distinguishes the species. John Burroughs's description of the first known nest of this species, discovered in Delaware county, is found in his "Locusts and Wild Honey." The eggs are usually of a buffy white or light greenish ground color, blotched and spotted with reddish brown and lilac, often forming a wreath near the larger end, but sometimes evenly distributed over the entire egg. They average .67 by .51 inches in size. Mr Clarence F. Stone describes the nests found near Branchport by himself and Mr Burtch, as follows: The nest is usually placed near the ground in a low sapling amidst a fairly dense growth of underbrush, especially in woods of beech and maple with a slight admixture of pine or hemlock.

Some years this warbler is a common summer resident, other years very uncommon. Its abundance seems to depend upon whether there are clearings in woods that offer the kind of nesting situations suited to its tastes. In this locality the Black-throated blue warblers prefer clearings amidst hemlock woods or along hemlock-clad gully banks where there are dense underbrush, bushes and stump sprouts bearing multitudes of large leaves.

The male is not so nervously active or demonstrative at any time as many other warblers. The female is extremely shy when flushed from the nest, so that it requires some time to get a good look at her. This warbler's nest often contains an egg of the Cowbird.

The nests are variously attached to slender scrubby bushes, 8 to 30 inches up, usually very close to trails or old wood roads. They are very neat, compact, thick walled, and made outside of shreds of weed bark, bleached blades of grass, beech buds, with lining of fine brown colored rootlet fibers and horse hair. A constant characteristic of this warbler's nest is the decoration of decayed, spongy pieces of light colored wood fastened to outside by strands of spider's web.

Dendroica coronata (Linnaeus)*Myrtle Warbler*

Plate 94

Motacilla coronata Linnaeus. Syst. Nat. Ed. 12. 1766. 1:333

Sylvicola coronata DeKay. Zool. N. Y. 1844. pt 2, p. 88, fig. 103

Dendroica coronata A. O. U. Check List. Ed. 3. 1910. p. 312. No. 655
coronata, Lat., crowned

Description. *Adult male:* A yellow patch on the center of the crown, on the rump and on each side of the breast; upper parts bluish gray streaked with black; cheeks black; throat white; breast largely black running down each side below the yellow patches; center of the belly and under tail coverts white; flank streaked with black; 3 pairs of outer tail feathers with conspicuous white spots; 2 conspicuous white wing bars. *Adult female in spring:* Pattern of coloration similar to the male's, but the bluish gray replaced by brownish; the breast less extensively black; the flanks less heavily streaked; the yellow patches on the crown and sides sometimes obscured, but the rump patch is as conspicuous as in the male. *Male in the fall:* Similar to the spring female but browner. *Young:* Similar to the male and female in fall plumage, but the crown and breast patches usually obscured.

Length 5.65 inches; extent 9.05; bill .35; wing 2.9; tail 2.2; tarsus .71.

Distribution. Breeds from the limit of trees in Alaska and Labrador to Maine, northern New Hampshire, Vermont, New York, western Massachusetts, northern Michigan, Minnesota and British Columbia. In New York the breeding range is apparently confined to the spruce belt of the Catskills and Adirondacks. Its breeding at Utica and Buffalo which has been reported has never been confirmed by later observation although it may occasionally, like other species, breed casually in various parts of the State. The winter range extends from Cape Elizabeth in Maine, eastern Massachusetts, southeastern New York, southern Illinois, southward to the West Indies, Mexico and Panama. Throughout New York this is one of the commonest of the warblers in migration time, arriving from the 5th to the 17th of April in the southeastern portion of the State, from April 17 to 28 in central and western New York, April 26 to 30 in Essex county. In central New York it is commonest during the first 10 days of May, and passes northward from the 20th to the 28th of

May. In the vicinity of New York City it passes northward between the 10th and 20th of May. During the migration season it is evident that the males precede the females, as is the case with many birds. Sometimes a flock of 20 or 30 males is seen during the third week of April and during the second and third weeks of May almost nothing but females are found. In the fall the southward migration is sometimes noted as early as the 16th of August, but usually in central New York between the 20th and 28th of September; in the vicinity of New York City, from the 1st to the 7th of October, whereas the departure of the greater number for the south occurs between the 25th of October and the 11th of November.

Haunts and habits. The Myrtle warbler is found in the spring mostly in deciduous woods, often feeding in the tops of oaks, chestnuts and maples, but in the fall it is commoner in the thick growths of bushes along the edges of swamps and cedar thickets and feeds largely on the berries of the wax myrtle which have given it its common name. The remainder of the year its food consists almost entirely of insects, during the early part of the season, especially of cocoons, larvae and eggs which it seeks about the buds and branches of trees. In the summer it frequents the coniferous forests of the Canadian zone of the Catskills and Adirondacks, being the most abundant warbler breeding on the higher slopes of the mountains, as far up as the stunted spruces on the summits of Skylight, Haystack, Marcy and Whiteface, associating there with the Blackpoll warbler and the Junco.

The common call note heard in the spring is a characteristic "*tchip*." Another is noted by Allison, which he writes "*sweet*" with rising inflection. The song is not heard in its full volume till late in the migration season or on the breeding ground, but begins in the southern states in March. According to Thayer it has "a loud and silvery sleighbell trill," "a vivid spritely utterance." Sometimes he utters a deliberate phrase of 3 or 4 well-separated syllables having the usual tone and volume but lacking sometimes only in part, the jingling tremolo.

The nest of the Myrtle warbler is usually placed in a low coniferous

tree only a few feet from the ground. It is a rather loose and bulky nest of dead twigs from spruces and hemlocks, grass stems, a few leaves, lined with fine roots and hair and usually a number of feathers. The eggs are from 3 to 5 in number, dull white to creamy white in ground color, spotted and blotched with reddish brown, lavender and a few purplish black marks. The average size is .70 by .53 inches. The date of nesting in Essex county is May 30 to June 15.

Dendroica magnolia (Wilson)

Magnolia Warbler

Plate 97

Sylvia magnolia Wilson. Amer. Orn. 1811. 3:63. pl. 23, fig. 2

Sylvicola maculosa DeKay. Zool. N. Y. 1844. pt 2, p. 90, fig. 112

Dendroica magnolia A. O. U. Check List. Ed. 3. 1910. p. 313. No. 657
magnolia, named from the magnolia tree which it frequents

Description. Predominant colors black, yellow and white. *Adult male:* Back, cheeks, frontlet and upper tail coverts black; *crown* and *back of the neck* bluish gray; wings blackish edged with gray and with broad white wing bar; *rump* and *under parts* bright yellow; *heavily streaked on the breast and sides with black*; tail black with a *broad basal zone of white* formed by the white inner edges of the feathers except the central pair extending from the base half or two-thirds of the way to the tip. *Adult female:* Duller than the male; back olive green spotted with black; the whole upper parts more or less tinged with gray; under parts lighter yellow and less heavily marked with black. *Male in the fall:* Brownish gray on the crown and neck; back olive green indistinctly streaked; rump and tail as in spring; breast and sides marked with concealed black streaks very different from the spring. *Female in fall:* Upper parts mostly brownish olive green; sides with a few obscure black streaks; dusky band across the upper breast.

Length 4.75-5 inches; extent 7-7.5; wing 2.2-2.5; tail 2; bill .35.

Distribution. Breeds from southern Mackenzie, Keewatin, northern Quebec and Newfoundland to central Alberta, Saskatchewan, Minnesota, northern Michigan and northern Massachusetts; in the mountains to Maryland and Virginia. Winters from southern Mexico to Panama. In New York it is a common summer resident of the Canadian zone in the Catskills and Adirondacks and breeds sparingly in the swamps, gullies and

cooler hillsides of central, western and southwestern New York. Throughout the State it is a common transient, arriving from the 3d to the 14th of May; average date for western and southeastern New York, May 9, rarely appearing as early as the 28th of April. In southeastern New York and the lowlands of central and western New York it disappears between the 22d and 31st of May, to reappear again the middle to the last of August, and passes southward from the 1st to the 12th of October. The present



Photo by Clarence F. Stone

Magnolia warbler's nest and eggs

breeding range of this species is shown by a map, page 26, volume 1, of this work.

Haunts and habits. Throughout the migration season the Magnolia warbler is common throughout our orchards and shade trees, as well as the woodlands. It flutters about considerably while pursuing winged insects, displaying its brilliant black, yellow and white coloration, spreading the tail and showing the broad basal band of white which sometimes will

distinguish it at a long distance through the grove. It is also one of our full-voiced warblers, the song resembling the syllables "*wee-to, wee-to, wee-e-tee,*" or "*witchi, witchi, witchi, tit, witchi-tit, witchi-tit, witchi-tit*" the first four words deliberate and even, the last three hurried and higher pitched. Aberrant songs also noted by Mr Thayer are "*ter-whiz, wee-it*" and another "*wee-yer, wee-yer, wee-yer.*" The song is louder than the Yellow warbler's, and in addition it has several "*chips*" which are scarcely distinguishable from other species, and a more characteristic call note with a slight metallic ring, "*'lep, 'lep.*"

In its nesting grounds, this warbler prefers coniferous growth, especially young spruces, which crowd the edges of the northern swamp or appear in slashings, burnt lands and pastures. The nest is almost invariably placed in a low spruce tree only a few feet above the ground, and is constructed of dead twigs of spruce and hemlock, pine needles, grasses and downy substances, and lined with fine rootlets. The eggs are 3 to 6 in number, usually 4, of a dull, creamy white ground color with spots and blotches of reddish brown, chestnut, purplish and lilac, often heavily covered, at other times forming a wreath near the larger end. The average size is .66 by .48 inches. Mr C. F. Stone thus describes the nests which are found in the gullies of the Finger Lake region: "Every hemlock-clad gully or hemlock woods where the trees are close and limbs intertwined afford suitable haunts for this lively and emphatic singer, for the Magnolia is one of our most agile warblers and utters its two songs, with their variations, in a clear, loud, emphatic enunciation. Among the smaller gullies 1 or 2 pairs may be found, and in the larger gullies it is not unusual to locate 12 or 15 pairs during the nesting period. In some of these situations the Magnolia does not seem to occur, perhaps because it is so persecuted by red squirrels and cowbirds. The latter seems to make a specialty of presenting this warbler with one or more of its eggs, generally puncturing the eggs of the Magnolia before leaving the nest. The nest-building of this species begins by May 25 and fresh eggs are found by June 2 to 15. In this locality the nests are usually situated anywhere

from 6 to 15 feet above the ground and from 4 to 15 feet from the body of the tree in a tangle of branches. Rarely do they select other than hemlock trees, but I found one nest in the forks of a maple bush in a thick undergrowth among hemlocks. Another was placed in the top of a scrub beech through which a hemlock limb extended. While the Magnolia is one of the most beautiful warblers, agile in actions and energetic in song, it is a very shabby nestbuilder, lacking by far the skill and neatness displayed by the Black-throated green. The nests are made of hemlock twiglets very loosely interwoven and mingled with grass stems, fine root fibers, always lined with plenty of horse hair. The nests are also decorated on the outside with brown and white woolly substances."

Dendroica cerulea (Wilson)

Cerulean Warbler

Plate 94

- Sylvia cerulea* Wilson. Amer. Orn. 1810. 2:141. pl. 17, fig. 5
Sylvicola caerulea DeKay. Zool. N. Y. 1844. pt 2, p. 92, fig. 107
Dendroica cerulea A. O. U. Check List. Ed. 3. 1910. p. 314. No. 658
cerulea, Lat., sky blue

Description. *Adult male:* Upper parts blue, the back slightly streaked with blackish; crown richer blue and with a few dark markings; *under parts pure white streaked* in a band across the breast and *on the sides with black*; ear patch dusky; eyelids and line over the eye white; wings and tail blackish, edged with the color of the back; the tail with small white spots on the outer feathers near the tip and the wings with 2 broad white bars formed by the greater and median coverts. *Adult female:* Much less blue on the upper parts than the male; more grayish in hue and tinged, especially on the back, with greenish; line over the eye and under parts pale yellowish instead of white and only very indistinctly streaked on the sides. *Young* resemble the female.

Length 4-4.5 inches; wing 2.65; tail 1.95.

Distribution. Breeds from southeastern Minnesota, southern Michigan and southern Ontario, western New York and western Pennsylvania and central Delaware to West Virginia, central Alabama, Louisiana and eastern Texas. The breeding range in New York is shown by map on page 26.

It is locally a common summer resident in various localities of central and western New York, especially Tonawanda swamp, Howland island, Potter swamp, Penfield swamp, Stockbridge hill and many open deciduous woodlands of the central lowland. In eastern and southeastern New York this species is extremely rare, only three migration dates coming from New York City. A single summer date, Hyde Park, July 4, 1895, comes from Lisperard Horton. Evidently it has invaded this State from the Mississippi valley and its migrations each year follow this route. It arrives from the 3d to the 14th of May, the 5th being the average date on its breeding grounds in Yates county. No reliable dates of departure are before me. Personally, I have never seen it later than the third week in August.

Haunts and habits. Mr Stone thus describes the breeding habits of the Cerulean in Potter swamp: "They are numerous in the maple woods on the hillsides overlooking the swamp, as well as in the swamp itself, and in the vicinity of Branchport they also occur in isolated pairs during the nesting season. In the heavily timbered Urbana and Scottsville swamp about 5 miles south of Prattsburg they also occur, but less commonly than in the Potter swamp. The Cerulean spends most of its time cavorting through the highest tree tops in the most lively manner, singing almost constantly its 'swee-swee, swee, wee-ee,' during the nesting season. During rainy days they descend to the lower limbs where they may easily be observed. When gathering nest materials they give no heed to the presence of human beings but fly to the ground or along the logs and fallen trees within a dozen feet, carrying the materials directly to the nest. This is situated anywhere from 15 to 60 feet above the ground and on all sorts of limbs from 20 inches to 20 feet from the body of the tree. Sometimes they sit squarely on a big limb; again in the fork of a limb just like the Wood pewee; and again, 15 to 20 feet out in the tip end of a branch. I have found nests almost concealed in a thick cluster of twigs on the knotty portion of a horizontal branch. The nests are sometimes very shabby and fragile, but usually they are works of art, made of strands of weed bark, wild grapevine bark, fine grasses, lined with fine reddish rootlets

and tendrils, giving the interior a decidedly ruddy appearance. It is characteristic of the Cerulean's nest to be more or less decorated on the outside with a sort of whitish lichen and I have never found a nest that did not have this ornamentation. Other materials are also used, as duck down, small feathers, feathers of the Cerulean itself, horse hair, dead wood, pieces of moss and spider cells. Nestbuilding begins about May 22. Full sets are found as early as May 28, but the usual date for complete sets is June 4 to 6. The eggs in this locality are usually 4 in number, sometimes 5." They are pale bluish white or greenish in ground color, speckled quite uniformly with reddish brown and lilac. In size they average .69 by .52 inches.

Dendroica pensylvanica (Linnaeus)

Chestnut-sided Warbler

Plate 96

Motacilla pensylvanica Linnaeus, Syst. Nat. Ed. 12, 1766, p. 333.
Sylvicola icterocephala DeKay, Zool. N. Y. 1844, pt 2, p. 102, fig. 134.
Dendroica pensylvanica A. O. U. Check List, Ed. 3, 1910, p. 314, No. 659
pensylvanica, of Pennsylvania

Description. *Crown plain yellow; sides of the head and neck and under parts pure white; black patch in front of the eye sending a black line back above the eye bordering the yellow crown and another down the side of the throat bordering the white cheek patch; broad streaks of chestnut run from the sides of the throat entirely down both sides; back streaked with pale yellow or yellowish white and black; wing bars usually fused into a large white wing patch. Adult female:* Similar but colors less distinct; loreal spot usually wanting, and the chestnut streaks thin or obscure. *Fall plumage, male:* Greenish yellow above obscurely streaked with black; side of the head gray; sides, wings and tail as in the spring. *Female in the fall, and young:* Similar to the adult male in fall plumage, but the back greenish and less distinctly streaked and the chestnut on the sides obscure or wanting.

Length 5.14 inches; extent 7.8-8.1; wing 2.45; tail 2; tarsus .72; bill .35.

Distribution. Breeds from Saskatchewan and southern Manitoba, central Ontario and Newfoundland to Rhode Island, New Jersey, northern Ohio, Illinois and eastern Nebraska, and southward in the mountains to Tennessee and South Carolina. In New York this species is a common

or abundant transient visitant in nearly all parts of the State, arriving from the 3d to the 9th of May, sometimes as early as the 2d, at other times as late as the 12th. The main troop of migrants has passed northward from the southern counties from the 19th to the 30th of May, returning in the fall from the 15th to the 30th of August, and passing south from the 18th to the 30th of September, sometimes as late as the 10th of October. It also breeds in all portions of New York State, though uncommonly on Long Island and only locally in the southeastern portions of the State; but throughout the Alleghanian and Canadian zones it is a common summer resident, especially in the bushy pastures of eastern, central and western New York and the outskirts of the Adirondacks, its distribution varying considerably in different years, dependent upon the season and the characteristic cover to be found. A considerable increase of slashings and brambly thickets in any section of the State is almost sure to be followed by a decided increase in the numbers of this species as summer residents.

Haunts and habits. The Chestnut-sided warbler nests about the edges of woods, bushy pastures and neglected roadsides, usually in wilder and more deserted situations than those frequented by the Yellow warbler. It is partial to the deciduous bushland throughout the hillsides of western New York; rarely found within the depths of the forest or where there is any considerable admixture of evergreens. Its hunting ground, as Gerald Thayer writes, lies between the ground and the tops of the small deciduous trees.

Its song is a "full-voiced warble." Two types are distinguishable, "both too liquid to be suggested by any set syllables except the clearly enunciated ending of one of them which may be written '*wee-chew, tit-a-wit-a-wit-a-wit-we chew,*' being something like the phrasing of the whole song. The other is an elaboration of this rolling warble, with the *wee-chew* left off." During the migration this is one of the commonest species in all parts of the State and its cheery little song may be heard in all the orchards and shade trees from the first to the third week in May about our villages and parklands and the edges of woods.

" This warbler may be considered abundant and evenly distributed in Yates county. It is found in all clearings where bushes have grown up, whether it be the highland or lowland. They begin nestbuilding about the 17th of May, and in three instances noted take 5 or 6 days to complete the nest. The full set of eggs is deposited as early as May 26, sometimes as late as June 9.

One nest of the Chestnut-sided warbler was found July 13 containing young just hatched, but July nesting seems to be rare. The nests are very shabby, being loosely interwoven with broad blades of bleached grass, shreds of weed bark and grass stems, lined with fine, round, reddish grasses or tendrils, and horse hair. The eggs are 4 in number, white or creamy white, marked with wreaths of brown, blackish and lavender. Nesting situations are always along old wood roads or close to



Photo by L. S. Horton
Chestnut-sided warbler's nest and eggs

open places or the bushy edges of woodland, the nest being concealed in briars or the forks of bushes from 15 inches to 4 feet from the ground" (Stone MSS.).

As Burch and Stone have found this the most abundantly distributed warbler in Yates county brushlands, so I found it in Erie and Cattaraugus counties from 1882 to 1885, nesting commonly in the same situations selected by the Indigo bird, and almost always within 2 feet of the ground.

Dendroica castanea (Wilson)*Bay-breasted Warbler*

Plate 96

Sylvia castanea Wilson. Amer. Orn. 1810. 2:97. pl. 14, fig. 4
Sylvicola castanea DeKay. Zool. N. Y. 1844. pt 2, p. 94, fig. 116
Dendroica castanea A. O. U. Check List. Ed. 3. 1910. p. 314. No. 660
castanea, Lat., a chestnut, alluding to the color of the breast

Description. *Adult male in spring:* Throat and fore breast, running part way down the sides, chestnut; crown deep chestnut; black forehead, eye spot and line over the eye; back streaked with black, grayish olive and buffy; a buffy patch on the side of the neck back of the auriculars; tail dusky, margined with gray; 2 or 3 outer feathers with white patches on their inner webs near the tip; wings with 2 broad white bars; belly white; *Female:* Similar to male, but the chestnut markings less pure, the chestnut on the throat and sides sometimes appearing only in patches. *Male in the fall:* Olive green, somewhat streaked with blackish; crown showing some concealed chestnut when a bird is examined in the hand; wings and tail similar to the spring plumage but more tinged with yellowish; under parts whitish tinged with yellowish on the throat and breast, with buffy on the flanks and under tail coverts; sides with more or less chestnut. *Young:* Similar to the fall plumage of the male, but showing no chestnut on the crown or sides.

Length 5.63 inches; extent 8.95; wing 2.95; tail 2.12; bill .41.

Distribution. Breeds from northeastern Alberta, southern Keewatin, Ungava and Newfoundland to Manitoba, northern New Hampshire and northern Maine. Winters in Panama and Colombia. Although I searched for this warbler through the highest portion of the Adirondacks during the breeding season of 1905, neither I nor any one of my five assistants could find any evidence of its residence in that region. As it breeds in the mountains of northern New Hampshire we expected to find it about Whiteface, Marcy, Skylight, Haystack or some of the neighboring mountains, but utterly failed to find any but negative evidence of it. During the migration season this is a common transient in most portions of New York, though somewhat irregular in distribution. During some seasons it is fairly abundant in western New York and some seasons on Long Island

and the Hudson valley it is recorded as common or abundant; during other seasons as uncommon, and sometimes as rare. During 15 years of observation in western New York, however, my experience indicates that it is nearly as common as the Blackburnian warbler and almost as regular in migration. The dates of arrival range from May 3 to 16, May 12 being about the average. An exceptionally early date of April 30 is recorded at Branchport. The last migrant is usually seen between the 25th and 31st of May. In the fall they make their appearance from the 16th to the 24th of September and pass southward from the 18th to the 10th of October. The average date of spring arrival in southeastern New York is recorded by Cook and Chapman as May 8.

Haunts and habits. The Bay-breasted warbler usually frequents the tops of deciduous trees during migration, being especially fond of chestnuts, oaks and hickories just as the leaves are bursting. It is also found in orchards and about the shade trees of the streets and parks as well as in the midst of woodlands. Like the Black-poll, in my experience, however, it prefers the upper portions of trees except in cold or stormy weather when they descend and feed among the underbrush.

The song is described by Farwell as a "weak, monotonous, saw-filing note." Gerald Thayer says: "It varies greatly, from the bases of at least 2 and probably 3 clearly distinct main songs. One of these — 6 or more barely separated lisping notes — are all alike in volume, accentuation, tone and speed. They are slightly louder than the average Black-poll notes and not quite so smooth in tone. Another song begins in about the same way but ends with 3 or 4 clearly separated, louder notes which have a more nearly full-voiced ring. The third uncommon song which I have all but surely traced to the Bay-breast is louder throughout and otherwise very different, begins with about 10 penetrating notes in close-knit couplets like those of the Black and white's shorter song, and much the same tone but louder, and it ends abruptly with a single lower toned, much richer note, like a fragment of the Ovenbird's song."

Dendroica striata (J. R. Forster)*Black-poll Warbler*

Plate 95

- Muscicapa striata* Forster. Philos. Trans. 1772. 62:406, 428
Sylvicola striata DeKay. Zool. N. Y. 1844. pt 2, p. 95, fig. 129
Dendroica striata A. O. U. Check List. Ed. 3. 1910. p. 315. No. 661
striata, Lat., striped or marked with lines

Description. *Adult male in spring:* Crown black; back grayish streaked with black; cheeks white; under parts white, the sides heavily streaked with black; outer tail feathers with white patches on inner webs near the tip; wings washed with greenish; 2 white wing bars; inner wing feathers margined with white. *Female in spring:* Upper parts grayish olive green streaked with black; under parts dingy white, sometimes tinged with yellow, slightly streaked with black on the sides of the throat and breast. *Fall plumage all sexes:* Upper parts olive green obscurely streaked with black on the back and on top of the head; under parts dull yellowish or yellowish white, obscurely streaked with dusky on the sides.

Length 5.56 inches; extent 8.9; wing 2.92; tail 2.05; bill .4.

Distribution. Breeds in the boreal zone from the limit of trees in Alaska and Labrador southward to northern Maine, New Hampshire, Vermont, New York, Minnesota and in the mountains to Colorado and New Mexico. In New York this is the most purely boreal in its affinities of all our breeding warblers, being confined to the higher mountains of the Catskills and Adirondacks. In the Adirondacks my party found it breeding quite commonly near the summits of the Indian head, Mount Colvin, Geological cobble, Skylight, Haystack, Wolf's Jaws, Marcy and Whiteface. There is very little doubt that it may be found on all the higher peaks which run above 2500 or 3000 feet, at least where there are stunted spruces and balsam firs. As a transient visitant it is abundant in all portions of the State, especially in the coastal district and Hudson valley, arriving from the south from the 9th to the 16th of May, occasionally as early as the 5th, and passing northward from the 26th to the 31st. In the fall Doctor Fisher has noticed it as early as the 5th to the 16th of August at Ossining. In western New York we rarely see it earlier than the 9th to

the 12th of September. Both in eastern and western New York the fall migration closes between the 28th of September and the 16th of October, stragglers sometimes being noticed as late as the first week in November. Its abundance in the coastal district may be inferred from the fact that 356 individuals of this species were found in a single count at the foot of Fire Island light, killed by striking on the night of September 23, 1887.

Haunts and habits. During the migrations, the Black-poll frequents the higher portions of our deciduous trees. The thin, wiry song is frequently heard about the village streets and throughout our groves and parks. It is not so easily observed as our other migrating warblers, due to the fact that it arrives late in the season when the leaves have partially, or sometimes entirely, completed their growth, and it is a neck-breaking occupation to hunt down these high-feeding warblers with an opera glass. However, when they are found feeding among the groves of oaks and chestnuts we may have greater success for their leaves are not so fully grown at the third week in May when the Black-poll's floodtide of migration occurs. In my experience, the Black-poll is least frequently of all our warblers seen feeding among the lower shrubbery, in the migration season, but it does descend, especially on cool and rainy days and, as with all warblers, we can gain a partial victory by mounting a hilltop and looking downwards into the foliage of the lower hill slopes. Gerald Thayer writes: "Its song is a string of from 6 to 12 or more short and equally divided sibilant notes, cobweb-thin and glassy clear, uttered rather fast; the whole song smoothly swelling in volume to the middle, and then smoothly falling off. This should, perhaps, be called the one main song, but the variations from it are many and pronounced. Its syllables vary in number from 4 to 15 or more. They are sometimes uttered very hurriedly and close together — a song like a trembling wire — and sometimes they are deliberately and distinctly enunciated. Occasionally these 2 styles of delivery are combined in one utterance. Again, the song's characteristic swell and fall in volume is sometimes, though seldom, wholly wanting; and the

shorter versions are often crescendo to the end" (Chapman, Warblers of North America).

The nests of the Black-poll which Mr Howard Bradstreet found about the Ausable lakes were placed in low spruces from 3 to 8 feet from the ground, composed of twigs, rootlets and bits of moss, and lined with fine grass, feathers and vegetable down. The eggs are 4 or 5 in number, creamy white or grayish white in ground color, blotched and speckled with reddish brown, lilac and gray, usually forming a wreath as with others of the family, and averaging in size .71 by .52 inches. Adirondack nesting dates vary from June 5 to 20.

Dendroica fusca (Müller)

Blackburnian Warbler

Plate 97

Motacilla fusca Müller. *Natursyst. Suppl.* 1776. 175

Sylvicola blackburniae DeKay. *Zool. N. Y.* 1844. pt 2, p. 93, fig. 113

Dendroica fusca A. O. U. Check List. Ed. 3. 1910. p. 315. No. 662

fusca, dark or dusky in color

Description. *Adult male:* Throat and upper breast rich orange; side of the neck, broad line over the eye, spot over the eye, spot on the forehead, orange; upper parts in general black; streaked with whitish on the back; wings and tail blackish; the wings with a large white patch; the outer tail feathers largely white on the inner web; the outer webs white at base, showing as a conspicuous white area when the tail is spread; abdomen whitish, its forward portions suffused with the color of forward portions of the breast, but ranging to white on the under tail coverts; sides streaked with black. *Adult female:* Much duller than the male; the upper parts grayish brown to dusky where the male is black; the orange of the throat and breast much paler; all the markings less distinct. *Fall birds:* Duller than the corresponding sexes in spring plumage, more veiled with brown and grayish. *Young:* Like female but duller, the throat nearly yellowish.

Length 5.25 inches; wing 2.7; tail 1.95; bill .4.

Distribution. Breeds from Manitoba, southern Keewatin, Quebec and Cape Breton to central Minnesota, northern Michigan, Massachusetts, the highlands of Connecticut and in the Alleghanies to Georgia and South Carolina; winters from Yucatan, to Colombia and Peru. In New York

this warbler is a common summer resident of the Catskill and Adirondack districts, and breeds locally throughout the cooler swamps, gullies and highlands of central and western New York. Its nest has been recorded from Tonawanda swamp, Orleans county (Langille); Remsen and Holland Patent, Oneida county (Ralph and Bagg); Stockbridge, Madison county (Maxon); Hamilton and Shedd's Corners (Embody); Seneca and Clark's Glens, Canandaigua lake (Eaton); Springville, Erie county (Eaton); near Mayville, Chautauqua county (Kibbe); Hamburg, Erie county (Savage); gullies of Keuka lake (Burtch and Stone). During the migration season it is common throughout central and western New York and in the Hudson valley, but is recorded as uncommon on Long Island, arriving from April 30 to May 8, average date May 5; sometimes appears as early as April 26. The main migration is passed by the 21st to the 31st of May. In the fall the return migration may be noted from August 15 to September 7, the last being noted between October 5 and 16.

Haunts and habits. The Blackburnian warbler during the migration season associates with the Magnolia, Bay-breasted and Chestnut-sided warblers among the blossoming fruit trees and the leaving shrubbery and shade trees of our lawns and parks. During the nesting season, however, it is almost entirely confined to mixed and evergreen forests, being especially fond of hemlocks and spruces. In the Adirondacks we noticed it as one of the characteristic woodland warblers, being practically as abundant in the depths of the forest as about the edges of the clearings or along the streams and edges of the swamps. In the gullies and swamps of central New York I have never found it in the nesting season except where there is a liberal sprinkling of hemlocks, which it seems to prefer to the pine, and the old name of Hemlock warbler which was applied to the young of this species is perfectly appropriate. The Blackburnian flutters about while feeding almost as conspicuously as the Redstart and Magnolia, displaying its brilliant colors and pied pattern very effectively.

The song is heard during migration time as well as in the nesting coverts, described by Thayer as "Thin, but exquisitely smooth in all the

many variations of its two or more main songs. One of these is much less changeable than the other. This is the simple one, which may be syllabled '*tsírví-tsírví-tsírví-tsírví*,' or a variation '*síssi-vít, síssi-vít, síssi-vít, síssi-vít*,' deliberately and almost languidly uttered in both cases with a fine 'kinglety' sibilant-voiced tone. The other common song, though it begins in much the same way, is more hurried throughout and ends on a sharply ascending scale with a sort of explosion of small, crowded notes; but the utterances vary widely and the one last described is about the most changeable of all the warblers' songs I know. Even the tone quality is not quite constant, for though it never, in my experience, varies toward huskiness, it does occasionally range towards full-voiced richness. Thus I have heard a Blackburnian that began its otherwise normal song with two or three clear notes much like those of the most full and smooth-voiced performance of the American redstart and another that began so much like the Nashville that I had to hear him several times, nearby, to be convinced that there was not a Nashville chiming in."

The nesting site of the Blackburnian is usually the horizontal limb of a conifer, spruce or hemlock. Merriam mentions one 84 feet from the ground; Bolles, one placed in a sugar maple 60 feet from the ground; and nests which our party found on the slopes of the Bartlett range and Mt Marcy were in hemlocks 45 and 60 feet up. The nests reported by Mr Burtch from the gullies near Branchport were in hemlocks about 35 feet from the ground and 6 feet from the tree trunk. Mr C. F. Stone thus describes the nesting as he has observed it: "After the great Blackburnian wave has reached its height and passed northward, a few may still be found breeding in the gullies in this vicinity. I know of but 3 or 4 pairs that remain to breed in our larger gullies where they are found among the tallest and thickest hemlock trees. The male, at least, spends most of his time in the highest hemlocks, darting from one tree to another, continually on the move so that it is hard to get even a glimpse of him, and if one were not familiar with his liquid warble the bird would go unidentified unless the gleaming throat could be seen. To my ear the

Blackburnian's warble is scarcely distinguishable from that of the Cerulean's and, in fact, both of these warblers have the same habit of flying through the tree tops, hurriedly warbling their songs, apparently giving no heed to the incubating female. While I have observed the Blackburnian as late as July 1, locating them by the song, I have found but one nest, which was on June 7, 1903. It contained 4 eggs and the situation was on the top of a gully bank in a hemlock rather isolated from the others over a bush grown area. It was placed 25 feet up and about 10 feet from the body of the tree in the end of a limb and effectively concealed from view. The female sat very closely and when flushed remained within 10 feet, slowly flying about uttering a mild chip of alarm. The male did not appear. The nest is a neat, compact, nicely interlaced structure of hemlock twiglets mixed with fine, dry grasses, the latter being inside the interlaced twigs, and scantily lined with black horse hair." The eggs are grayish white to bluish white in ground color, spotted and blotched and speckled with cinnamon and olive brown; average size .68 by .50 inches. The nesting date in New York varies from May 24 to June 12. Like most of our warblers, this species evidently rears only one brood in a season.

Dendroica dominica dominica (Linnaeus)

Yellow-throated Warbler

Motacilla dominica Linnaeus. Syst. Nat. Ed. 12. 1766. 1:334

Dendroica dominica dominica A. O. U. Check List. Ed. 3. 1910. p. 315. No. 603

dominica, of Domingo; originally described from Santo Domingo

Description. Upper parts mostly *bluish gray*; *line over the eye, throat and upper breast yellow*; forehead, *cheek and stripe on the side of the head black*, and a black line extending from this downward on the side of the neck; side of the neck behind the black cheek, white; also white line above the black line on the side of the head; under eyelid white; 2 conspicuous *white wing bars* and much white edging of the feathers; *belly white*; throat and breast bordered on the sides with black. The conspicuous *black streaks* running backward *along the side*. *Female*: Similar to male but showing less black on the head and side. *Young*: Very similar to adults, but slightly washed with brownish.

Distribution. This species breeds from central Delaware and southern Maryland to middle Florida, and winters from southern Florida to the Bahamas and Greater Antilles. During the migration it occasionally wanders as far northward as New England. There are two records for New York State, the first from Crow hill, Kings county (see Dutcher, Auk, 10:277; and Lawrence, Ann. Lyc. Nat. hist. of New York, 6, 8). The second record is also from Long Island, Oyster Bay, July 4-8, 1907, a bird of this species discovered by Mrs E. H. Swan jr, identified by Theodore Roosevelt and recorded in Scribner's Magazine, volume 42, page 387. This latter specimen, I believe, is now preserved in the American Museum of Natural History. It is evident that this bird is the rarest of our accidental visitants of the warbler family, being considerably less common in this State than the Prothonotary warbler.

Habits. The Yellow-throated warbler inhabits open piny woods. Its motions are much slower than those of the Black and white warbler, but it has a similar habit of searching the larger branches and trunks of trees for food, its motion being more of a hopping than a creeping one, its hunting ground being confined mostly to the higher branches and bunches of pine needles. Its song is loud and ringing, the common form being "ching-ching-ching, chicker-cher-wee," with the wild, ringing, carrying quality which recalls the song of the Water thrush, and has also been compared to the song of the Indigo bird (Brewster and Chapman).

Dendroica virens (Gmelin)

Black-throated Green Warbler

Plate 97

Motacilla virens Gmelin. Syst. Nat. 1789. 1:985

Sylvicola virens DeKay. Zool. N. Y. 1844. pt 2, p. 100, fig. 114

Dendroica virens A. O. U. Check List. Ed. 3. 1910. p. 317. No. 667

virens, Lat., green

Description. *Upper parts yellowish olive green; face and sides of the head yellow; 2 conspicuous whitish wing bars; outer tail feathers largely white; throat and breast black; sides streaked with black; belly yellowish white. Female:* Similar but duller above and the throat whitish; the

breast black, tipped with yellowish white; the other markings paler and less sharply defined than in the male. *Young:* Sometimes lack all traces of black on the throat and breast. Fall birds in general more brownish above and the black markings on the male veiled with yellowish white feather tips.

Length 5 inches; extent 7.7-8; wing 2.46; tail 2; bill .4; tarsus .16.

Distribution. Breeds from northeastern Alberta, southern Manitoba, central Ontario, northeastern Quebec and Newfoundland to southern Minnesota, northern Ohio, northern New Jersey, Long Island and Connecticut, and in the Alleghanies to Georgia. Winters in Mexico and Central America. In New York it is one of our most abundant breeding species throughout the Canadian zone of the Adirondaeks and Catskills, in the mixed and evergreen forests of all portions of the State, especially in the hemlock woodlands near the Pennsylvania border, in the wooded gullies of the central lake region, in all the cooler swamps of central and western New York, and locally in southeastern New York, even on Long Island, as reported by Roosevelt in the vicinity of Oyster Bay, and in Suffolk county by Helme and Worthington. On the whole, it seems to be slightly more boreal in distribution than the Chestnut-sided warbler, as indicated by its New York distribution, but like that species is found locally, at least, breeding in all portions of the State. During the migrations it is one of the most abundant species, arriving from the 23d of April to the 7th of May, the average date being May 3 in western New York, and passing on to the north from May 25 to 31. In the fall the last individuals are seen between the 10th and 26th of October. In my experience for 10 years in Monroe county, this species is one of the hardiest warblers, usually being the third on the list to arrive, following close after the Myrtle and Pine warblers during the last week of April.

Haunts and habits. The Black-throated green warbler prefers a mixed or evergreen forest during the nesting season, especially forests of hemlock, pine and spruce, trees of second growth being especially attractive to it. Its usual "beat" is half way up the full-grown evergreens, or in the upper third of the second growth trees of 30 to 50 feet.

Gerald Thayer describes the song as possessing "a certain quality of huskiness like the Black-throated blue's, but much less obtrusively noticeable and rather enhancing than marring the quiet sweetness of the song. One of the two main utterances is remarkable for its deliberate and highly modulated enunciation; the other, not. The deliberate song of 5 (sometimes 6 or 8) notes is the one usually described in books,



Photo by Verdi Burtch
Black-throated Green warbler's nest and eggs

but here about Monadnock the other is at least as often uttered and in midsummer is the commonest of the two. The differences between them are suggested, though feebly, by the two phrases '*sweer, sweer-r-r, swi-ni swee*' (the first and the last accented notes the highest pitched), and '*wi-wi-wi-wi-wi-wi, wer-we-e-e*,' the last note highest pitched as well as most emphatic. Two, at least, of this warbler's call notes are fairly characteristic, a plainly dendroicine but rather loud and full-toned '*tsip*' and a reduplicated smaller '*chip*' often running into chipping like that of many young but few other warblers."

The nest is usually placed in a hemlock tree. Burtch and Stone note 25 nests all placed in hemlocks with one or two exceptions and they were placed near the branches of a hemlock. They are usually from 15 to 40 feet from the ground, near the thicker portion of the limb some distance from the trunk. The nest is rather compactly built and deeply cupped, made of fine twiglets of hemlock lined with tendrils, rootlets and hair, sometimes a few feathers and dead grasses and fine strips of inner bark.

and occasionally is ornamented on the exterior with bits of cottony substances and spiders' cells. The eggs are commonly 4 in number with a creamy or grayish white ground color more or less heavily marked with specks and blotches of various shades of brown, purplish and lilac, usually forming a well-defined wreath. The average size is .65 by .51 inches. Nesting dates for western New York vary from May 26 to June 20, the average date being June 5. Adirondack nests usually have fresh eggs by the 10th of June.

Dendroica vigorsi (Audubon)

Pine Warbler

Plate 95

Sylvia vigorsii Audubon. Birds Amer. 1828. (folio) 1, pl. 30

Sylvicola pinus DeKay. Zool. N. Y. 1844. pt 2, p. 101, fig. 120

Dendroica vigorsi A. O. U. Check List. Ed. 3. 1910. p. 318. No. 671

vigorsi, to N. A. Vigors, an English naturalist

Description. *Adult male in spring:* Upper parts yellowish green; wings margined with grayish; 2 dull whitish wing bars; outer tail feathers with white patches near the end; under parts greenish yellow, obscurely streaked on the breast and sides with dusky; lower belly whitish. *Female:* Much duller than the male, the under parts being soiled whitish tinged with yellow and the upper parts dusky olive green with grayish or brownish tinge. *Young and fall birds:* More tinged with brownish.

Length 5 inches; wing 2.8; tail 2.2; bill .42.

Distribution. Breeds in eastern North America from New Brunswick and Saskatchewan southward to the Gulf States. In New York this species is rather local in distribution depending upon the presence of pine woods. It is a summer resident throughout the southeastern, eastern, western and central portions of the State, especially on Long Island, but has not been noticed in the Canadian areas of the Catskills and Adirondacks. It has been recorded as breeding in Suffolk county by A. H. Howell, Oyster Bay by Theodore Roosevelt, central Long Island by L. S. Foster, Schenectady by James E. Benedict, Rensselaer county by Seymour Woodruff, Cohoes by A. F. Park, Oneida lake by Egbert Bagg, Ithaca by Louis Fuertes, Reed and Wright, Hammondsport and Branchport by C. F.

Stone, Seneca glen, Canandaigua lake, by E. H. Eaton. This is a hardy species, arriving in New York early in April (5 to 15 or 20) and even remains throughout the winter according to the testimony of Mr Benedict who took February specimens in the pine woods near Schenectady in 1881. In the fall the latest residents are usually observed between October 15 and November 1.

Haunts and habits. It is probable that the Pine warbler is even more particular in the coverts which it selects for a home than the Black-poll or the Nashville warbler. I have never found it except in pine groves, especially groves of pitch pine and red or Norway pine. Even in the migration season it is rarely found far from the pines and here it remains throughout the summer months.

Its song is described by Allison as a "rather slow, monotonous trill. I have heard the songs in two keys following each other so closely that it seemed that they were executed by the same bird. These songs are uttered at all seasons, I think; certainly not more than a few weeks in December mark a cessation. The ordinary call note is a rather soft, lisping *chirp* somewhat like that of the Parula warbler. During courtship and while the young are being fed, a rapid and incessant chipping is common." Gerald Thayer says: "Its common song is clear and sweet; an unbroken, fluent trill, with a tone character at once distinguishable from those of other trilling wood birds of New England. It is uttered in an even scale, but is often crescendo in its first half and diminuendo in its second."

Clarence F. Stone thus describes its breeding habits: "The Pine warbler is rare in this locality (Yates county) at all times. I know of but 10 pairs that are breeders here. Along the Hammondsport glen in Steuben county there are at least 4 or 5 pairs that remain throughout the summer. Hereabouts this warbler haunts only the woods that are thickly interspersed with red pines. On May 24, 1903, I found the first nest about 55 feet up in a Norway pine and 6 feet from the trunk in the end of a limb among clusters of cones. The female remained on the nest until I reached toward her, when she dropped to the lower branches and soon returned

with the male who had been singing over and over his whirlwind trill in a distant part of the wood. However, he refused to take any part in protesting with the female against my presence, but persisted in his rolling, whistling trills in the near-by trees while the female came toward me slowly moving about among the branches uttering a mild '*peet, peet.*' The nest contained 4 fresh eggs. It was firmly attached to the limb and almost hidden from below by clusters of cones. It is composed of strands of grapevine bark, fine rootlets and horse hairs, decorated with bits of brown and white spider cells and lined with a compact mass of animal hair and fluffy feathers with a thick ring of woolly material around the rim. The other nest found on June 6th contained 3 eggs and 1 of the Cowbird; as usual, 1 egg of the warbler was punctured. This nest was placed about 50 feet from the ground in a Norway pine and 4 feet out on a crooked, cone-laden limb, over a cleared place along the edge of the wood. This nest is made outside of hemlock twigs, strands of grayish weed bark, grapevine bark and fine reddish rootlets, lined with animal hair and crow feathers. Both of these nesting sites were somewhat isolated from other coniferous trees in portions of the wood surrounded by deciduous trees. The Pine warbler does not seem at all shy. I watched the female feed the young ones only 5 feet away while I sat on a limb 40 feet above the ground. Another time I hastily dismounted from my bicycle to observe a bird gathering horse hairs from the roadside only 8 feet away and apparently unconcerned about my presence. Another time while I was sitting quietly at the base of a pine, a female warbler hopped about on the ground so close that I could have touched her with my hand."

Dendroica palmarum palmarum (Gmelin)*Palm Warbler*

Plate 95

Motacilla palmarum Gmelin. Syst. Nat. 1789. 1:951

Dendroica palmarum palmarum A. O. U. Check List. Ed. 3. 1916.
p. 318. No. 672*palmarum*, Lat., of the palms, which it frequents in its winter home

Description. Upper parts grayish olive brown, tail coverts yellowish, the upper parts obscurely streaked with dusky; *crown chestnut rufous*; yellowish line over the eye; narrow blackish line through the eye; 2 whitish wing bars; outer tail feathers with white patches near the tip; throat and *upper breast light yellowish*, also the under tail coverts; the rest of the under parts grayish white more or less suffused with yellow; distinctly but *not heavily streaked with blackish* on the sides of the throat, on the sides and across the breast. *Female:* Practically like the male. *Young and fall specimens:* Similar to the adult, but the crown tipped with brown and in young specimens sometimes scarcely showing the rufous at all.

Length 5.43 inches; extent 8.4; wing 2.61; tail 2.1; bill .4; tarsus .77.

Distribution. Breeds from southern Mackenzie, central Keewatin, southward to northern Minnesota. Winters from southern South Carolina, Florida and the Bahamas to the West Indies and Yucatan. In New York this warbler is purely a transient visitant, commoner in western New York than in the coastal district, but appearing on Long Island and throughout eastern New York sparingly during the migration season. Spring dates vary from April 14 to April 27 for arrival and April 30 to May 12 for departure to the north. Western New York arrivals vary from April 20 to 29; latest birds seen, May 12 to 14. In the fall this warbler reappears in September between the 12th and the 23d. It is fairly common during the first half of October, disappearing between the 3d and the 18th. It must be accounted an uncommon species in the eastern part of the State and only a fairly common migrant in western New York except in the fall when it is sometimes common for two or three weeks after the first sharp frost, but at that season it is never more than one-fourth as common as the Myrtle warbler.

Haunts and habits. The Palm warbler frequents more open situations than most of the dendroicas, frequently occurring along the banks of streams where there is very little shrubbery, or even about the banks of ponds and swamps where there is no cover at all. Sometimes it is noticed in company with other Dendroicas feeding among the foliage, but it is unusual to notice it far from the edges of swamps and streams. It is comparatively a low-feeding species, flying about near the ground or in the low shrubbery, continually wagging its tail more after the manner of pipits, however, than like the water thrushes. The voice is described by Jones as a "trill, consisting of the syllables *tsee* four times repeated, uttered with a distinct swell."

Dendroica palmarum hypochrysea (Ridgway)

Yellow Palm Warbler

Plate 95

Dendroica palmarum hypochrysea Ridgway. Bul. Nuttall Orn. Club. Nov. 1876. 1:85

Sylvicola ruficapilla DeKay. Zool. N. Y. 1844. pt. 2, p. 89, fig. 133

Dendroica palmarum hypochrysea A. O. U. Check List. Ed. 3. 1910. p. 318. No. 672a

hypochrysea, Gr., meaning golden below

Description. Similar to the Palm warbler but larger, the upper parts more olive and the *under parts entirely yellow*, the breast *streaks reddish brown* or rufous, the line over the eye yellow at all seasons.

Wing 2.7 inches; tail 2.2; bill .4.

Distribution. This subspecies breeds from Ontario, northern Quebec and Newfoundland to southern Nova Scotia, New Brunswick and northern Maine; winters from Carolina and casually as far north as Pennsylvania to Florida and Louisiana. In New York it is a transient visitant in the coastal district, arriving from the south from the 14th to the 28th of April, average date April 18, and usually passing northward by the 12th of May. It is a fairly common transient in the coastal district, largely displacing there the Palm warbler which is more characteristic of the interior of New York. Specimens of the Yellow palm warbler have been taken in migration also at Syracuse, according to A. W. Perrior, and near Albany by

A. F. Parks. Doctors Reed, Wright and Allen also report a specimen from Ithaca, but aside from these migration dates for the interior every other specimen of the Palm warbler which I have examined has been of the subspecies *palmarum* and this is the species which I observe each season during the migration both in the spring and fall; whereas, while observing the migrations in the lower Hudson valley and in the vicinity of New York City I have noticed nothing but the Yellow palm warbler during both the spring and fall flights. In habits this subspecies does not differ from the Palm warbler already described.

Dendroica discolor (Vieillot)

Prairie Warbler

Plate 95

Sylvia discolor Vieillot. Ois. Amer. Sept. 1807 (1809?) 2: 37, pl. 98
Sylvicola discolor DeKay. Zool. N. Y. 1844. pt 2, p. 96, fig. 110
Dendroica discolor A. O. U. Check List. Ed. 3. 1910. p. 319. No. 673
discolor, Lat., variegated or parti-colored

Description. *Upper parts olive green, the back spotted with rufous or reddish chestnut; line over the eye, space beneath it, the 2 wing bars and entire under parts yellow; a black line through the eye, another along the side of the head and a crescentic patch on the side of the neck; sides streaked with black; outer tail feathers largely white, the second and third white near the tip. Female:* Similar to the male but paler and less distinctly marked, the chestnut patch on the back sometimes very small or wanting. *Young in fall* frequently lack the chestnut marks altogether and general plumage less brightly and clearly marked but preserving the same pattern in coloration.

Length 4.75-4.90 inches; extent 7.15; wing 2.2; tail 1.95; bill .35; tarsus .67.

Distribution. Breeds from northeastern Nebraska, southern Ohio, southwestern Pennsylvania, southern New Jersey and along the coast from Massachusetts south to Florida, northern Mississippi and western Missouri; locally to central Michigan, southern Ontario and New Hampshire, and rarely in the Gulf States. Winters from central Florida to the Bahamas, and West Indies. In New York this warbler is local in distribution.

commonest in the southeastern part of the State and on Long Island. Its nest and eggs have been reported from Long Island, Oyster Bay, common (Roosevelt "Birds of Oyster Bay," 1879), still common in 1907 (Scribner's Magazine 42, 387); Millers Place, common (A. H. Helme); Shelter Island, common (W. W. Worthington); Long Island, rather common (Braislin). It is reported as rare or uncommon at Highland Falls, 1877, by Doctor Mearns; and at Ossining by Doctor Fisher. According to DeKay, this species was abundant near Lake Erie in 1844. We have always suspected, since DeKay published this on hearsay evidence, that he was mistaken; nevertheless, the local distribution and erratic habits of this warbler render it possible that it was abundant there 70 years ago and has since disappeared. During the last 30 years it certainly has been a rare summer resident in central and western New York. I have met with the species on only four occasions and these were in migration time. Baird, Brewer and Ridgway (Land Birds 1, 276) report a nest and eggs from central New York. D. W. Soule and M. R. Crockett report a nest and eggs June 2, 1899, from Sandy Creek, Oswego county. E. H. Short reports a nest from Orleans county June 16, 1904, collected by J. A. Ritenburg, and C. F. Stone two from Branchport. The spring migration of this warbler near New York City begins from the 1st to the 6th of May, the average date being May 4. In the fall it disappears from Long Island between the 1st and the 13th or 18th of September. Migration dates for western New York are May 3, 9, 11 and 12, birds observed near Rochester and Geneva by the author. The late E. S. Woodruff reports an adult female taken at Paul Smith's in the northern Adirondacks, May 17, 1908. As the birds which the author saw near Rochester were evidently migrating eastward along the shore of Lake Ontario, it is probable that a thin line of migration has been established through Oswego county and down the St Lawrence valley.

Haunts and habits. The Prairie warbler is not a bird of the grassland, as might be inferred from its name, but prefers dry hillsides, partially covered with a scrubby growth of bushes and saplings. In eastern Massachusetts Brewster speaks of it as preferring hilly pastures partially over-

grown with barberry and juniper. In the southern states it is found principally on sunny hillsides covered with bushes and saplings. Near Washington Doctor Coues found it in rather scrubby, hilly, open localities.

The nests are usually placed in barberries or low hickories, dogwood, scrub pines or cedar bushes from 1 to 5 feet from the ground. Mr Stone describes the nests he found near Branchport as follows: "I know of but three localities where this warbler finds suitable haunts, and but one pair in each locality. Here they are found in the same surroundings of bushes, saplings and briars which they prefer in other parts of the country, nesting in close proximity to the Chestnut-sided warblers. The nests are attached to forks of bushes from 2 to 3 feet from the ground and are compact and firmly woven, thick-walled structures of grayish colored shreds of weed bark, narrow dry grasses, fine round reddish grass stems, and lined with black horse hair, the outside resembling considerably nests of the Yellow warbler. Two of the four nests that I have found each contained 4 eggs on June 1 and 2, and two others had 1 and 3 eggs respectively on June 4. One nest was placed in a hazel bush surrounded by a dense growth of shrubbery close to a bubbling brook; another was in an elderberry bush in the midst of a brush lot."

The eggs are white or greenish white in ground color, speckled, spotted and blotched with dark umber, reddish brown, purplish and lilac shell markings, often with a well-formed wreath about the larger end. The dimensions average .64 by .49 inches.

The song of this species is "a lisping trill much like that of the Parula warbler in general character" but with a thin, wiry quality which Doctor Coues has compared to "the plaint of a mouse with a toothache," surely an extremely individual performance which, when once heard, will certainly distinguish this bird from all the other warblers.

Seiurus aurocapillus (Linnaeus)*Ovenbird*

Plate 92

Motacilla aurocapilla Linnaeus. Syst. Nat. Ed. 12. 1766. 1:334

Seiurus aurocapillus DeKay. Zool. N. Y. 1844. pt 2, p. 79, fig. 102

A. O. U. Check List. Ed. 3. 1910. p. 319. No. 674

scitrus, Gr., *επίω*, to wave, and *οὐρῶν*, tail; *aurocapillus*, Lat., gold hair or gold-headed, referring to the golden crown

Description. *Upper parts uniform olive green; crown a dull orange or golden brown with a black line running down each side from the base of the bill to the nape; under parts white, rather thickly spotted on the breast and sides with blackish; narrow maxillary streak on each side of the throat; sexes alike. Fall specimens practically like the spring ones.*

Length 6.2 inches; extent 9.75; wing 3; tail 2.15; bill .50; tarsus .92.

Distribution. Breeds from southwestern Mackenzie, northern Ontario, southern Ungava and Newfoundland to Colorado, Kansas, southern Missouri, Virginia, and in the mountains to Georgia east to the Atlantic coast from Nova Scotia to Virginia. Winters from South Carolina and Florida through the Bahamas and West Indies to Colombia. In New York this bird is uniformly distributed in all woodlands from the slopes of Mt Marcy to the groves of Staten Island. It is fully as dominant a species as the Yellow warbler though, of course, it requires woodland. Spring arrivals vary from April 25 to May 3, average dates near New York City being April 28; in western New York, May 2. In the fall it disappears between September 20 and October 10, a few sometimes lingering till the 20th.

Haunts and habits. The Ovenbird, or Golden-crowned thrush as it was formerly called, prefers a rich deciduous woodland, but it is by no means confined to our woods of maple, beech and hornbeam, or oak, hickory and chestnut, but is equally common in mixed woodlands, and in the North Woods I have found it where the growth was predominantly spruces and pines with only a few deciduous trees intermingled. We noted it a common species as high as the 3500 foot line on several of the mountains of the

higher Adirondacks, and throughout the State it is one of the most familiar members of the family. Its cheery note is heard throughout the summer months at least to the third or fourth week in July, and later on from the 10th of August to the middle of September.

The Ovenbird is a ground warbler, seeking almost all its food among the dead leaves and growing plants of the forest floor, but frequently flying



Ovenbird's nest and eggs

Photo by Ralph S. Paddock

up to the larger and lower branches of the trees. Like the Water thrush, it is a walker, searching about with springy tread for worms, spiders and various kinds of insects. Its nest is placed upon the ground, usually at the foot of a small sapling or on the side of a slight rise of the ground. It is almost always arched over by the brown leaves of last season and so completely concealed from view that it can rarely be discovered unless

the mother bird is frightened from the nest as one walks through the forest. It is composed of dry leaves and grasses and is rather bulky, but blends inconspicuously with the materials on the ground. The entrance is at one side, the dry leaves drooping down over it so that one can not look in without thrusting the cover aside. The eggs are usually 4 or 5 in number, of a creamy white ground color, rather profusely speckled with reddish brown and lilac. They average .85 by .65 inches in size.

The call note of the Ovenbird is a weak *cheep* which is uttered when the bird is worried or frightened, especially while an intruder is near the nest, when it is frequently reiterated. Its common song has been written for more than a generation by "tea-cher, tea-cher, tea-cher, tea-cher," each repetition being louder and more emphatic than the preceding; but, as many modern observers have remarked, the accent does not fall on the first syllable, the proper rendering of the performance being "*chér-te, chér-te, chér-te, chér-te.*" This ringing refrain is often heard as one journeys through the forest, in springtime and early summer, and will surely attract the attention of everyone that passes. It is not, however, the most melodious of the Ovenbird's performances, the passion song, as it is usually called, being commonly delivered on the wing when the bird is flying through the trees, as I have witnessed it on several occasions, the performer rising from a limb of moderate elevation and flying upward through the forest until he reaches nearly the height of the tallest trees when he seems fairly to burst with a torrent of warbling, gurgling notes which have no special form of delivery but are certainly melodious and impressive. After the torrent has spent its force, the performer partially closes his wings and darts down to the forest floor again, the song seeming to die away, as Thayer has said, "as if smothered by the sudden descent of the bird through the air." This flight song I have witnessed on a few occasions delivered just in the early dusk of evening, when the bird was flying upward from the highest tops of the forest trees to an altitude of 100 or 200 feet above the forest, fluttering its wings and rising higher and higher and pouring forth a confused medley of melody until apparently exhausted, like the Skylark, it closes

its wings and darts like an arrow to the sheltering coverts of the forest, the song echoing and dying away on the quiet evening air. This performance of the Ovenbird is truly startling, and it is to be regretted that it can not be oftener heard.

Seiurus noveboracensis noveboracensis (Gmelin)

Water Thrush

Plate 92

Motacilla noveboracensis Gmelin. Syst. Nat. 1789. 1:958
Seiurus noveboracensis DeKay. Zool. N. Y. 1844. pt 2, p. 78, fig. 106
Seiurus noveboracensis noveboracensis A. O. U. Check List. Ed. 3.
 1910. p. 310. No. 675
noveboracensis, new Lat., of New York

Description. Upper parts dark *olive brown*; a line over the eye, and *under parts yellowish white* or light sulphur yellow *heavily streaked with blackish*; sexes practically alike. *Fall plumage:* Like the spring.

Length 5.5-6 inches; extent 8.5-9.5; wing 2.7-5.3; tail 2.25; bill .5.

Distribution. Breeds from northern Ontario, northern Ungava and Newfoundland southward to central Ontario, New York, northern New England, and in the mountains south to West Virginia; winters from Mexico to the West Indies, Colombia and British Guiana. In New York this species is a common summer resident of the Adirondack district as well as in the Catskills and many swamps in central and western New York, especially Potter swamp in Ontario and Yates counties, Canandaigua Inlet swamp, Urbana swamp near Prattsburg, Montezuma swamp, Oak Orchard swamp and the swamp about Chautauqua Lake outlet. There also can be no doubt that it breeds in many other localities which have not been particularly studied by bird students familiar with this species. It certainly is a common summer resident in several of the localities mentioned as well as through the swamps of the Adirondacks and higher Catskills. Throughout the State it is a fairly common or common transient visitant, arriving from April 26 to May 7, average date in western New York being April 29, the spring migration ending between May 21 and 29. In the fall, southward movement begins from the 1st to the 19th of August;

in some localities not until the 1st to the 7th of September, and the last birds are recorded between the 16th of September and the 6th of October.

Haunts and habits. During the spring migration, the Water thrush is fairly common about the edges of ponds and swamps, especially where there is a friendly cover of shrubbery, even about the edges of our lawns, and wherever little rivulets run through meadows and parklands or groves, bordered by a sparse growth of bushes, one is sure to find this species during the season of late April and early May. It walks lightly and nimbly over the lawn or along the damp margin of the brooklet, bobbing its tail somewhat after the manner of the Palm warbler, but the motion seems to be produced by a springy movement of the legs and the whole rear portion of the body, rather than by a bobbing of the tail itself. The flight of the Water thrush is swift and darting. When disturbed in its favorite haunts it dashes rapidly away at a moderate elevation down the stream, its course seeming to be directed by the brooklet along which it resorts. Even



Photo by Verdi Burtch
Water thrush's nest and eggs

in the migration season its song is frequently heard, though not with such fulness and richness as in its summer haunts. It is a loud, ringing roundelay, rather rapidly delivered with a "ringing wildness" suggestive of the cool and bubbling streams of its summer home; "a ringing, bubbling warble, swift and emphatic, made up of two parts, the second lower toned and

diminuendo." Both Brewster and Chapman have agreed in considering this song, short as it is, more melodious than that of the Louisiana water thrush which has been so highly commended by many bird lovers. It certainly is inspiring in the vivid suddenness with which it bursts from the coverts of the swamp or streamside and fades away again into the echoing forest.

C. F. Stone thus describes its breeding habits: "In Potter swamp this warbler is a common summer resident, and also in Urbana swamp, where it finds ideal nesting situations in the wettest portions of the heavy timber. It is a most jubilant singer, rendering its song with animation in a ringing, sweet, clear voice, the characteristic song of Potter swamp from the last of April to about June 25. They have full sets of eggs as early as May 4, and nesting begins, some seasons, as late as June 10, the average time, however, is from May 15 to June 1. The nests are invariably snugly hidden in thick beds of moss at the bases of trees or stumps or decayed moss-covered logs, and rarely in the roots and dirt of upturned stumps, anywhere from the level of the damp ground to 2 feet above the stagnant pools of water. The mossy nest is formed from the bits of moss that are pulled out when the cavity is made in the bed of moss, and the lining is of the reddish moss stems. The eggs are 4 or 5, decidedly smaller than those of the Louisiana water thrush, but a series of both these water thrushes will exhibit such an intergradation that they are indistinguishable."

Seiurus noveboracensis notabilis (Ridgway)

Grinnell Water Thrush

Seiurus noveboracensis notabilis Ridgway. Proc. U. S. Nat. Mus. 1880. 3:12
Seiurus noveboracensis notabilis A. O. U. Check List. Ed. 3. 1910.
p. 320. No. 675a

Description. Coloration practically identical with that of the Northern water thrush, but perhaps a little darker and less olive on the upper parts, and *whiter below*, but the size *larger* and the *bill longer*.

Wing 3.1-3.25 inches; tail 2.20-2.50; bill .52.

Distribution. This species breeds from northwestern Alaska, central Mackenzie and central Keewatin to British Columbia, central Montana and northwestern Nebraska and northwestern Michigan; winters from Cuba and Mexico to South America. Migrates through the Mississippi valley and the South Atlantic coast. Specimens of this subspecies of the Water thrush have been reported from Raritan and from Princeton, N. J. The only New York specimen was taken at Millers Place, Long Island, by A. H. Helme and is now in his collection. It is purely accidental in New York.

Seiurus motacilla (Vieillot)

Louisiana Water Thrush

Plate 92

Turdus motacilla Vieillot. Ois. Amer. Sept. 1807 (1808?) 2:9. pl. 65
Seiurus motacilla A. O. U. Check List. Ed. 3. 1910. p. 320. No 676

motacilla, Lat., wagtail

Description. Upper parts *olive brown; stripe over the eye white; under parts white washed on the flanks and under tail coverts with buffy; breast and sides streaked with blackish* but not so closely as in the Northern water thrush, the throat and center of the abdomen being plain white. Sexes alike.

Length 6-6.30 inches; extent 10-10.75; wing 3-3.25; tail 2.25; bill .55; tarsus .91.

Distribution. Breeds from southern Minnesota, southern Michigan, Ontario, New York and southern New England to South Carolina and northeastern Texas; winters from Mexico, the Bahamas and West Indies to Colombia. The New York distribution of this species is shown by map on page 27, volume 1, of this work. It is a common summer resident in the lower Hudson valley and locally as far north as Catskill and even the southern end of Lake George. Throughout central and western New York it is found in all the ravines of the central lake district as well as in the Genesee valley and some of the streams flowing into Lake Erie; also in the wooded valley of the Cohoeton and Chemung. It is an early migrant, appearing in southeastern New York from the 9th to the 15th of April,

sometimes not before the 20th; in western New York usually not before the 18th to the 24th of April. In the fall it is last seen between the 24th and 30th of August according to many observers, but the last dates given by Chapman for the vicinity of New York City and the observations at Englewood, N. J., give September 20 to 30 as the date of departure.

Haunts and habits. The Louisiana or Large-billed water thrush prefers wooded stream sides, especially rugged streams where the water is tumbling over the rocks and steep banks. It is found near the bottom of these ravines, usually seeking its food of water insects in the shallow stream as it runs over beds of shale, or flitting from rock to rock that rise just above the surface. In the southern states it is said to abound in rich wooded bottomlands, but in New York it is rarely found in swampy localities, leaving these situations more to the Northern water thrush. Yet a few have been found nesting in swampy woods in the same locality with the other species although, as far as my observation goes, there is a sharp contrast in the habitat of the two species, the Northern water thrush keeping to the flooded swamps where there is dense cover of forest and underbrush, and moss-covered logs are in abundance on every hand; whereas this species prefers, as stated, the shaly glens of our Finger Lakes region, making its nest close to the bottom of the gully, usually only 2 or 3 feet above the level of the stream which flows through the glen.

The song of this species resembles somewhat that of the Northern water thrush, the flight song being particularly thrilling. This is often uttered as the bird rises from the lower portions of the glen and mounts up above the treetops, pouring forth a sudden burst of melody which Brewster syllables by the words "*pseur, pseur, persée, ser,*" fully as loud as that of the Northern water thrush and almost as rapid, but lacking the beautiful crescendo termination, and altogether a less fine performance. The call note is scarcely different from that of the Northern water thrush, which Chapman describes as a sharp, steely alarm note, "*clink,*" and Thayer calls "a ringing *chip* somewhat less loud and emphatic than that of the Louisiana water thrush." Stone says: "In every ravine and gully

along Lake Keuka, as well as those in the valley north of Branchport, the Louisiana water thrush finds an ideal summer haunt, as wild and weird as its ringing, melodious song that is uttered in a most ecstatic manner. They arrive in this locality as early as April 10, usually close to April 15, and I have noted a single individual as late as October 2, but by September 25 they are usually gone.

In a small hemlock-clad ravine but one pair will be found, while in the greater gullies that extend from the valley back into the hills two miles or more as many as three or four pairs will make their summer home. They also occur in Potter swamp, Yates county, in limited pairs where they hide their nest the same as the Northern water thrush at the base of trees, stumps and logs. In the gullies, however, they select all sorts of cavities, always within 12 feet above the rocky bottom over swift flowing



Photo by Clarence F. Stone
Louisiana waterthrush's nest and eggs

water or some deep pool. Of over 75 nests examined, probably nine-tenths were within 4 feet of the bottom of the gully. A favorite nest site is under a dirt, shale or mossy ledge, behind dangling rootlets. Sometimes an excavation is made in the mossy bed on nearly perpendicular banks, in cavities at the base of small trees, in barren slate

stone cavities, and sometimes the same cavity is used two or three years in succession. The Louisiana water thrush also has a habit of starting as many as three nests, then abandoning them for some other site. They are also found occasionally at the extreme entrance of the gully and sometimes at the upper end or in the entrance of a small branch leading into the main gully. The nests are made of skeletonized leaves, moss, rootlets, twiglets, grass stems, and often lined with fine grasses, hemlock twigs, dark rootlets, and horse hair, but dead pine needles is the usual lining. A characteristic feature of this warbler's nest is the doormat or path of leaves, from 6 to 12 inches long, leading from the nest, sometimes forming a striking contrast against the dark green mossy back. Many times the nest is cunningly concealed behind drooping ferns, but the pathway of leaves betrays the location of the nest to the careful observer. The female is a close sitter, allowing one to almost touch her, but when flushed she glides away, trailing around the rocks and debris with wings akimbo and extended tail, nervously dabbling her bill in the water in the most dainty manner. This warbler is much imposed upon by the Cowbird whose visits usually cause disaster by its clumsiness in filling the nest with loose shale or dirt while kicking 2 to 3 of the thrush's eggs out of the nest. In two instances I have noticed 5 eggs of the Louisiana water thrush with 2 of the Cowbird; in two instances, 6 of the water thrush and 2 of the Cowbird. Several times nests were deserted where the Cowbird had deposited her egg. One egg a day is laid, often with an interval of 5 and 6 days before the last egg is deposited. If the first nest is destroyed it requires 15 days to build a new one and lay 5 eggs. Of 61 nests observed, 7 contained 4 eggs, 36 contained 5, and 18 had 6 eggs. They vary greatly in size and shape and from almost plain to lightly dotted, heavily blotched and sometimes beautifully wreathed around the larger ends. The average size is .78 by .61 inches. Normally, the nesting period extends from May 4 to May 30, and young just able to fly are noted out of the nest as early as May 20. I consider all fresh June sets second attempts at nesting owing to accidents with the first nests."

Oporornis formosus (Wilson)*Kentucky Warbler*

Plate 98

Sylvia formosa Wilson. Amer. Orn. 1811. 3:85. pl. 25, fig. 3*Sylvicola formosa* DeKay. Zool. N. Y. 1844. pt 2, p. 105, fig. 127*Oporornis formosus* A. O. U. Check List. Ed. 3. 1910. p. 320. No. 677
oporónis, Gr., ὀπώζζ, autumn, and ὄρνις, bird; *formósus*, Lat., beautiful

Description. Upper parts olive green; under parts bright yellow; fore crown and a broad bar running from the bill to below the eye, black; line over the eye bright yellow. Sexes alike. The female slightly duller. Fall specimens have the black markings partially veiled.

Length 5.50–5.75 inches; extent 9.25; wing 2.65–2.90; tail 2; bill .45.

Distribution. Breeds from northeastern Nebraska, southern Mississippi, southern Pennsylvania and the lower Hudson valley south to eastern Texas and Alabama; winters from Tabasco and Chiapas to Colombia. Its distribution in New York is shown by the map on page 28 of volume 1 of this work. It is common as a breeding species only in the lower Hudson valley where Doctor Fisher found it a regular summer resident near Ossining and Bicknell near Riverdale and Fort Lee. It is also reported from Newburgh by F. B. Robinson, and from many localities in New Jersey and near New York City. On Long Island it has always been considered rare as a summer resident, but Mr Helme reports a nest and young from Sayville, L. I., and Mr Babson from Bellport. It has also been noted in the migration at Raynor South May 18, 1834, and Fire Island light August 19, 1888 (Dutcher, Auk, 6:139), and also from Flatlands (Auk, 10:277). In the interior of New York this is one of the very rarest of our summer warblers. It is reported from Chili May 1894 by Short; Lockport May 21, 1891, by Davidson; Rochester, May 14, 1904, by Professor Dodge; and its nest has been found near Cincinnatus, June 27, 1903, and at Taylor, June 11, 1906, by H. C. Higgins. It is probable that this Cortland county colony is connected with the Rockland county and northern New Jersey range through the Delaware valley. The spring migration of this species begins in southeastern New York during the first week in May, the dates

ranging from May 2 to 18; in the fall Doctor Fisher records it as disappearing on August 27.

Haunts and habits. The Kentucky warbler is a bird of the deciduous forest, preferring especially densely grown, well-watered woods and overgrown clearings, in nearly every instance occurring where there is a dense growth of underbrush and a fairly moist atmosphere. Gerald Thayer writes: "The song is remarkably loud and clear, strikingly similar to that of the Carolina wren; a series of 3 clear whistled notes, repeated 5 to 10 or more times, "*tee-wee-o, tee-wee-o, tee-wee-o,*" etc. The male while singing is usually perched on a branch far up on some tall tree and very often seeks a new perch at some distance after singing a few times, flying directly and rapidly at a moderate height through the woods. At other times it may be found on the ground, walking about like the Ovenbird, but more spritely in action." Chapman describes the song as a loud clearly whistled performance of 5, 6 or 7 notes, "*turdle-turdle,*" clearly heard at a distance of 150 yards. During the breeding season it is a persistent singer. On one occasion he watched a male for three hours. During this time, with the exception of 5 interruptions of less than 45 seconds each, he sang with regularity every 12 seconds.

The nest is placed on the ground or near it in a dense tangle among the roots of a tree and is rather bulkily constructed of twigs, rootlets and several thicknesses of leaves. The interior is well lined with dark rootlets and long horse hair. The eggs are 4 or 5 in number, white in ground color, speckled and blotched with umber, reddish brown and lilac, evenly distributed or forming wreaths near the larger ends. Their average size is .74 by .58 inches. Nesting dates from the lower Hudson valley range from June 1 to 14.

Oporornis agilis (Wilson)*Connecticut Warbler*

Plate 69

Sylvia agilis Wilson. Amer. Orn. 1812. 5:64. pl. 39, fig. 4*Oporornis agilis* A. O. U. Check List. Ed. 3. 1910. p. 321. No. 678*ágilis*, Lat., active, agile

Description. *Adult male:* Upper parts olive green becoming ashy on the sides and fore part of the head; throat and fore breast slaty gray; lower breast, belly and under tail coverts deep yellow; a distinct white eye ring. *Female:* Throat and upper breast brownish, palest on the throat; otherwise similar to the male but duller throughout, showing no ashy or slaty gray, but the white eye ring nearly as distinct as in the male.

Length 5.50 inches; extent 8.50-9; wing 2.75-3; tail 2; bill .48; tarsus .80.

Distribution. Breeds from Manitoba to central Minnesota and northern Michigan; winters in South America. In spring, rare east of the Alleghanies, but in fall common east of the Alleghanies and rare in the Mississippi valley. In New York this species is only a transient visitant. Although several reports of spring specimens seen have come to me from western New York I have been unable to secure or find in collections any spring specimen from the State. The dates of fall migration range between August 26 and October 11, the average date of arrival being September 7 and the usual date of departure September 25 to October 5. It is by no means rare during the fall migration, especially during the middle and third week of September.

Haunts and habits. As the Connecticut warbler is not found here during the spring migration, its song is not heard within our boundaries. During its stay with us it is found in thickets of winterberry, shad bush, jewel weed and other dense growing herbs and shrubs of the ditches and swamplands, usually keeping near the ground and under dense cover. It is frequently seen on the bare margin of sluggish brooks or ditches walking along like other birds of its genus, not hopping like the dendroica.

Its call note is a quick, sharp, metallic "*plink.*" Its song, as heard in its summer home in the tamarack swamps of Manitoba, is described by

Seton as resembling the words "*beecher, beecher, beecher, beecher, beecher*"; at other times like the syllables "*fru-chappelle, fru-chappelle, fru-chappelle, whoit.*" As several careful observers, notably Maurice Blake and the late Frank Antes of Canandaigua, as well as Lawrence Achilles and Tom Taylor of Rochester and Ernest H. Short of Chili, have reported seeing birds which they felt sure were examples of this species migrating with other spring warblers toward the northeast, I made a very careful hunt for the Connecticut warbler among the spruce and tamarack bogs and swamps of the higher Adirondaeks, but entirely without success. New York evidently lies outside its breeding range and any spring migrants found in the State would undoubtedly be only stragglers from the main route of migration.

Oporornis philadelphia (Wilson)

Mourning Warbler

Plate 100

Sylvia philadelphia Wilson. Amer. Orn. 1810. 2:101. pl. 14, fig. 6
Trichas philadelphia DeKay. Zool. N. Y. 1844. pt 2, p. 81, fig. 122
Oporornis philadelphia A. O. U. Check List. Ed. 3. 1910. p. 321. No. 679

philadelphia, named for Philadelphia, near which Wilson discovered the species

Description. Very similar in size and shape to the Connecticut warbler. *Adult male:* Head and neck bluish slate; the lores blackish; the throat showing blackish feathers among the slaty gray, becoming quite black on the breast where it gives way suddenly to the deep yellow of the lower breast and belly; sides strongly tinged with the color of the back; no white eye ring. *Adult female:* Has the bluish slate of the head and neck lighter and tinged with brownish; the olive green upper parts and yellow under parts duller than the male's. *Young in the fall:* Similar to the adult, but lacking the bluish slate of the head and neck and the males lacking the blackish seen in the adults in spring. The young females being nearly uniform olive green above and yellow below. *Young* also show an obscure whitish eye ring.

Length 5.63 inches; extent 7.60-8.15; wing 2.40-2.60; tail 2-2.25; bill .45; tarsus .80.

Distribution. Breeds from central Alberta, southern Saskatchewan, southwestern Keewatin, Nova Scotia and the Magdalenes south to central

Minnesota, Michigan, central Ontario, New York and Pennsylvania and the higher portions of Massachusetts; in the mountains to West Virginia. Winters from Nicaragua to Colombia and Ecuador. The New York range is shown by the map on page 28 of volume 1. It is fairly common as a summer resident in the Catskill and Adirondack districts as well as in the highlands and colder swamps of central and western New York. Unmistakable evidence of its nesting has been reported at Green Island, Albany county, by Austin F. Park; Peterboro and Stockbridge by Maxon and Miller; Buffalo by James Savage; Niagara county by J. L. Davison; Orleans county by C. F. Possun; Phelps by Bowdish; northern Cayuga county by Frank S. Wright; Cincinnatus by H. C. Higgins; Ithaca by Reed, Wright and Allen; Scottsville by E. H. Short; the "big gully" near Chautauqua lake by H. L. Achilles. I have noticed it breeding in several of the glens of Canandaigua and Seneca lakes as well as in Potter swamp and in the cooler hillsides overlooking the village of Springville, Erie county.

Haunts and habits. In these localities the nest is usually placed among tangles of briars and ferns on the shady side of the gully or among second growth in partially cleared woodlands. The eggs are usually 4 in number, white in ground color, rather sparingly spotted and blotched with reddish brown, hazel, light amber and occasionally a few obscure shell markings, averaging .72 by .56 inches in size. The nesting dates reported vary from June 1 to 17, the average date being June 7.

Mr Gerald Thayer writes: "The song, which is not very commonly uttered during migration, resembles that of the Kentucky warbler and the Maryland yellow-throat in that it consists throughout of a repetition of two or three clear, whistled notes and also resembles that of the former bird somewhat in the modulation of the voice. The song is decidedly softer and more hesitating than that of the Yellow-throat and has no great carrying power. The call note resembles somewhat the 'chuck' of the Yellow-throat, but is less pronounced." To my ear, the carrying power of this warbler's song is fully as great as that of the Yellow-throat. On

his nesting grounds I am able to hear it at as great a distance as the Oven bird's, in fact, the note seeming to my ear fuller and louder than that of any other species except the Ovenbird.

Mr Verdi Burtch of Branchport thus describes the nesting habits of this warbler in Yates county: "In Potter swamp, where the timber has been well thinned out, where the ground is wet and springy, where the ferns, skunk cabbage, tall rue, spice bush, bishop's cap, false Solomon's seal, white baneberry and marsh marigold mingle, and poison ivy and woody



Mourning warbler's nest and eggs

Photo by Verdi Burtch

nightshade cover the stumps and dead tops, and here and there a tall dead stub towers above the bushes, here the Mourning warbler makes its summer home, nesting along the abandoned wood roads and more open places that are now grown up with grass, ferns, skunk cabbage, rue and marsh marigolds. It arrives about May 9 to 20 and is fairly common, nesting in company with Northern yellow-throats and Golden-wing warblers. It begins nestbuilding the last week of May and complete

sets are laid by June 3 to 10. The eggs are 4 or 5 in number, more often 5, creamy white in color and vary considerably in style of markings, some sets have fine specks with blotches and spots of reddish brown and a few lilac shell markings, the markings mostly at the larger end forming a wreath. A set of 5 has 4 eggs heavily marked about the larger end with bright reddish brown and lilac shell markings and large dauby blotches of reddish brown placed irregularly over the balance of the eggs; the other egg is well marked about the larger end with a few spots scattered over the rest of the egg. Nearly all eggs have a few fine spots or scrawls of dark brown like the eggs of Northern yellow-throat and some eggs resemble those of the Yellow-throat very much but are mostly larger and rather more elongated. In some sets the markings are rather dull, running mostly to shell markings. The nest is of dead weeds and grass, lined with fine dead grass and in most cases with fine strips of black inner bark or black rootlets. In fact, the lining, with very few exceptions, is black. It differs from the nest of the Northern yellow-throat by not having any coarse grass or dead leaves in the base; the cavity is larger but more shallow and it is broad and flat while that of the Yellow-throat's is small and tall. A typical nest measures: diameter, outside, 4 inches; inside, 2 inches; depth, outside, $2\frac{1}{2}$ inches; inside, $1\frac{5}{8}$ inches. These swamp nests are usually situated in a grassy place among the brush and tops that were left by the lumbermen, in a bunch of weeds, or the middle of a bunch of skunk cabbage or ferns. One nest was placed on top of a thick vine that ran over the ground and there was scarcely any attempt at concealment. Another was in a very wet place in the heart of a marsh marigold. Another was in a bunch of weeds on a rotted moss and dirt-covered log. The nests are usually very well concealed and very near the ground. When a nest is found the female usually runs a little ways ahead, then flies slowly to a bush, but soon comes back, dodging around among the bushes chipping all the time. The chip of the female is sharp and rather loud. It might be likened to the noise produced by striking two pebbles together gently. When the grass above one nest was parted the female, which was on the

nest, hissed and stuck to the nest until almost touched by the hand. The male has a habit of sitting on a dead or naked branch high over an open space where he sings by the half hour stopping occasionally to preen his feathers. The Mourning warbler also nests in an entirely different situation near Branchport. June 4, 1903, a nest was found in a dry bush lot clearing along a large gully at an elevation of 250 feet above the valley. It was placed in a small beech bush 18 inches from the ground among wild blackberry bushes, beech stumps and sprouts. It contained 2 eggs and no more were laid. They were taken June 7. June 21 a second nest was found in the sprouts around a beech stump. It contained 4 eggs and was $2\frac{1}{2}$ feet from the ground. As it was only 3 rods from the place where the first nest was found and as both nest and eggs strongly resembled the first nest and eggs, it was undoubtedly a second set from the same bird. Both nests were larger and more bulky than the Potter swamp nests. One measures: diameter, outside, 6 inches; inside, $2\frac{1}{4}$ inches; depth outside, $3\frac{1}{2}$ inches; inside, $2\frac{1}{8}$ inches. Both nests were of dead weeds and grass, thickly lined with black horse hair.

"A nest found June 13, 1909, was a little farther up this same hill and was placed on the ground in a clump of oxeye daisies close by the highway through some woods and it was less than 2 feet from the beaten track. It contained 5 eggs."

Geothlypis trichas trichas (Linnaeus)

Maryland Yellow-throat

Plate 98

Turdus trichas Linnaeus. Syst. Nat. Ed. 12. 1766. 1:293

Trichas marilandica DeKay. Zool. N. Y. 1844. pt 2, p. 80, fig. 123

Geothlypis trichas trichas A. O. U. Check List. Ed. 3. 1910. p. 322.
No. 681

geóthlypis, Gr., γῆ, earth, and θλίσις, a proper name, meaning unknown, word coined by Cabanis in 1847; *trichas*, Gr., word for thrush or some similar bird, used by Aristotle

Description. *Adult male:* Upper parts olive green; throat and breast bright yellow changing to dingy white on the abdomen; frontlet and sides of the face, the mask, jet black bordered above by bluish gray. *Female:*

Entire upper parts olive green slightly more brownish than in the male; forehead often tinged with reddish brown; throat and breast yellowish, sometimes dingy white; rest of under parts whitish tinged more or less, especially on the sides, with brownish; whitish eye ring; no black mask.

Length 5.33 inches; extent 7.20; wing 2.20; tail 2.05; bill .42; tarsus .80.

Distribution. Breeds from North Dakota, northern Minnesota, northern Ontario and southern Labrador, south to central Texas, northern parts of the Gulf States and Virginia; winters from North Carolina and Louisiana to Florida, the West Indies and Guatemala. In New York this species is a summer resident of all parts of the State. Though it is confined to swampy localities, it is abundant in the coastal district as well as the central and western counties and even the interior of the Adirondacks where I found it breeding commonly at Elk lake and the "Flowed land" within a few miles of Mt Marey. The spring migration begins from the 28th of April to the 10th of May, average date being May 5 in the southeastern counties, May 4 in western New York. In the fall it disappears between the 15th and the 25th of October, in the coastal district, and from the 5th to the 15th of October in western New York. The Yellow-throat, like the Yellow warbler, Redstart and Ovenbird, is one of the dominant species of this family in New York, and is one of the four best known warblers in all portions of the State.

Haunts and habits. The Maryland yellow-throat is not a bird of the dense forest, but frequents the swampy thicket and the edges of moist woods, the margins of wooded streams, or dense tangles in damp open woodlands. I have even found it a member of the marsh society far from the edge of the wood, associated with the Swamp sparrows and Marsh wrens, especially where a few bushes were intermingled with the dense growths of flags and sedges. Where garden shrubbery lies near the edge of ponds or swampy tracts, the Yellow-throat will sometimes make its home among the berry and currant bushes or about the edges of the garden shrubbery. It spends most of its time near the ground but is rarely seen walking about like some of its near relatives, but almost continually flitting

from one weed or low bush to another, peering about in all sorts of crannies for caterpillars and other small insects.

The call note is a sharp *chick* or *chack*, sometimes changing to *chit* or *quit*. It also utters a variety of jarring, chattering notes almost suggestive of the scolding of a wren, sometimes a little long-drawn snarl, as Thayer calls it, a wrenlike "*b-r-r-r-r-r.*" Its song is a full-voiced performance but rather irregular in form. The commonest form has usually been written "*wichity, wichity, wichity,*" or "*rapity, rapity, rapity.*" This

song is almost endlessly varied, but is a curious ringing whistle which will certainly be suggested by these attempts to syllabize the ditty.

The nest is usually placed on the ground or near it, among thick bushes or weeds, sometimes in a tussock of marsh grass, sometimes in a low bush or in a tangle of briars. It is rather bulky in construction, composed of dead leaves, coarse grasses and strips of bark, lined with finer grasses, tendrils and rootlets, sometimes a few long



Photo by L. S. Horton
Maryland yellow-throat on nest

hairs. The eggs are 3 to 5 in number, usually 4, of a shiny white ground color, speckled, spotted and blotched with reddish brown, purplish black, umber and a few spots of lilac. Sometimes the markings are in long pen lines and forming a wreath near the larger end. The average size is .72 by .54 inches. Nesting dates in western New York and on Long Island vary from May 24 to 31, fresh sets being found as late as June 12. Occasionally nests with fresh eggs are found as late as the 4th to the 10th of July, possibly representing a

second brood, although I have no definite evidence that a second one is reared.

Icteria virens virens (Linnaeus)

Yellow-breasted Chat

Plate 68

Turdus virens Linnaeus. Syst. Nat. Ed. 10. 1758. 1:171

Icteria viridis DeKay. Zool. N. Y. 1844. pt 2, p. 126, fig. 71

Icteria virens virens A. O. U. Check List. Ed. 3. 1910. p. 324. No. 683

icteria, from Gr., meaning jaundice, referring to the bird's yellow color; *virens*, being green

Description. Upper parts olive green; throat and breast rich yellow; belly white; lore black; stripe from nostril over the eye, upper and under eyelid and a narrow maxillary streak white; bill black; feet leaden blue. *Female:* Very similar but duller, especially the lore, which is grayish. *Young:* Like the female.

Length 7.44 inches; extent 10; wing 3; tail 3.15; bill .55; tarsus 1.02.

Distribution. Breeds from southern Minnesota, Wisconsin, Michigan, Ontario, central New York and southern New England to the gulf coast; winters from Pueblo and Yucatan to Costa Rica. The distribution of the Chat in New York is shown by the map on page 27, volume 1 of this work. It is a common summer resident in the lower Hudson valley and Long Island. It is extremely local in distribution in other portions of southern, central and western New York, occurring especially in the Delaware, Susquehanna and Chemung valleys and near the southern ends of the Finger lakes. The average date of arrival in southeastern New York is May 9, but it occasionally arrives as early as the 2d of May; in some seasons it is not noted till the 14th. In central New York the dates of arrival are somewhat earlier, averaging May 5; sometimes at Ithaca and Branchport as early as the 30th of April. The last fall dates occur between August 24 and September 13. Definite breeding dates from the interior of New York are as follows: Cohoes, June 19, 1878, A. F. Park; Kendall, June 1885 and 1889, David Bruce; West Seneca, June 17, 1895, James Savage; Holland Patent, June 6, 1898, Williams, Auk 15:331;

Granville, June 17, 1890, F. T. Pember; Chili, May 26, 1890, E. H. Short; Branchport, June 13, 1899, Stone, Auk, 16:285; Castleton, June 1897, nest and eggs in State Museum; Ithaca, 1900 to 1910, Fuertes, Wright and Allen; Penn Yan, July 8, 1900, Verdi Burtch; Monroe county, June 2, 1902, E. H. Short; Cincinnatus, June 25, 1902, H. C. Higgins; Peterboro, June 17, 1877, adult male but no nest reported, Gerritt S. Miller jr, Maxon, Auk, 20:266; South hill, Canandaigua lake, July 5, 1906, Burtch, Stone and Eaton; Oneonta, summer of 1900, W. E. Yager; Corning, summer 1902, George P. Hollister.

Haunts and habits. The Chat is not a bird of the dense woodland or of open situations, but is confined to thick coverts of shrubs, vines and young saplings, preferring a denser covert than even the Chestnut-sided warbler and the Catbird. It is rarely seen far from such situations and its distribution will depend on the presence of dense tangles of vines and shrubbery or thick growth of brush where the forest has recently been cut on some hillside pasture or where bushes are allowed to grow up in confusion upon the hillside or in some bit of swamp or bunch of rocks. Though the Chat is so averse to being seen, he will sometimes be found even within the limits of our villages and cities where suitable thickets of considerable extent are found and his loud song is frequently heard from the village streets and sidewalks. "The voice of this bird is flexible to an almost unlimited degree. It has no notes suggesting its place among the warblers. Perhaps the commonest note is a harsh, rather nasal *chuck*, often prolonged into *chuck-uck*. The song is almost impossible to describe. It begins with two slow, deep notes; then follows one high-pitched and interrogative note; then several, rapid and even, and from that point on to the end, I have never been able to give any rendering of the clucking and gurgling that completes the long song. As far as I have described, it may be rendered thus: *quoort-quoort! whee? whew-whew-whew!*" (Allison, Chapman "Warblers of North America"). Bicknell notes the song period from the date of arrival to the third or even the fourth week of July, quite regularly to the middle of the month. An imperfect song is

sometimes heard as late as August 14, the last perfect song, however, being heard between July 15 and August 1; but the *chut* or *chat* note can be heard as long as the bird is present. The wonderful performances of the Chat during his singing ecstasy have been well described by Taverner (Bird Lore 8, 131): "His love song is a woodland idyll and makes up for much of his shortcomings. From some elevated perch from which he can survey the surrounding waste for a considerable distance he flings himself into the air, straight up he goes on fluttering wings — legs dangling, head raised, his whole being tense and spasmodic with ecstasy. As he rises he pours forth a flood of musical gurgles and whistles that drop from him in silvery cascades to the ground, like sounds of fairy chimes. As he reaches the apex of his flight, his wings redouble their beatings, working straight up and down, while the legs hanging limply down remind the observer of drawings we sometimes see from the brushes of Japanese artists. He holds his hovering position for an instant, then the music gradually dies away and he sinks toward the ground. He regains his natural poise and seeks another perch like that from which he started." The nest of the Chat is placed in the midst of some thicket or tangle of vines or briars close to the ground, usually about 3 feet up. It is a rather bulky structure composed of dead leaves, grasses, weed stalks, strips of bark, lined with fine grasses. The eggs are from 3 to 5, usually 4 in number, pure white in ground color, sometimes tinged with pink or greenish; usually rather evenly spotted with reddish brown, chestnut and purplish lavender, rather sharp and clearly outlined, but sometimes forming a wreath near the larger end, the size averaging .92 by .72 inches. The nesting dates in southeastern New York range from May 25 to June 13; in central New York May 27 to June 14.

Wilsonia citrina (Boddaert)*Hooded Warbler*

Plate 63

Muscicapa citrina Boddaert. Table Pl. Enl. 1783. 41*Wilsonia mitrata* DeKay. Zool. N. Y. 1844. pt 2, p. 107, fig. 128*Wilsonia citrina* A. O. U. Check List. Ed. 3. 1910. p. 324. No. 684*wilsonia*, genus named by Bonaparte in honor of Alexander Wilson, father of American ornithology; *citrina*, like a citron, yellow

Description. *Upper parts olive green; face and under parts bright yellow; 3 pairs of outer tail feathers largely white; a jet black hood covering the crown of the head extending around the sides of the neck and covering the throat, inclosing the brilliant yellow face. Female:* The whole face and under parts yellow, black appearing behind the crown and running down the side of the neck, barely indicating the hood.

Length 5.67 inches; extent 8.25; wing 2.58; tail 2.3; bill .4; tarsus .77.

Distribution. Breeds from southeastern Nebraska, southwestern Michigan, central New York and the lower Connecticut valley south to Louisiana and Georgia; winters from Vera Cruz and Yucatan to Panama, occasionally to Cuba. Its breeding range in New York is shown by the map on page 28 of volume 1 of this work. It is rare on Long Island and apparently occurs only as a transient visitant in the immediate vicinity of New York, and in Westchester county it is also a rare species; but farther north and west, especially near Highland Falls, it is found as an abundant summer resident; also at Palenville, Greene county (La Dow, *Auk*, 25:480). In the interior of New York its distribution is local, but breeding colonies of considerable extent have been noticed in Cortland county by Higgins; in Madison county by Maxon, Bagg and Embury; in northern Cayuga and Wayne counties by Rathbun and Wright; near Brockport by David Bruce; near Forest Lawn, Monroe county, by Dr C. A. Dewey and Mr George Perkins; near Springville by E. H. Eaton; in East Hamburg by Thomas N. Bunting; near Mayville by A. E. Kibbe. The date of the arrival of the Hooded warbler in spring averages May 5 in southeastern New York; in central New York from the 6th to the 12th of May; Long Island records,

which are very few, range between April 30 and May 14. The last appearance in the fall is usually between the 1st and 8th of September. In the vicinity of New York Chapman gives September 20 to 30.

Haunts and habits. The Hooded warbler prefers a deciduous forest although mixed woodlands are frequently occupied in central and western New York. The preferred growth is beech, maple, cherry and hornbeam, or oak, chestnut, hickory and sassafras, or oak and laurel, and if the woodland is rich and well watered it is all the more attractive to this beautiful warbler — not open woodland, but rather mature forest, with a considerable growth of saplings and underbrush of moderate height. The males are frequently seen above the line of undergrowth in the lower branches of the taller trees, singing their songs throughout the breeding season.

This song is well characterized by Chapman in his "Warblers of North America" as distinguished by an "easy, sliding gracefulness. To my ear the words 'You must come to the woods or you won't see me,' uttered quickly and made to run one into the other, exactly fit the bird's more prolonged vocal efforts though they are far from agreeing with the attempts at syllabication of others. The call is a high, sharp chip, easily recognized after it has been learned." Allison says the usual note is clear and nervous, but not a metallic chirp. "There are two common songs, both uttered on every possible occasion in spring when the woods are ringing with them. The most frequent is a short one of four syllables '*se-whit, se-wheer*'; a longer song may be rendered '*Whee-whee-whee-a-wheer*,' accented as marked. A sharp or very clear-cut *chirt* is sometimes to be heard late in the evening, about dusk." Bicknell agrees with Allison and other observers in noting two distinct songs of this warbler. He has heard the song as late as July 1 to 15 and occasionally again during the fourth week of August. The song of this warbler is one of the few which the author can hear with perfect distinctness and enjoy. While the song of the Chestnut-sided warbler is audible to him only for a distance of 5 or 6 rods, and the song of the Blackpoll is utterly inaudible even at a distance of 3 rods, the song of the Hooded warbler can be heard almost throughout the forest for a dis-

tance of 30 or 40 rods, and the description which is given by Langille seems to fit very well the birds of western New York as it did when he described it years ago in his "Birds in Their Haunts": "*che-reek, che-reek, che-reek, chi-di-ee,*" the first three with a loud, bell-like ring, the rest much accelerated with a falling inflection.

The nest of the Hooded warbler is usually placed in a low sapling or bush from 1 to 3 feet from the ground. In my experience it is the easiest of all the warbler nests to find. Wherever I have noticed a Hooded warbler singing in a patch of woodland, I have been very successful in locating the nest by placing my eye close to the ground and looking through the shrubbery from below the cover of the undergrowth. Then the nest will almost surely be seen if one is within a few rods, appearing like a bunch of leaves a short distance above the ground. As soon as the female is frightened from the nest she flits about from bush to bush, flashing her tail and uttering a mild *chip* or *cheep*. The nest bears some resemblance to that of the Indigo bird, but is more neatly constructed of dry leaves, strips of bark, grasses and rootlets lined with fine grasses and sometimes a few dark rootlets. The eggs are 3 to 5 in number, almost always 4, creamy white in ground color, rather sparingly spotted, especially in wreaths about the larger ends, with reddish chestnut, purplish, and obscure shell markings of pale lavender. The average size is .74 by .54 inches. Nesting dates from southeastern New York range from May 26 to June 15; from western New York May 18 to June 12.

Wilsonia pusilla pusilla (Wilson)

Wilson Warbler

Plate 98

Muscicapa pusilla Wilson. Amer. Orn. 1811. 3:103. pl. 26, fig. 4

Wilsonia pusilla DeKay. Zool. N. Y. 1844. pt. 2, p. 108, fig. 117

Wilsonia pusilla pusilla A. O. U. Check List. Ed. 3. 1910. p. 325.
No. 685

pusilla, Lat., small

Description. *Upper parts olive green; crown shining jet black bordered on the frontlet and sides of the head with bright yellow; under parts bright*

yellow. *Female:* Like the male, but the colors less bright and the black cap more or less veiled. *Fall specimens:* The crown tipped with olive in the male, the *young females lacking the black cap.*

Length 5 inches; extent 6.97; wing 2.21; tail 2; bill .32.

Distribution. Breeds from central Mackenzie, central Keewatin and central Ungava and central Newfoundland south to southern Saskatchewan, northern Minnesota, central Ontario, New Hampshire, Maine and Nova Scotia. Winters from Guatemala to Costa Rica. Migrates mainly along the Alleghanies. In New York this warbler is only a transient, the most careful search for it in the Adirondaeks having, as yet, been fruitless, although it is recorded from northern New Hampshire and Maine as a summer resident. The spring migration begins near the coast from the 9th to the 17th of May, the 12th being the average date. In western New York it is occasionally noted as early as the 3d of May, but the 11th seems to be the average date of arrival. The last birds pass northward between the 22d and 31st of May, a few dates in southeastern New York running as late as June 13. In the fall, migrants come from the north between the 10th and the 27th of August, sometimes not before the 9th of September, and the last depart for the south from the 1st to the 6th of October. The species is rather erratic in abundance, some years scarcely being noticed at all, other seasons appearing in large numbers, but in general, it is called an uncommon species in the southeastern portion of the State and in many stations of central New York it is regarded one of the rarer warblers; but in all localities near the southern shore of Lake Ontario as well as the region about the central lakes, the Wilson warbler is quite regular in occurrence, but the abundance varies as has been noted by many observers. The late David Bruce of Brockport called my attention to the fact that during the years while he was collecting in Monroe county he was unable to secure specimens of the Black cap for several seasons; then perhaps in one day he would notice hundreds of the species and be able to secure all the specimens he needed for years to come. Personally, I have succeeded in recording the species every spring, while observing in Monroe, Erie and Ontario counties, but, on the average, it is considerably less

common than the Canada warbler, but decidedly more common than the Tennessee and Orange-crowned warblers during the spring migration.

Haunts and habits. Wilson's black cap is usually noticed among the lower shrubbery, thickets, brush piles and undergrowth at the edge of the forest rather than in the taller trees. "Its song suggests somewhat in miniature that of the Northern water thrush although it is itself quite loud and rich, a bright, hurried, rolling twitter, suddenly changed into more of a trill, richer and somewhat lower in tone. The first portion of the song varies in length and richness, sometimes longer and fuller in tone, more often shorter and weaker than the second, while some individuals omit it altogether, uttering only the trill when the song is rather difficult to recognize. This song is about as loud as that of the Nashville warbler or slightly louder and resembles it somewhat. The call note is a weak but ringing *tship*." (Gerald Thayer MSS.)

Wilsonia canadensis (Linnaeus)

Canada Warbler

Plate 94

Muscicapa canadensis Linnaeus. Syst. Nat. Ed. 12. 1766. p. 327
Sylvicola pardalina DeKay. Zool. N. Y. 1844. pt 2, p. 91, fig. 115
Wilsonia canadensis. A. O. U. Check List. Ed. 3. 1912. p. 325. No. 686
canadensis, of Canada, quite appropriate name of this warbler

Description. *Upper parts bluish gray*; forehead and spot before and behind the eye mostly black; *under parts yellow*; a well-defined *necklace of black streaks* on the forebreast and lower neck; *loral stripe and eye ring yellow*. *Female*: In similar pattern but less brightly colored, and black on the forehead and cheeks obscured; the black necklace also less pronounced. *Young*: Like the female but duller and tinged with brownish on the back; black necklace scarcely discernible.

Length 5.61 inches; extent 8.1; wing 2.53; tail 2.23; bill .4; tarsus .75.

Distribution. Breeds from central Alberta, southern Keewatin, northern Ontario, northern Quebec and Newfoundland south to Minnesota, Michigan and Massachusetts; in the Alleghanies to North Carolina and Tennessee; winters from Guatemala to Ecuador and Peru. The distri-

bution in New York is shown by the map on page 28, volume 1 of this work. It is a common summer resident of the second growth, slashings and burnt lands of the Catskills and Adirondacks, and in many localities in central and western New York. Miller and Maxon have found it a common summer resident in the vicinity of Peterboro; Ralph and Bagg in northern Oneida county; Embury near Verona Beach, Oneida lake; Burtch and Stone in Potter swamp; W. E. Yager near Oneonta; Reed and Wright south of Ithaca; James Savage and the author in Bergen swamp; the author in the gully sides and hill slope woodlands of Cattaraugus and southern Erie counties; H. L. Achilles in "the gulf" near Chautauqua lake. The spring migration of this species begins from the 3d to the 12th of May both in eastern and western New York, average date being about May 8. Some seasons it has not been noted earlier than May 14. The principal migration flight is passed by the 25th or the 28th of May. In the fall the return migration begins from the 10th to the 21st of August and the last migrants depart between September 19 and October 12.

Haunts and habits. The Canada warbler during the migration season is found about our dooryard shrubbery, and the thickets on the edges of streams and woodlands. It is very spritely at this season and its song is frequently heard. It feeds nearer the ground than the *dendroicas*, as is the case with the Wilson and the Hooded warblers. I am always sure to find it about the tangles of vines and berry bushes in neglected spots near the edges of the villages, cities and parklands during the first three weeks of May. In the nesting season we must seek for it in the cooler gullies of central and western New York or in damp, cool woodlands of deciduous or mixed growth, usually at an altitude of 1000 to 2000 feet, but it nests in Bergen swamp as well as Oak Orchard swamp where the altitude is scarcely above 500 feet, and the evidence seems to indicate that a high degree of humidity and a dense covert of herbs and shrubbery is more to be desired by this species than a low temperature, although the two may go together. In Potter swamp the Canada warbler is found in the same situations as those preferred by the Mourning and Golden-

winged warblers, in close proximity to the nesting sites of the Water thrush and Maryland yellow-throat. It is not a warbler of the dense woodland, but prefers an open growth of trees with a dense undergrowth of vines and shrubbery. In Erie and Cattaraugus counties I have noticed the nest usually concealed among a dense growth of ferns and blackberry bushes close to the ground or resting upon it, a rather bulky affair constructed of weed stalks, leaves, grasses and strips of bark lined with fine grasses and sometimes a few long hairs. The eggs are 3 to 5 in number, usually 4, of a white ground color marked more or less thickly with spots and blotches of reddish brown, gray and lavender. The average dimensions are .68 by .52 inches. Nesting dates in central and western New York vary from June 1 to 20, usual date June 6.

"The song is very brisk and clear toned, a series of 10 or more short notes uttered in rapid succession and with considerable snap, a very pretty warble and one of the most noticeable warbler songs to be heard in the east, frequently uttered during migration. The call, a peculiar '*tang*,' is recognizable by its vigor and somewhat metallic or ringing tone" (Gerald Thayer MSS.). Chapman syllabizes the song as "*rup-it-che, rup-it-che, rup-it-chitt-it-lit.*"

Setophaga ruticilla (Linnaeus)

Redstart

Plate 97

Motacilla ruticilla Linnaeus. Syst. Nat. Ed. 10. 1758. 1:186

Muscicapa ruticilla DeKay. Zool. N. Y. 1844. pt 2, p. 111, fig. 68

Setophaga ruticilla A. O. U. Check List. Ed. 3. 1910. p. 326. No. 687

setophaga, from Gr., meaning insect-eating; *ruticilla*, from Lat., red-tail

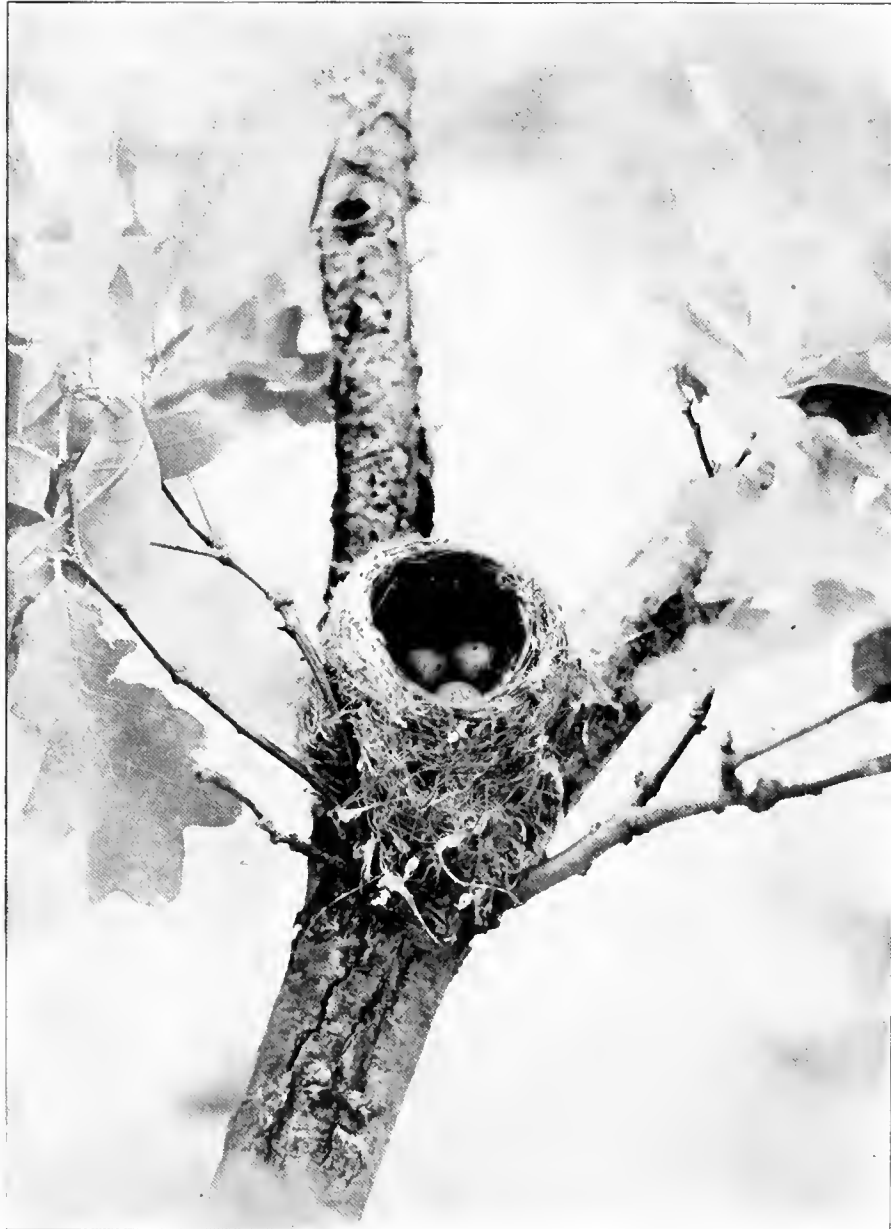
Description. *Male:* Colors salmon *orange and black*, the orange appearing in 2 conspicuous patches on the sides of the breast and zones through the basal portion of all the wing feathers and the basal portion of all the tail feathers except the central pair; black forms nearly all the remaining upper parts, especially the head, neck, back, the greater portion of the wings, the central tail feathers and the terminal zone of the tail; the central abdomen white. *Female:* Grayish *olive brown* where the male is black on the upper parts and *yellow* where the male is orange,

the head being nearly plain gray; the throat and under parts grayish white; yellowish patches on the sides of breast and sides of tail are conspicuous; the yellow patch in the wing is not as extensive as the male's orange patch. Young resemble the female, young males in the spring passing gradually into the plumage of the adult. Specimens midway between the colors of the male and female are frequently seen showing more or less black feathers on the breast and gradually changing into the black plumage of the male on the back.

Length 5.42 inches; extent 7.9; wing 2.57; tail 2.27; bill .35; tarsus .66.

Distribution. Breeds from central British Columbia, central Mackenzie, southern Keewatin, northern Quebec and Newfoundland to Washington, Colorado, Arkansas and North Carolina; winters in the West Indies and from central Mexico to Ecuador and Guiana. It is a common summer resident of New York, breeding in all portions of the State. I have found its nest in Central Park, New York City, and in all the deciduous woodlands examined in eastern, central and western New York, and in the slashings of the McIntyre Iron Company on the slopes of Skylight and Mt Marcy in the Adirondacks. The Redstart is probably as universally distributed as the Ovenbird and the Yellow warbler but is not becoming accustomed to civilized conditions so rapidly as the latter, though adapting itself, perhaps, more easily than the Ovenbird. The spring migration begins between the 27th of April and the 7th of May, depending upon the advance of the season, average date near New York being about May 1; in western New York, May 2 or 3. In the fall the last migrants depart between the 23d of September and the 4th of October.

Haunts and habits. The Redstart prefers a deciduous woodland with plentiful undergrowth of saplings and low trees. I have found it nesting in low, damp woods as well as in dry, well-drained upland woods; also in mixed woodland with a considerable growth of pine or hemlock, and in the Adirondacks where spruces occupy half the ground. This flaming little warbler is one of the liveliest of the family, continually fluttering about among the foliage and darting after flying insects, being almost as expert a flycatcher as the Wood pewee; in fact, the shape of its bill and the bristling of the rictus have often beguiled ornithologists into



Redstart's nest and eggs

Photo by Ralph S. Paddock

placing it among the true flycatchers. As it flutters about the foliage it carries the wings and tail partially expanded, being even more addicted to this habit than the Magnolia warbler or any member of the family with which I am familiar. The general resemblance to the flitting of a butterfly has often been remarked by bird students with whom I have visited its haunts.

The call note of the Redstart is a characteristic *tsip*. The Redstart has several distinct songs. Chapman syllables one as "*ching, ching, chee; ser-wee, swee, swee-e-e.*" Another is often written "*zee-zee-zee,*" sharp and rasping in tone, suggestive of the Black and white warbler's. Sometimes it has a resemblance to the *buzz* of the Parula's song; again to the *wheezing* of the Black-throated blue. It is always so thin and wiry in quality that the author is unable to hear it for more than twice the distance of the Black-poll warbler's song.

In my experience the nest of the Redstart is the most neatly constructed of any of our warblers' nests, though not so elaborate or so highly ornamented as some. The materials used are fine shreds of plant down, the thin gray outer covering of milkweed stalks, spiders' webs, the inner bark of vines, and grasses, woven into a thin but compact and shapely cup, lined with fine grasses and thin brown shreds of bark and brownish root fibers and long horse hair; rarely a few feathers are found in its construction. The nest is usually placed in the upright fork of a sapling from 6 to 12 feet from the ground although I have found many nests in oaks, maples and beeches at a height of 20 and even 35 feet. The eggs are 3 to 5 in number,



Photo by L. S. Horton
American redstart on nest

almost universally 4, of a beautiful creamy white ground color, rarely with a greenish tinge, marked with specks and blotches of cinnamon brown, reddish, lilac and occasionally a few dark umber spots, with obscure shell markings of lavender. Sometimes a distinct wreath is formed near the larger end and the rest of the egg is nearly plain; sometimes these markings are more evenly distributed. The eggs in my experience vary considerably in size, but the average dimensions are about .64 by .48 inches. Nesting dates in western New York vary from May 20 to June 10. Later fresh sets are often found as late as the 26th of June or even the 10th of July. The average date for fresh eggs, however, is May 28. Near New York City many fresh sets are recorded as early as May 17.

Family MOTACILLIDAE

Wagtails

Wings rather long and pointed; secondaries large and elongated; primaries only 9; tail as long as the wing, square or rounded; bill shorter than the head, slender, acute, straight and notched near the tip; nostril uncovered; rictus slightly bristled; tarsus slender and scutellate; toes long and slender, the inner one cleft, the outer one joined by half its joint to the inner; hind toe with long straightish claw; plumage somewhat variegated; moult double.

The wagtail family is more developed in the Old World than in America. The members are medium small in size, more or less gregarious and migratory in habit; they are insectivorous and largely terrestrial, our species being walkers like the larks to which they bear a decided resemblance both in structure and habits. They differ from the larks, however, in the structure of the bill, the tarsus and the double moult. Our American species are boreal or arctic in distribution and are only birds of passage in the eastern states, frequenting the bare shores, mud flats and wide plowed fields.

Anthus rubescens (Tunstall)*Pipit*

Plate 69

Alauda rubescens Tunstall. Orn. Britannica. 1771. 2*Anthus ludovicianus* DeKay. Zool. N. Y. 1844. pt 2, p. 76, fig. 96*Anthus rubescens* A. O. U. Check List. Ed. 3. 1910. p. 328. No. 697*ánthus*, Gr., ζῷον, some kind of a small bird; *rubescens*, Lat., becoming red

Description. *Upper parts grayish brown; centers of the feathers showing obscure dusky shaft streaks; wings and tail fuscous; wing coverts tipped with buffy and wing feathers edged with the same; a buffy superciliary line; under parts varying from dull white to buff or even ochereous; streaked with blackish on the breast and sides; the 2 outer tail feathers largely white. Fall specimens are browner on the upper parts; spring birds often slaty gray. Sexes alike. Hind claw elongated.*

Length 6.25-7 inches; extent 10.25-11; wing 3.25-3.50; tail 2.75-3; bill .5; tarsus .9.

Distribution. The Pipit is an arctic species, breeding in northern Alaska, Mackenzie, west coast of Davis strait, west coast of Greenland, south to Great Slave lake, central Keewatin and Newfoundland, occasionally south in the mountains to California, Colorado and New Mexico. Winters from southern California, Ohio and New Jersey to the gulf coast and Guatemala. In New York State it is an abundant transient visitant in suitable localities, arriving on the coast of Long Island from the 12th to the 29th of March and disappearing from the 15th to the 25th of April, a few sometimes remaining until the 3d or even the 27th of May. In western New York the spring migration occurs mostly in April, but the species is much less common in the interior of the State during the spring than during the fall migration. Records from Erie and Monroe counties vary from the 15th of April to the 12th of May. In the fall the Pipit makes its appearance from the 16th to the 24th of September, sometimes as early as the 6th, and departs for the south from the 25th of October to the 16th or even the 30th of November, a few individuals remaining throughout the winter on the tidal flats of Long Island. During the fall

migration it is exceedingly abundant on the mud flats and marshes of the central lake region and the shores of the Great Lakes, as well as along the larger rivers and on the coast of Long Island, occurring in the same localities as the Pectoral and Red-backed sandpipers.

Haunts and habits. When disturbed, the pipits rise with an easy undulating flight, uttering a soft *dee-dee*, mounting high in the air and hovering about over the marshes, sometimes returning to within a few feet of the intruder. They walk about or run hurriedly over the muddy and sandy shores in search of aquatic insects and seeds which are left by the receding water. In the spring, when the flats of western New York are usually flooded with water, the Pipit occurs mostly on plowed fields and burned tracts, and even on the hilltops. I have noticed the spring specimens are of a much more grayish cast above and of a lighter shade on the under parts than the fall specimens.

Family MIMIDAE

Thrashers

Wing short and rounded; 10 primaries; tail large, long and rounded; bill slender, usually more or less curved, about equal to the head in length; rictus bristled; tarsus equal in length to the middle toe with its claw, the toes deeply cleft; size medium; colors rather sober grays and browns.

Thrashers are closely related to the wrens and are fully as melodious in voice, some of them often surpassing the thrushes in this respect, especially our world-famous Mockingbird which is regarded by some as the best songster of the world. They frequent low growth and shrubbery and often seek their food upon the ground. They are largely insectivorous, but resort more than the wrens to a diet of fruit in its season. The family is exclusively American and numbers about 40 species, more southerly in distribution than the wrens, barely reaching beyond the upper austral zone. They are only slightly less nervous and spritely in habits than the wrens, continually bobbing about or pumping their tails, which has given them the family name of Thrasher. The nests are bulky and constructed

in a thick covert of shrubbery. The eggs are usually 4 or 5, of a color varying from deep bluish green to grayish and speckled.

The food and economic relations of the thrashers are discussed in the Yearbook of the United States Department of Agriculture for 1895, pages 405-18; also in various bulletins of the Biological Survey, especially no. 17 by Doctor Judd.

Mimus polyglottos polyglottos (Linnaeus)

Mockingbird

PLATE

Turdus polyglottos Linnaeus, Syst. Nat., Ed. 12, 1758, 1:179.
Orpheus polyglottus DeKay, Zool. N. Y., 1844, pt. 2, p. 97, pl. 84.
Mimus polyglottos polyglottos A. O. U. Check List, Ed. 3, 1910,
 p. 331, No. 703.

mimus, a mimic; *polyglottos*, from Gr., meaning many tongued.

Description. Upper parts *ashy gray*; lower parts soiled white; wings and tail fuscous; basal portion of the primaries and a portion of the greater coverts white showing as a *large white wing patch* in flight; 3 *outer tail feathers largely white*, the outermost one entirely so. *Young:* Brown; lower parts dull whitish, speckled with dusky.

Distribution. The Mockingbird inhabits the southern United States from eastern Nebraska, Illinois, Ohio, Maryland, to eastern Texas and southern Florida, occasionally as far north as Wisconsin, Ontario and Massachusetts. On Long Island and in southeastern New York this bird has been reported on numerous occasions and there seems to be some evidence that it has bred near Rockaway, Long Island, and possibly in other portions of southeastern New York; but no definite evidence to this effect has ever been brought forward. The New York specimens have been recorded as follows: Rockaway, Long Island, September 1871 (Lawrence, Forest and Stream, 10, 235); Rockaway, November 7, 1877 (Lawrence, N. O. C. Bul. 3:129); Riverdale, October 28, and November 21, 1877 (Bicknell, N. O. C. Bul. 3:129); Brooklyn, 1877 (Coues, N. O. C. Bul. 4:32); Gravesend, August 9, 1879, young bird (DeL Berier, N. O. C. Bul. 5:46); Fort Hamilton, October 1 and 2, 1880 (DeL Berier, N. O.

C. Bul. 6:125); Flatbush, Long Island, November 1884 (Dutcher, Auk, 5:183); Millers Place, Long Island, May 10, 1887 (A. H. Helme); Shelter island, April 29, 1891 (W. W. Worthington); Croton-on-the-Hudson, winter of 1899 (Miss Annie Van Cortlandt); Floral Park, Long Island, August 27, 1900 (Childs, Auk, 17:390); Rockaway Beach, September 14, 1902, a young bird (Braislin, Auk, 20:53). In the interior of New York it has also been taken, especially in the western portion of the State. J. L. Davison reports a specimen from Lockport, December 27, 1906; Ottomar Reinecke writes that it has been taken occasionally near Buffalo; Miss Evelyn Moore reports it from Olean; and several specimens have been seen in the vicinity of Rochester by different bird students nearly every year for the last 10 years, sometimes in the spring, especially in May; other times they appear in the early winter and have been observed week after week, but in every instance, although the birds have been fed, they seemed unable to survive the coldest part of the winter, usually disappearing about the third week in January. Near the shore of Lake Erie, between Dunkirk and Silver Creek, it is supposed to breed, but I have never known of any person who has found its nest. Miss Sarah Waite observed it in full song in that vicinity during the spring of 1900. It is thus evident that this famous songster is scarcely able to withstand our northern winters, although it may breed occasionally within the limits of the State. If it would only migrate a few hundred miles to the southward and return again in the spring this bird could undoubtedly be introduced in New York, but all specimens which have been liberated have disappeared.

Haunts and habits. The wonderful song powers of the Mockingbird are too well known to require description. In habits it resembles our Brown thrasher, to which it is closely related. Its nest also is similar to the thrasher's nest, but usually placed in thick bushes. The eggs are of a bluish green ground color, heavily speckled with different shades of brown. They average 1 by .75 inches in dimensions.

Dumetella carolinensis (Linnaeus)*Catbird*

Plate 101

Musci-capa carolinensis Linnaeus. Syst. Nat. Ed. 12. 1766. 1:328

Orpheus carolinensis DeKay. Zool. N. Y. 1844. pt 2, p. 69, fig. 85

Dumetella carolinensis A. O. U. Check List. Ed. 3. 1910. p. 331.
No. 704*dumetella*, diminutive of Lat., *dumetum*, thornbushes or thicket, referring to the bird's chosen habitat

Description. Tail long and rounded; color *slaty gray*, lighter below; *crow*n and tail black; under tail coverts chestnut; exposed portion of the wings like the back. This is our only dark slaty bird, slightly smaller than the Robin, with nearly uniform coloration, with restless habits, almost continually pumping its tail like the rest of the thrashers.

Length 8.5-9 inches; extent 11-12; wing 3.5-3.7; tail 3.6-4; bill .65.

Distribution. The Catbird inhabits eastern North America, breeding from British Columbia, central Alberta, Saskatchewan, southern Manitoba, central Ontario, southern Quebec and Nova Scotia, to northeastern New Mexico, eastern Texas and northern Florida. Winters from the Southern States to Cuba and Panama. In New York it is uniformly distributed throughout the Carolinian and Alleghanian zones, but does not enter the spruce and balsam forests of the Catskills and Adirondaeks, although it penetrates those districts along the clearings and river valleys up to an elevation of 2000 feet. Throughout the settled portions of the State it is one of the dominant species, almost equaling the Chipping sparrow and Red-eyed vireo in abundance. It arrives from the south from the 20th to the 30th of April in the warmer portions of the State, from the 5th to the 10th of May farther north; and departs in the fall from the 5th to the 25th of October. In the coastal district a few individuals remain throughout the winter, but in western New York this is a very rare occurrence, and those which do not migrate are usually destroyed by the coldest weather of January and early February.

Haunts and habits. This is one of the best known of our common

birds, frequently taking up its abode under the very windows of the farmhouse, and, wherever it is protected, seems to prefer the vicinity of human habitation, frequently nesting in the barberry bushes and other shrubbery of lawns in the midst of our cities and villages. It is never found in the depths of the forest but prefers clearings and the thickets at the edges of



Photo by James H. Miller
Catbird at nest

woodlands, the hedgerows and shrubbery on the edges of streams and gullies, and the edges of pasture land. Though constantly seen and heard, it seldom ventures far from the protecting coverts of the thicket and does not seek so elevated a perch while delivering its song as is the custom with the Brown thrasher. This song of the Catbird seems to me, at its best, not quite equal to that of the Brown thrasher, just as the Thrasher scarcely equals the best performance of the Mockingbird. Nevertheless, he is a famous songster. If he would only omit the scolding notes and catlike "meows," which are frequently inter-

perspersed with his rarest notes, he would be one of our favorite song birds.

The Catbird's nest is placed only a few feet from the ground in some dense shrub or vine and is rather a bulky affair, the exterior composed of long sticks and straws, and the inner nest carefully woven of reddish brown rootlets. The eggs are from 3 to 5 in number, usually 4, of a deep bluish

green color, and average .95 by .70 inches in size. They are laid from the 15th to the 30th of May, and second sets are often observed as late as the first week in August, evidently two broods often being reared in a season in our latitude.

This bird is undoubtedly a beneficial species. The greater part of its food during the spring and summer consists of injurious insects. It kills



Catbird's nest and eggs

Photo by Ralph S. Peabody

quite a number of ground beetles and other predaceous insects, however, and as soon as cultivated cherries and berries are ripe it takes a considerable toll of these fruits. Furthermore, he occasionally destroys the eggs of other birds, a habit which, in justice, we must say is not characteristic of this species. I suspect that, like the House wren, he dislikes near neighbors because his food range about the nest is rather circumscribed, and finds

it to his advantage to have a clear field for his operations. In the autumn the Catbird's food consists largely of wild fruit. After all has been said, we must consider the Catbird less agreeable as a neighbor than the Robin or even the Cedarbird, for its scolding notes become exceedingly monotonous, especially when they are uttered day after day, as usually happens whenever the owner of the premises appears. He becomes more inconspicuous as a neighbor after the first week of August, sometimes singing slightly for a week or two before his departure in October, after the moult has been completed.

Toxostoma rufum (Linnaeus)

Brown Thrasher

PLATE I XI

Turdus rufus Linnaeus. Syst. Nat. Ed. 10. 1758. 1:169

Orpheus rufus DeKay. Zool. N. Y. 1844. pt 2, p. 68, fig. 82

Toxostoma rufum A. O. U. Check List. Ed. 3. 1910. p. 332. No. 705

toxóstoma, from Gr., bow-mouth, that is, curved-billed; *rúfum*, Lat., reddish

Description. *Upper parts bright rufous* or reddish brown; the wing coverts tipped with buffy whitish tending to form 2 wing bars; *under parts* buffy whitish *heavily streaked with black* except on the throat and center of the abdomen. Whenever the amateur sees a brown-backed bird longer than a Robin, with heavily spotted breast and long rounded tail, he may be sure it is a Thrasher.

Length 11.5-12 inches; extent 12.5-14; wing 3.8-4.25; tail 5; bill 1; tarsus 1.3.

Distribution. The Brown thrasher inhabits eastern North America from southern Alberta and Manitoba, northern Michigan, southern Ontario, southern Quebec and southern Maine to eastern Louisiana, Mississippi, Alabama and northern Florida. Winters from southern Missouri and North Carolina to Texas and southern Florida. In New York its range coincides very closely with that of the Catbird, but it is less common than that species, especially in the colder portions of the State. The spring migration is performed between the 15th and 25th of April in the warmer counties, from the 1st to the 10th of May in the northern portions. It sometimes appears about New York City as early as the 2d of April, and disappears

in the fall from the 10th of October to the 3d of November, a few individuals remaining throughout the winter in the warmer districts. It sometimes tries to winter in western New York, but is usually killed by the coldest weather of January and February.

Haunts and habits. The Brown thrasher has not learned to tolerate the presence of mankind so well as the Catbird. He prefers hedgerows, thickets, hillside pastures and dry fields overgrown with shrubbery and vines. He seeks his food mostly upon the ground, rustling about and scratching the dry leaves in search of worms and insects hidden beneath them.

The song of the Thrasher is one of the loudest and richest bird melodies that can be heard in New York State. When one has listened to this bird in full song he is sure to carry a memory of the wonderful song which is usually delivered from a lofty perch—sometimes the dead top of a tall tree—where he sings during May and early June by the half hour, especially early in the morning and on cloudy or rainy days. The song



Photo by Clarence F. Stone
Brown thrasher's nest and eggs

bears considerable resemblance to that of the Mockingbird, and anyone who is familiar with the Catbird's song can picture to himself the song of the Thrasher by considering all the "meows" omitted and the notes made fuller, louder and richer until the whole hillside resounds with the melody. The alarm note of the Thrasher is a sharp *click*, but louder and sharper than the corresponding note of the Catbird.

The nest is placed close to the ground or even on it, in the midst of

a dense thicket or a tangle of vines. The nesting materials consist of twigs, straws, leaves and coarse rootlets. The eggs are usually 4 in number, sometimes 3 or 5, grayish white or bluish white in ground color, thickly and rather evenly speckled with minute spots of cinnamon or rufous brown. They average 1.1 by .8 inches in dimensions. In the southern portions of the State the first eggs are laid from the 15th to the 25th of May; one or two weeks later in the northern counties.

In the spring and summer the Thrasher's food consists principally of worms and ground-inhabitating insects. Later in the season it partakes freely of cherries, berries and other fruits. It is to be regretted that so famous a songster and so striking a bird as the Thrasher will not become accustomed to the presence of man and live familiarly about our gardens and lawns like the Robin and the Catbird, but it seems to be scarcely more accustomed to the presence of mankind than when the first settlers found him on the edges of their clearings.

Famil: TROGLODYTIDÆ

Wrens

Wing short and rounded; primaries 10, the first not noticeably reduced; tail for the most part short and rounded, in some species, however, longer than the wing; bill slender, nearly straight, as long as the head or, in some species, considerably less; nostril oval, uncovered by feathers but with an overhanging scale; the rictus is not bristled; tarsus scutellate; the inner toe joined by more than half its first joint to the outer toe. In size the wrens are small birds, gray and mottled brown in coloration. In disposition they are fearless or impertinent, spritely and rather quarrelsome, insectivorous in diet, and migratory in habits. They are among our most prolific songbirds, laying from 7 to 9 eggs or even more and frequently rearing two broods in a season. In the family there are over a hundred species on both continents, our little winter wren, which is so common in the North Woods, being the representative of "Jenny Wren" of England, though our House wren fills more nearly her place in the economy of our gardens and

orchards. The wrens are among our most exclusively insectivorous birds, and undoubtedly do a great amount of good about the thicker portions of the garden shrubbery and hedges where few other birds glean their livelihood. The especial value of the wren, as shown by examination of its stomach contents, may be found in the Yearbook of the United States Department of Agriculture for 1895, pages 416-18; and in bulletin 17 of the Biological Survey, pages 45-46 and 416-18.

Thryothorus ludovicianus ludovicianus (Latham)

Carolina Wren

Plate 102

Sylvia ludoviciana Latham. Index Orn. 1790. 2: 548

Troglodytes ludovicianus DeKay. Zool. N. Y. 1844. pt 2, p. 55, fig. 94

Thryothorus ludovicianus ludovicianus A. O. U. Check List. Ed.

3. 1910. p. 337. No. 718

thryóthorus, from Gr., *θρῶον*, rush, and *θηρῆναι*, to jump; *ludoviciánus*, of Louisiana

Description. The largest of our wrens. *Rufous brown; wings and tail barred with black; a conspicuous white superciliary stripe; under parts buffy to ochreous, becoming nearly white on the throat.*

Length 5.5-6 inches; extent 7.5; wing 2.4; tail 2.2; bill .65; tarsus .75.

Distribution. The Carolina wren inhabits the eastern United States, breeding from southern Iowa, Ohio, southern Pennsylvania and the lower Hudson and Connecticut valleys to the Gulf States. It is practically resident wherever found. In New York it is confined principally to the lower Hudson valley, especially the western shores of the Hudson, to Staten Island and Long Island, but has been reported occasionally from all portions of the austral zone of New York, especially from Crow hill, Flushing, Roslyn, Westbury station, Bellport, on Long Island; and Gardner's island, where it was found a common resident by Chapman in 1903 (see Bird Lore, 5:175, 182), and was also noted by Bruen in 1904 (Wilson Bulletin 50:18); from Staten Island, Manhattan Island, Riverdale, Spuyten Duyvil, Larchmont, Piermont, Hastings and Inwood in the lower Hudson valley, in all of which localities it has been known to breed, but especially along

the palisades of the Hudson. In the interior of the State it has been recorded from Ithaca, Tully, Batavia, Buffalo, Brockport, Forest Lawn (Monroe county), and Whiskey point, Canandaigua lake. All these records from the interior, however, are of individual birds or pairs, except the Ithaca records, the first of which, June 21, 1878, was by King (see N. O. C. Bul. 3:193); the second by Fuertes; and the third by Doctor Reed, June 12, 1903. All three of these reports seem to indicate that the species breeds near the southern end of Cayuga lake and that it is found year after year in the same locality. It is probable that it breeds in other localities of western New York, but even this Ithaca instance has not yet been proved by the finding of the nest. Therefore we must regard this wren confined, as a breeding species, to the warmest portions of the Carolinian area in New York. It is interesting to note, however, that of recent years the Carolina wren has enlarged its territory toward the north, having been found on various occasions in southern New England, the writer having observed it himself at Wood's Hole, Mass., in July 1909; and the reports mentioned above from Canandaigua lake, Forest Lawn, Batavia and Buffalo probably indicate a recent advance of the species from the south, as has occurred in various other Carolinian species. It is to be hoped that this interesting bird will become common throughout the warmer portions of the State.

Haunts and habits. This wren is exceedingly active and spritely in habits, but is rather retiring in disposition, preferring rocky glens, borders of streams, swamps, brush heaps and undergrowths near water, and fallen tree tops, to the orchard and garden which the House wren prefers. Its call notes are varied and spritely, consisting of innumerable *clacks* and *clinks* and metallic rattles, musical trills and *k-r-ings*, its commoner song notes having been compared to the syllables *whee-udee*, *whee-udee*, *whee-udee*, and *tea-kettle*, *tea-kettle*, *tea-kettle*. Its nest is concealed in old stumps, holes, hollows in trees and crevices in rocks and buildings. It is a bulky affair, constructed of twigs, grasses and leaves, lined with feathers and other soft material, fine grass and hair. The eggs are 4 to 6 in number, white

in ground color, speckled with brown, reddish and lavender. They average .74 by .60 inches in dimensions. Eggs have been found by Dean at Flushing May 8, 1879, and by Bicknell at Spuyten Duyvil May 2, 1879. Chapman gives March 28 as the nesting date for the vicinity of New York City.

Thryomanes bewicki bewicki (Audubon)

Bewick Wren

Troglodytes bewickii Audubon. Birds Amer. 1827. (folio) 1. pl. 18

Thryomanes bewicki bewicki A. O. U. Check List. Ed. 3. 1910. p. 338.
No. 719

Description. This southern and western species is of about the size of the House wren, wings and tail being slightly longer. It may be distinguished easily by the fact the *primaries* are *not barred*; central tail feathers colored like the back but barred with black; *outer tail feathers* are *black tipped with ashy white*; white line over the eye; *under parts whitish*.

Bewick's wren inhabits eastern United States from northern Illinois, southern Michigan and central Pennsylvania to Arkansas, northern Mississippi and central Alabama. There has been no report of this species from New York State, but as it has occurred in Ontario, western Pennsylvania and southern New Hampshire it is probable that it has also visited New York State and may possibly be found here in the future.

Troglodytes aëdon aëdon (Vieillot)

House Wren

Plate 102

Troglodytes aëdon Vieillot. Ois. Amer. Sept. 1807 (1809?). 2: 52. pl. 107

DeKay. Zool. N. Y. 1844. pt 2, p. 53, fig. 97

Troglodytes aëdon aëdon A. O. U. Check List. Ed. 3. 1910. p. 340.
No. 721

troglodytes, Gr., a cave-dweller; *aëdon* = Gr., *ἄηδών*, the nightingale

Description. Upper parts *cinnamon brown*, brighter on the upper tail coverts; the back with indistinct dusky bars; *wings and tail finely barred with blackish*; *under parts grayish white*, the sides and flanks with blackish bars.

Length 4.5-5.2 inches; extent 6.75; wing 2; tail 2; bill .5.

Distribution. The House wren inhabits eastern North America from Wisconsin, Michigan, central Ontario, southern Quebec and New Brunswick, to Kentucky and Virginia, winters in the South Atlantic and Gulf States. In New York it is a common summer resident except in the Canadian zone, arriving in the spring from the 21st to the 30th of April in the southern portion, from the 1st to the 10th of May in northern New York, and disappearing in the fall from the 1st to the 14th of October.

Haunts and habits. The House wren, as nearly everyone knows, inhabits gardens and orchards, especially the neglected garden and the old unkempt orchard. It is also found about the edges of woods and sometimes even in the forest or in the midst of swamps where there is a small opening, and dead trees and stumps, brush heaps and fallen trees are abundant. During the last 25 years this species has exhibited periods of scarcity in central and western New York. Ralph and Bagg refer to its disappearance in Oneida county between the years 1887 to 1893. I have noticed a similar disappearance of this species farther west in the State during the early nineties, and it has only regained its old-time abundance within the last 7 years in Ontario, Monroe and Erie counties. During the summer of 1897 I noticed again that it was unusually scarce in many of the towns of western New York. In fact, I heard only two wrens singing during that summer — one in the midst of Bergen swamp far from the habitations of man, and one on the streets of Albion. In localities where dozens of wrens might be heard in the summer of 1912, not a single wren song was audible in 1896-7. It is possible that some calamity happened to the species in its winter quarters in the South just as happened to the Bluebird during the winter of 1895, and again during the winter of 1911-12; but many have explained this disappearance of the House wren by the increase of the English sparrow and the occupation of all the wrens' nesting sites about the towns, villages and country homes. I have noticed that the English sparrow, by filling wren houses and cavities with its nesting materials before the wren has returned in the spring, has had an unfavorable influence upon this species, as has also occurred in the case of the Bluebird

and the Purple martin, but I am inclined to think that the House wren is much more able to take care of itself and find a nesting site than any other of our native species which come in competition with the English sparrow. It is probable that severe weather in the southern states must be the cause which explains the curious disappearance of this species from its haunts. At the present time, the House wren is well established again throughout western New York.

It is one of our commonest and most familiar birds in most localities, frequently building its nest in crannies about the house and garden, occupying cigar boxes, old boots, watering pots or any hollow objects hung in trees. Its nest is composed of short twigs and grass stalks, almost always more or less ornamented with spiders' nests and lined with soft materials. The eggs are from 6 to 8 in number, of a pinkish brown or vinaceous hue, almost uniformly covered with minute speckles of a deeper shade but usually with a wreath or cap at the larger end.

They average .65 by .52 inches in dimensions. Fresh eggs are found from the 16th to the 30th of May. Later sets are often found from the 25th of June to the 20th of July.

The song of this Wren is a characteristic, bubbling, gurgling warble which seems to burst spontaneously from his swelling throat, as he sits upon the fence or some old twig, raising his head and lowering the tail,



Photo by L. S. Horton

House wren at nesting box

his throat and tongue vibrating with uncontrolled delight as the melody gushes forth.

Jenny Wren is more agreeable to her human than to her feathered neighbors. I have frequently noticed that wrens visit all the boxes placed about the garden or orchard for the occupation of Bluebirds and White-breasted swallows, and fill them with sticks and other nesting materials. Some of my nature-loving friends would have me believe this is to have a nest ready as soon as the new one is needed for the second brood, but I am inclined to the belief that it is done to prevent any neighbors moving into the houses which are about the wrens' happy hunting ground. Furthermore, I have noticed that the wren frequently visits the nests of the Yellow warbler, Chipping sparrow and other species which nest about the garden, and picks small holes in the eggs so that they never will hatch. I am inclined to think that this habit, like the similar one of the Catbird, is to prevent too great competition in hunting the early worm when their 6 or 8 greedy young ones are crying for food, for the wren makes only short flights from its nest in search of food and must necessarily find a plentiful supply near home. For this reason it must take care that it has only a few near neighbors when the nesting season is at its height. I have often wondered how the wren can escape the numerous cats which are found about the house and garden, but they seem perfectly able, like the English sparrow, to cope with the domestic cat, whereas almost none of our other birds have this facility. If anyone wishes to have wrens about his garden he can prevent the English sparrow occupying their houses by making the entrance hole only one inch in diameter, which the wren can enter with ease, while the English sparrow can not occupy the house.

Nannus hiemalis hiemalis (Vieillot)*Winter Wren*

Plate 102

Troglodytes hiemalis Vieillot. Nouv. Dict. d'Hist. Nat. 1819. 34. 514

Troglodytes hyemalis DeKay. Zool. N. Y. 1844. pt 2. p. 57. fig. 96

Nannus hiemalis hiemalis A. O. U. Check List. Ed. 3. 1910. p. 341.
No. 722*nannus*, Gr., *νάννος*, a dwarf; *hiemalis*, Lat., of winter

Description. Upper parts *dark cinnamon brown*; wings and tail distinctly barred with blackish; under parts pale cinnamon brown; breast, belly and sides finely *barred with black*. The more distinct barring, especially on the under parts, of this Winter wren, as well as the short tail which is usually held higher than that of the House wren, will distinguish it. Furthermore, in the greater part of New York it is a common wren only in the early spring and winter months.

Length 4-4.2 inches; extent 6.15; wing 1.9; tail 1.25; bill .35; tarsus .73.

Distribution. This species breeds in the boreal zone of eastern America, from central Alberta, northern Quebec and Newfoundland to central Minnesota, northern Wisconsin and the mountainous portions of New York and Massachusetts, and along the Alleghanies to North Carolina. Winters from Michigan and Massachusetts to Texas and northern Florida. In New York this little wren is a summer resident of the Catskills and Adirondacks and of various localities of central and western New York, see map page 29, volume 1, but is most of all a common transient visitant in all the more inhabited portions of the State, arriving commonly from the 25th of March to the 5th of April and passing northward from the 25th of April to the 10th of May, in western New York frequently lingering to the 20th. In the fall it is seen mostly during October and early November. In the Adirondacks and higher Catskills it is an abundant summer resident, its tinkling, rippling melody being heard throughout the spruce and balsam forests, a different songster of this species usually being heard at least every five minutes as one journeys along the woodland trails throughout the North Woods.

Haunts and habits. The Winter wren delights in rocks and brush heaps and rubbish in the wildest portions of the mountains and higher valleys, along the edges of the dashing torrents, and in the silent depths of the forest, as well as the moss-covered logs and rocks of the humid slopes. The song, as it appeals to Bicknell, has an indescribable effect, "full of trills and runs and grace notes, a tinkling, rippling roundelay." The young men from Rochester mentioned in the Essex county list who helped me in my bird survey of the Mt Marcy district, voted unanimously that the song of the Winter wren was the sweetest melody they heard in the North Woods, and we gave considerable time to the study of the songs of the Hermit, Olive-backed, Bicknell and Wood thrushes. Besides its song, the Winter wren has a sharp chirp of surprise, and a "*quip-quap*," as Chapman writes it, while he bobs and bows to one and hops about the fallen log or the brush pile which he frequents as a retreat from his enemies.

The nesting site is usually in the upturned roots of some fallen tree or in the cavity of a stump or log. The nest is composed of plant stems, mosses and lichens, with a small circular opening, lined with moss, hair and feathers. The eggs are 5 to 8 in number, white in ground color, finely dotted with reddish brown and lavender. They average .65 by .50 inches in dimensions. Six sets of eggs in the Smithsonian Institution from Holland Patent and Clinton Falls, N. Y., were taken between June 17 and 29. From the fact that nearly all the Winter wrens which we saw in the Adirondacks between the 20th of June and the 1st of August had young well out of the nest by July 10th, I am inclined to think the middle of June is the usual date for fresh eggs. It is possible that a second brood is reared as many of the dates of eggs taken in the Adirondacks range from July 16 to the 25th and 29th.

During the migration, this little wren is commonly observed about the shrubbery of our lawns, parks and the edges of woods, when disturbed retreating to the recesses of some brush pile or under the damp edges of the stream bank. A few remain throughout the winter in western and

central New York, and it is fairly common as a winter resident in the southeastern portion of the State, but in the principal breeding range of the Adirondacks and Catskills it is only a summer resident.

Cistothorus stellaris (Naumann)

Short-billed Marsh Wren

Plate 192

Troglodytes stellaris Naumann. *Vögel Deutschl.* 1823. 3. Table to p. 724
Troglodytes brevirostris DeKay. *Zool. N. Y.* 1844. pt 2, p. 58, fig. 93
Cistothorus stellaris A. O. U. Check List. Ed. 3. 1910. p. 342. No. 724
cistóthorus, Gr., κλιστός, shrub, and θορᾶν, to run through; *stelláris*, Lat., starrý, speckled

Description. *Upper parts streaked* with white, black, and ochereous, wings and tail barred; *under parts white washed with buffy on the breast, sides and under tail coverts.* This species may be distinguished from the Long-billed marsh wren by its *streaked crown* and entire upper parts, and by its shorter bill.

Length 4-4.5 inches; extent 6; wing 1.75; tail 1.5; bill .4.

Distribution. The Short-billed marsh wren inhabits the austral zone of eastern North America from southern Saskatchewan, southern Ontario and southern Maine to eastern Kansas, Missouri, Indiana and northern Delaware. It winters from southern Illinois and southern New Jersey to the Gulf States. In New York this species is local in distribution and uncommon in nearly all parts of the State except a few colonies in the lower Hudson valley and in parts of central and western New York. It has been reported as breeding at Green Island near Cohoes. June 12, 1875, where E. S. Stebbins took its eggs for the Smithsonian collection; in central New York by Fowler (*Forest and Stream* 6, 180); at Cornwall-on-the-Hudson, near the mouth of Moodna creek, in June 1882 (Mearns, *Auk* 7, 56; Rowe, *N. O. C. Bul.* 8:179); at Gretna, in Dutchess county, June 23, 1897, by Lisperard Horton; in Onondaga county by A. W. Perrior; Cayuga county by Rathbun and Wright; in the Tonawanda swamp, May 30, 1899, by Grame P. Clarkson, from which locality a colony was also reported by Langille in "Our Birds in Their Haunts"; at Hebron by F. T. Pember;

Grand island, Niagara river, and West Seneca near Buffalo, by James Savage; Irondequoit creek, Monroe county, June 1910, by Fred Gordon. These are the only breeding records before me, which will show conclusively that it is both a local and uncommon summer resident of the State. It arrives from the south in the vicinity of New York City between the 10th and the 20th of May, according to Chapman, and departs between the 10th and the 30th of October. Worthington's record of May 17, 1901,



Photo by L. S. Horton
Nest of Short-billed marsh wren

at Erie, Pa., will indicate that its arrival in western New York is about the same. Merriam's record, October 27, 1877, from Lowville, Lewis county, shows that it departs late in October from the interior of the State. Chapman gives the breeding date for New York City as May 31, which agrees with Clarkson's in Tonawanda swamp.

Haunts and habits. This wren prefers wet meadows and the borders of marshes, being less confined to the flooded areas than the Long-billed marsh wren, and more secretive and retiring in its

habits than that species. It is much more often heard than seen when one invades its coverts. Its clinking alarm notes may be heard all about one when a colony of this species is invaded, its call having been aptly compared to the sound of two pebbles struck together, but rarely may one of the birds be seen, as they are very mouselike in actions and dislike to appear outside the protecting cover of the grass and sedges, the difficulty of flushing the bird undoubtedly accounting for its apparent rarity in many places where it must be a summer resident. Its song is

written by Chapman as " *Chup-chup-chup-chup, chup, chup-chup-chup-p-p-r-r-r-r.*" During the love season it expresses its feelings in a more ambitious refrain, quite varied and musical, but still conspicuous for the great amount of chuppering which enters into its composition.

The nest is placed close to the ground in a dense bunch of grass or sedges, is globular in structure with the entrance on one side, and is constructed of grasses, sedges and plant down. The eggs are from 6 to 8 in number, pure white in color, with thin, brittle shell, averaging .62 by .45 inches in dimensions. They are not so broad near the larger end as the white eggs of the Long-billed wren.

Telmatodytes palustris palustris (Wilson)

Long-billed Marsh Wren

Plate 102

Certhia palustris Wilson. Amer. Orn. 1810. 2: 58. pl. 12, fig. 4
Troglodytes palustris DeKay. Zool. N. Y. 1844. pt 2, p. 56, fig. 92
Telmatodytes palustris palustris A. O. U. Check List. Ed. 3. 1910.
 p. 342. No. 725

telmatódytes, Gr., swamp dweller; *palústris*, Lat., marshy

Description. Upper parts *brown*, the crown and back almost black, and the latter distinctly *striped with white*; a *white stripe runs over the eye* to the side of the neck; *under parts white tinged with ochreous* on the sides, flanks and under tail coverts; wing and tail barred with fuscous.

Length 5.2 inches; extent 6.54; wing 1.75-2; tail 1.7; bill .52; tarsus .8.

Distribution. The Long-billed marsh wren inhabits eastern United States, breeding from southern Ontario and southern Quebec southward to the Potomac and the coast of Virginia. Winters from southern New Jersey to South Carolina and Florida. In New York this species is a common summer resident in all extensive marshes of the coast, Hudson river, Lake Erie, Lake Ontario, Niagara river and the central lakes. In the marshes at the head and the foot of Canandaigua lake, at the outlet of Seneca lake and the head of Seneca and Cayuga lakes, the whole length of Seneca river, Tonawanda swamp and the Niagara river it is a very abundant species, arriving in the spring from the 4th to the 16th of May,

and departing in the fall from the 1st to the 30th of October. A few individuals remain throughout the winter along the coast and in the lower Hudson valley, and rarely a few brave the winters of western New York, especially in the Montezuma marshes.

Haunts and habits. The Long-billed marsh wren is practically confined to the flooded marshes, delighting in a rank growth of cat-tails, sedges and grasses where the water is from 1 to 3 feet in depth. In such localities one may rarely wade a distance of 4 to 6 rods without coming upon one of its globular nests securely interwoven with the stems of flags and grasses, composed of the dead leaves of the same woven into a compact structure, with a small circular opening on one side, the interior warmly lined with down from the cat-tail. Usually from 6 to 8 nests must be examined before one containing eggs can be found, for it is evidently a habit of this wren also to build more nests than it occupies for breeding purposes. The eggs are usually laid between the 30th of May and the 25th of June, possibly two broods being reared in the southern part of the State. The eggs are from 5 to 9 in number, the darkest colored of all of our wrens' eggs, being thickly mottled with chocolate brown so as to give the egg a nearly uniform old mahogany tint. They average .65 by .49 inches in dimensions, rather broadly ovate in shape.

One can not be in the favorite haunts of the marsh wren many minutes without hearing its "rippling, bubbling, gurgling song." Doctor Mearns says: "The marsh wrens live in colonies and are as attractive, merry little birds as you would wish to see, scolding hard when their retreats are invaded but singing a busy, happy refrain the moment you pass on. There are few sounds so cheerful and pleasant to hear as the jingling melody produced by a colony of marsh wrens left in quiet (?) possession of their oozy territory after such a disturbance." Frequently the merry songster overflows so with the delight of love and life that he rises on fluttering wings above the tops of the marsh grass and sings in lowly imitation of the soaring Skylark until utterly exhausted he sinks again into the coverts of the rushes.

Like most of our small birds which frequent the shrubbery, this little wren migrates at night. On one occasion while I was concealed in a blind watching for ducks to enter the marsh, I saw the last representative of this species leave the marshes at the foot of Canandaigua lake. It was a cool night late in October when the moon was at the full. The little fellow uttered a feeble warble which attracted my attention and then rose from near my station, fluttering higher and higher into the air until lost at an elevation of about 300 feet, where I caught my last glimpse of him against the full moon. The following morning when I visited the marsh no more wrens were left. Evidently they migrate at night, and high in the air, so as to see their way and escape their enemies more successfully.

Family **CERTHIDAE***Creepers*

Ten primaries, the first very short; point of the wing formed by the third, fourth and fifth; tail rather long, rounded, the shafts stiffened and the feathers pointed, showing a curious analogy to the tails of woodpeckers; bill long, slender and curved nearly throughout its length; nostril exposed; the rictus without bristles; the toes joined up to the first joint; the claws curved and sharp; size small; plumage soft brown and gray in color. This is a small family related to the wrens and the nuthatches but showing several sharp family characteristics, especially the slender curved beak and the stiffened tail. In habits they are scansorial, climbing upon the trunk and branches of trees in the manner of woodpeckers, using the tail as a brace against the bark. They are insectivorous in habits and migratory, although hardy enough to withstand the winters in temperate latitudes. Our one species is closely related to the tree creeper of Europe and subspecifically to the Mexican, Rocky mountain and California creepers. Only one species, with five subspecies, is recognized in North America.

Certhia familiaris americana (Bonaparte)*Brown Creeper*

Plate 102

Certhia americana Bonaparte. Geog. & Comp. List. 1838. 11

DeKay. Zool. N. Y. 1844. pt 2, p. 50, fig. 90

Certhia familiaris americana A. O. U. Check List. Ed. 3. 1910. p. 344.
No. 726*cérthia*, Lat., *certhus*, a creeper; *familiaris*, Lat., domestic

Description. *Upper parts streaked and mottled with brown, white and ochreous; rump pale rufous; wings when spread show a band of creamy buff across the middle of the feathers; tail grayish brown, the tips of the feathers pointed and stiffened; under parts dull white; bill slender and slightly curved.*

Length 5.25-5.75 inches; extent 7.5-8; wing 2.6; tail 2.7; bill .63; tarsus .53.

This little bird, which is the only representative of its family in New York, may easily be distinguished from all of our other tree-creeping birds by its principal color matching so closely the tree bark, its slender curved bill, and its long tail which is held against the tree for a support, like the tails of woodpeckers.

Distribution. This subspecies inhabits eastern North America, breeding from southern Manitoba, central Ontario, southern Quebec and Newfoundland southward to eastern Nebraska, northern Indiana, New York, Massachusetts and along the Alleghanies to North Carolina. Winters from New York to the gulf coast. In the greater portion of New York it is a transient visitant, and sparingly a winter resident, the few which remain all winter being joined, between the 1st and the 15th of April, by numerous individuals which have wintered farther south. The greater number leave for their northern summer home from the 10th to the 30th of April in the warmest part of the State, and from the 1st to the 16th or even the 25th of May in the interior. Throughout the Adirondacks and Catskills this bird is an abundant summer resident. While passing along the trails of the Adirondack wilderness one meets this species every few

minutes. The same is true of the upper Catskills. In the remainder of the State it is only a local summer resident. Reported as a common breeder in central New York by Fowler (*Forest and Stream* 6, 180); near Buffalo by Ottomar Reinecke and James Savage; from Oneida county by Ralph and Bagg (*Auk*, 6:232); from Hamilton by Maxon (*Auk*, 20:266); Peterboro by Gerritt S. Miller; Montezuma and Canandaigua inlet by E. H. Eaton; West Seneca (Erie county) and West Barre (Orleans county) by James Savage; and from Potter swamp (Yates county) by Burtch and Stone.

Haunts and habits. During migration, the Brown creeper is abundant throughout our woods, groves and shade trees, sometimes as many as 20 or 30 individuals being seen in a single dooryard or small parkland in the midst of our villages and cities. All observers from the time of Giraud and Audubon agree with Doctor Mearns in the facts embodied in his apt description of its habits: "The creeper is usually a tame bird, paying less heed to its admirers than to the capture of insects that infest the bark of trees; that being the main purpose of its life. With that object in view, it alights at the base of a tree and begins to ascend in a spiral; in this manner it advances until the trunk and principal branches have been explored, when, having reached the top, it spreads its wings and with a direct, sweeping movement, attaches itself to the extreme base of another tree, and the same performance is repeated. Thus the creeper has many ups and downs in its life though, on the whole, it is a monotonous career of labor; but in spite of this, the bird is interesting and its habits have a certain fascination. Its somber colors serve an excellent purpose for concealment, matching so well those of the trees upon which it lives as to make it very inconspicuous. Its long, slender, curved bill seems ill-adapted as a means of musical expression and, indeed, I never suspected it of possessing such attributes until one day I discovered it was the author of a very pleasant song." Mr Brewster says: "In its summer home, amid the northern spruces and firs, it has an exquisitely pure and tender song of four notes, the first of moderate pitch, the second lower and less emphatic, the third

rising again and the last abruptly falling, to die away in an indescribably plaintive cadence like the soft sighing of the wind among the pine boughs."

As far as my experience goes, the nest of this species is uniformly placed behind a strip of bark which has been loosened from the trunk of some tree in the swamp. In Potter swamp, where it was an abundant summer resident, these strips of bark were loosened by the ice which formed when the swamps were flooded, and left favorable nesting sites near the ground. Now these trees have been removed and the creeper is no longer common. The nest is composed of fine twigs, bark, mosses and bits of dead wood, lined with soft materials. The eggs are from 5 to 8 in number, white in ground color, speckled with cinnamon or reddish brown and lavender tending to form a wreath near the larger end of the egg. The dimensions are .62 by .48 inches. The nesting dates for western New York vary from the 5th to the 25th of May. Of nine sets of eggs in the Smithsonian Institution from Herkimer and Oneida counties, New York, the dates vary from the 2d to the 21st of May, from the 12th to the 30th of June and the 18th of July, indicating that two broods are frequently reared in the Adirondacks. During my trips to the Adirondacks I have found the birds feeding their young throughout the month of June and frequently late in July, indicating also that in the Mt Marcy district there are two broods reared at least by some of the birds.

This species is undoubtedly one of the most valuable assistants of the horticulturist and forester, as its food is almost entirely insectivorous and is taken from the bark and trunks of trees. Although a few predaceous species may be destroyed, it seems to feed principally upon injurious insects.

Family SITTIDAE

Nuthatches

Wing long and pointed, with 10 primaries; tail short and broad, nearly square, composed of soft feathers; bill slender, acute and subcylindrical in shape, tapering and compressed, about as long as the head; nostril as in titmice; the tongue elongated, pointed and barbed; tarsus short, rather

stout; toes long, and their claws long, curved and compressed. The members of this family are small in size like the titmice; their plumage is compact; they are highly scansorial in habits, spending the greater portion of their time climbing about the trunks and larger branches of trees, going down the trunk head foremost or clinging to the underside of limbs with the head hanging outward like true acrobats, seeking everywhere in the crevices of the bark for the insects which constitute their principal food. In the fall, however, they feed on various kinds of nuts and a few wild fruits, and in the winter are easily attracted to the orchard and dooryard by bits of suet or bones or scraps of meat fastened to the trees. Their voices are rather unmelodious. They nest in hollows of trees and like the titmice lay numerous eggs, 7 to 9 being the usual complement. These eggs are like the eggs of chickadees, finely speckled with brown. Like the titmice and woodpeckers they are to be regarded among the most efficient guardians of forest and orchard trees, and should be encouraged by every horticulturist to nest as near his orchards as possible. See Yearbook of the United States Department of Agriculture 1900, pages 296-97.

***Sitta carolinensis carolinensis* Latham**

White-breasted Nuthatch

Plate 103

Sitta carolinensis Latham. Index Orn. 1790. 1:262

DeKay. Zool. N. Y. 1844. pt 2, p. 48, fig. 91

Sitta carolinensis carolinensis A. O. U. Check List. Ed. 3. 1910.
p. 345. No. 727

sitta, Lat. and Gr., a nuthatch

Description. *Top of head and neck deep black; upper parts bluish gray; wing and tail feathers blackish but the outer webs of the wing feathers and the central pair of tail feathers are the color of the back so that the whole upper parts, excepting the top of the head and neck, appear ashy or bluish gray when the wings are closed; broad diagonal patch of white on the outer tail feathers near the tip; sides of the head and neck and under parts white; crissum and base of under tail coverts rusty brown; bill dark lead color; feet dark brown. Female:* Similar but slightly duller; top of the head washed with the color of the back.

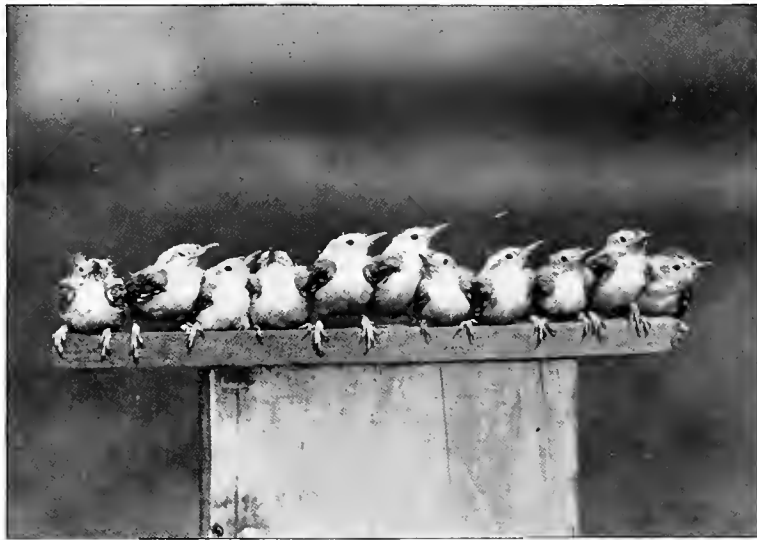
Length 5.5-6 inches; extent 10.5-11; wing 3.5; tail 1.75; bill .66; tarsus .7.

Distribution. The White-breasted nuthatch breeds in eastern North America from northern Minnesota, central Ontario and Newfoundland, south to northern Louisiana and Georgia. In New York it is generally distributed throughout all parts of the State excepting the spruce and balsam belt, or the Canadian zone of the Catskills and Adirondacks. Bicknell found it uncommon in the valleys of the Catskills. It certainly is uncommon even in Keene valley and about Old Forge, but a few invade the cleared land and valleys of the Adirondack country up to the edge of the coniferous woods, where it is replaced by the Red-breasted nuthatch. It is a resident in other parts of the State and breeds in nearly every county, being somewhat less common in the northern portion, but generally distributed throughout the Alleghanian life zone. This is one of our few species that exhibit scarcely any tendency to migrate.

Haunts and habits. The haunts of the White-breasted nuthatch are orchards, shade trees, groves and forests. He is found on the trunks and larger limbs of trees, almost never alighting on the twigs and smaller branches. He occasionally alights upon the ground in pursuit of insects or food which he has dropped from the tree. The nuthatch is famous among our birds as an acrobat, being our only species of creeping birds which climbs about a tree up or down or around, and seems to prefer to hang with his head down and tilted outward when examining intruders. As he hops nimbly from ridge to ridge of the bark on the trunk of the tree he usually keeps up a contented *hank, hank* or *onk, onk*, which is frequently answered by his mate from some neighboring tree in slightly higher key as if to assure him that the company is still together. He also has a note consisting of the *onk, onk, onk* many times repeated, a kind of a rolling call. This is undoubtedly his love song as it is heard in February, March and April as the nesting season advances. Early in spring he occasionally utters a whistled note, *chēē-o*.

The nuthatch remains throughout the fall and winter in little companies

of 4 or 5, frequently associated with chickadees and creepers and Downy woodpeckers. They mate early in the season and build their nest in some hollow tree, rarely in the deserted nesting hole of the Downy woodpecker. All those I have found, however, have been in hollow trees with the entrance through a knothole, sometimes slightly enlarged by the nuthatches. The nest is composed of leaves, mosses, soft grass and feathers. The eggs are from 5 to 8 in number, pinkish white in ground color, rather finely speckled, more heavily near the larger end, with reddish brown and grayish lavender.



A brood of Nuthatches (*one family*) posed on stick

They average .8 by .6 inches in dimensions. The young are usually out of the nest by the first or second week in June and are frequently seen seated in a row on some limb adjoining the nesting site for two or three days before they are able to creep successfully around the tree trunks as their parents do. The mortality among young nuthatches must be high as there seems to be almost no increase in their numbers in localities where they are protected year after year. Since the revival of interest in nature and bird study, many people feed the nuthatches in winter with bits of suet, nuts and seeds of the sunflower, which are placed on lunch counters

or trays on the window ledge or nailed to the trunks of trees. They partake freely of the food and undoubtedly are helped to weather successfully the severest portion of the winter.

The nuthatch is unquestionably one of our valuable tree protectors. He keeps up a continued hunting for beetles, larvae and eggs of insects which are hidden behind the crevices of bark or about the dead limbs. Although he feeds to a considerable extent on nuts, grain and oily seeds in the fall and winter, I have never heard complaint of his becoming a nuisance. He sometimes takes seed corn which is hung up to dry, but on account of his small size he never is very destructive even in parts of the State where open corn cribs are used.

“The nuthatch is an eminently useful and industrious bird. He devotes his entire existence to the occupation of scrambling about upon the tree trunks, grubbing out insects from their hiding places under the bark. At this commendable, but somewhat prosaic, employment he spends his days; and when night comes, he betakes himself to a hole in some tree, where, weary with his day's toil, he sleeps the sleep of the just till day-break; nor is our bird friend addicted to the disagreeable practice of early rising. He depends not upon craftiness for his daily sustenance, but gets it by the sweat of his brow; therefore he indulges in a morning nap after the sun is up, and the nocturnal worm is permitted to crawl safely into his den. Doubtless this interesting bird should commend our highest respect, and our deepest gratitude; for his life is one of tireless industry and great usefulness. Nor, indeed, should we question the personal motives which impel him to the accomplishment of such important and valuable results.

“Though the nuthatch does not possess the gift of song, still he is well and favorably known to most persons who live in the country — whose lines have fallen in pleasant places. He is found wherever there are forests, and gets into our orchards and about our dwellings. Moving steadily in any direction upon the tree trunks and branches, he searches the interstices of the bark, tapping hard upon suspected spots with his bill. At frequent intervals he utters his peculiar cry, a sort of nasal *honk-*

honk. When moving downward, he always advances head first, and never in the opposite position, as the woodpeckers do. Sometimes his diet is slightly varied. He never refuses raw meat; and when in Lewis county, New York, during the latter part of December 1877, I found him eating the beech nuts, in company with the Red-headed woodpeckers and with evident enjoyment. The stomachs of the specimens shot were found distended by those nuts. Sometimes, during storms, in winter, the trees become so thickly coated with ice that the woodpeckers and creeping birds, since nature has neglected to supply them with adjustable ice spurs suitable for such emergencies, are unable to climb upon the icy trees, and consequently are obliged to desist from their usual vocations and betake themselves to other situations in quest of food. On such occasions the nuthatches seem to be particularly distressed, flying about, uttering loud cries, and alighting freely upon the roofs of buildings." (Mearns, "Birds of the Hudson Highlands.")

***Sitta canadensis* Linnaeus**

Red-breasted Nuthatch

Plate 103

Sitta canadensis Linnaeus, Syst. Nat. Ed. 12. 1766. 1:177

De Kay, Zool. N. Y. 1844. pt 2, p. 49, fig. 88

A. O. U. Check List. Ed. 3. 1910. p. 346. No. 728

Description. Decidedly smaller than the White-breasted nuthatch; *upper parts bluish gray* but deeper and bluer than the White-breasted nuthatch; wing feathers fuscous, edged with color of the back; central tail feathers like the back, others black, the 2 outer pairs with white patches; *top of head and neck black*, also *broad stripe through the eye* and along the head and neck; stripe from base of bill over the eye and down the side of the crown, white; *under parts rusty* or reddish brown; almost white on the throat and side of the neck. *Female and young:* Similar, but the top of the head more like the color of the back and the rest of the plumage duller than in the male.

Length 4.5-5 inches; extent 8-8.5; wing 2.6; tail 1.5; bill .5.

Distribution. This species inhabits North America, breeding in the Canadian zone from the Yukon valley, southern Mackenzie, central Kee-

watin, northern Quebec, Newfoundland, southward to northern Minnesota, Michigan, Massachusetts and in the mountains to California, New Mexico and North Carolina. Winters from southern Canada to the gulf coast. In New York this species is a fairly common transient visitant in all parts of the State, but is somewhat irregular in appearance, sometimes being extremely abundant in the coastal region and at other times in western New York; other seasons very few are seen. The usual season of migration in the spring is from March 15 to May 10, and in the fall from October 8 to November 22. It is also frequently seen throughout the winter in any portion of the State which seems to offer sufficient food; but it is decidedly more common, as stated before, in the migration season. It is a summer resident of the Canadian zone of New York, being very abundant throughout the Adirondack forests and in the Catskills above an altitude of 2000 to 3000 feet. This is probably one of the commonest breeding birds in the Adirondacks, where its call is continually heard. As one canoes along the Adirondack streams and lakes, its sharp nasal *yna-yna-yna* is continually heard from the pines, spruces and balsams along the shore. Along the trail, when crossing mountain ranges or ascending even the highest peaks, one meets the same experience. It has also been reported as breeding near Peterboro by Gerritt S. Miller jr; from West Falls by James Savage; and from the vicinity of Branchport by Verdi Burtch. Ralph and Bagg report eggs from Wilmurt taken May 30, 1887, and Holland Patent, April 30, 1889. Evidently the breeding season in the outskirts of the Adirondacks corresponds very closely with the date for the White-breasted nuthatch, which ranges from April 25 to May 10 in western New York. The nesting habits of the Red-bellied nuthatch are similar to those of its more southern relative. The eggs are from 4 to 6 in number and average .62 by .50 inches. Similar in color to those of the White-breasted nuthatch.

Sitta pusilla Latham*Brown-headed Nuthatch*

Sitta pusilla Latham. Index Orn. 1790. 1:263

A. O. U. Check List. Ed. 3. 1910. p. 346. No. 729

pusilla, Lat., very small

Description. *Top of the head and neck grayish brown; a partly concealed white patch on the nape; upper parts bluish gray; under parts dingy whitish; outer tail feathers black tipped with grayish.*

Length 4 inches; extent 8; wing 2.5; tail 1.25; bill .5; tarsus .6.

Distribution. This little nuthatch breeds from southern Delaware and Missouri to southern Florida and eastern Texas. It rarely straggles northward as far as Ohio and Michigan. In New York it is a purely accidental visitant, one specimen having been taken at Elmira, May 24, 1888, an adult male (see Swift, Auk, 5:432). Everyone who has visited the states of the southern coastal plain is familiar with this little bird. In habits it resembles closely our nuthatches of the north.

Family PARIDAE

Titmice

Wings rather short and rounding; primaries 10; tail elongated, rounded, the feathers softer than the stiffened feathers of thrushes and kinglets; bill short, rather stout and practically straight, somewhat compressed and conoid in shape; nostrils concealed by bristly tufts of feathers; tarsus longer than the middle toe; feet short and stout; the toes joined for most of the basal joint form a compact palm; the hind toe is padded, thereby assisting these birds in their gymnastic feats while clinging to the smaller branches of the trees; in size they are small; plumage is soft and usually plain, the color of our native species consisting mostly of grays and grayish brown and a little black. They are hardy little birds, some of them remaining in the Canadian zone throughout the winter and all our New York species are resident birds wherever found. They are of cheerful disposition and great activity, continually exploring the twigs, branches

and bark of trees for insects, cocoons or eggs which are hidden in the crevices or about the bud scales. In this way they render great service in the forest, orchard and garden. See Bulletin 54 United States Department of Agriculture, page 43, and Yearbook 1900, pages 295-96. Occasionally their diet is varied with seeds, nuts, and a few wild fruits. Titmice, like nuthatches and woodpeckers, may be attracted to the birds' lunch counter by the window side or to scraps of suet fastened to tree trunks, thereby accustoming them to frequent our dooryards and orchards. Mr Forbush in his Massachusetts home has induced chickadees to nest in boxes erected for them by the side of his study window.

Baeolophus bicolor (Linnaeus)

Tufted Titmouse

Plate 103

Parus bicolor Linnaeus. Syst. Nat. Ed. 12. 1766. 1:340

DeKay. Zool. N. Y. 1844. pt 2, p. 59, fig. 101

Baeolophus bicolor A. O. U. Check List. Ed. 3. 1910. p. 347. No. 731

baeolophus, from Gr., little crest; *bicolor*, Lat., two-colored

Description. Upper parts *ashy gray*; under parts dull white washed on the *sides* with *rufous*; a conspicuous *crest*.

Length 6-6.5 inches; extent 10-10.75; wing 3.1; tail 2.8; bill .42; tarsus .8.

Distribution. This species inhabits the warmer portions of the eastern United States from Nebraska, Illinois, Ohio, Pennsylvania and New Jersey to Texas and the gulf coast, occasionally straggling to Wisconsin, Michigan and Connecticut. In New York it is confined to the warmer portion of the Carolinian district as a breeding species. It has been reported at Williams Bridge by Lawrence; at Riverdale by Bicknell and Mearns; on Staten Island by Richmond and Hollick; near Brooklyn by Dutcher (Auk, 10:277); at Sheepshead bay by Braislin; and at Bellport by W. A. Babson. I have found no records of its breeding in the interior of the State, but it has occurred at Holley, March 17, 1889 (Possun, Auk, 16:196); Mayville, May 21, 1891 (A. E. Kibbe); Chemung county (Gregg);

Rochester, May 21, 1903 (E. H. Eaton); Brockport, December 29, 1908, 12 seen (George F. Gulef); Junius, Seneca county, March 8, 1910 (C. J. Hampton); Geneva, February 22, 1913 (E. H. Eaton). Chapman's record (American Museum Journal 6, No. 3, page 186) of its breeding on Staten Island, on the authority of Hollick, is the only definite record of its nesting within the State which has come to my attention. It is now rare on Long Island, although evidently more common in the days of Giraud, and it is certainly rare or uncommon in the lower Hudson valley. On various occasions when it was noted in western New York, pairs or small flocks were found together, and as these occurrences were early in the season we would naturally be led to infer that it occasionally breeds in this district, but no definite record can be found.

Haunts and habits. The Tufted titmouse prefers groves and woodlands, is spritely in habits and by no means shy in disposition. Its common notes are a frequently reiterated loud clear whistle, written by Chapman and others as *peto, peto, peto, peto*; at other times it calls *de-de-de-de*, somewhat like the Chickadee, but louder. Its nest is usually placed in the deserted hole of a woodpecker or a hollow stump, and is composed of leaves, strips of bark, moss and feathers. The eggs are from 5 to 8 in number, of a creamy white ground color, closely spotted with reddish brown. They average .74 by .56 inches in dimensions.

***Penthestes atricapillus atricapillus* (Linnaeus)**

Chickadee

Plate 103

Parus atricapillus Linnaeus. Syst. Nat. Ed. 12. 1766. 1: 341

DeKay. Zool. N. Y. 1844. pt 2, p. 60, fig. 100

Penthestes atricapillus atricapillus A. O. U. Check List. Ed. 3: 1910. p. 349. No. 735

penthéstes, Gr., one that mourns, alluding to its plaintive cry; *atricapillus*, Lat., black-haired, black-crowned

Description. *Crown, nape and throat jet black; rest of upper parts ashy gray; wing coverts margined with whitish; wing and tail feathers*

margined with whitish; *sides of the head and neck* and under parts *white*; sides and *flanks* tinged with *buffy*.

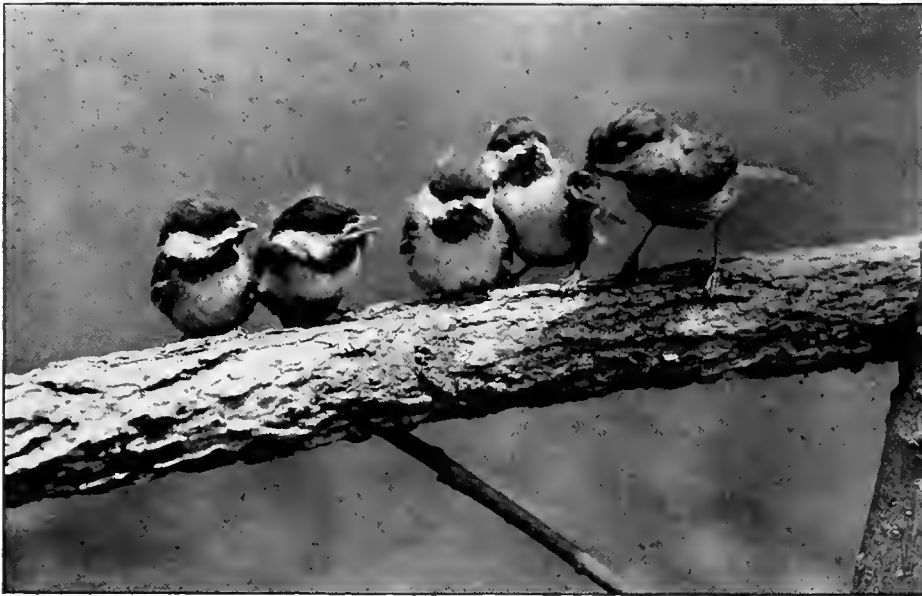
Length 5.27 inches; extent 8.05; wing 2.54; tail 2.43; bill .37; tarsus .6.

Distribution. The Chickadee inhabits the Canadian and Transition zones of eastern America, from southeastern Keewatin, southern Ungava and Newfoundland southward to central Missouri, northern Indiana, Ohio, Pennsylvania and New Jersey, and in the Alleghanies to South Carolina. In New York it is found in every county as a resident species and is common in most portions of the State, inhabiting both the depths of the woods and the groves and orchards near human habitations.

Haunts and habits. It is, perhaps, the most fearless of all our birds, especially in winter, allowing the observer to approach within a few feet, and frequently taking sunflower seeds and bits of nuts from the hand or from one's shoulder, and may be taught to come regularly to the window sill for its supper and breakfast. Suet and oily seeds are its favorite food at this season of the year. As soon as spring and summer come, he retreats to the swamps and woodlands, only a few remaining in the more cultivated localities. The *chickadee* or *dee dee dee* note, which is recognized by everyone, may be heard at all times of the year, but more commonly in the winter. In the early spring he frequently utters a whistled call like the word *phe-be*. In actions he is nearly as restless as the kinglets, flying almost continually from twig to twig and indulging in acrobatic feats, hanging head downward or clinging to the bark of trees in search of hibernating insects and eggs which may be hidden in the crevices of buds and bark. When flying from twig to twig there is commonly a muffled fluff-fluff of the wings as he proceeds with jerky flight and pumping tail from one location to another. Chickadees are even more sociable in habits than nuthatches, and usually travel in small parties of 5 to 12 or more individuals and are usually associated with nuthatches, Brown creepers and Downy woodpeckers during fall, winter and spring. As Doctor Barrows has shown, the Chickadee destroys some beneficial insects, but in the main his habits seem beneficial on account of the large number of

insects injurious to trees which are destroyed during his scrutiny of the orchards or forests.

The nest is commonly placed in small cavities of dead trees within a few feet of the ground, sometimes 15 or 20 feet up. On many occasions I have seen the chickadees excavating their own holes in dead birch stubs or other soft wood. The entrance is about 1 inch in diameter and the cavity usually about 6 or 8 inches in depth. The nesting materials are soft grasses, mosses, cottony down from ferns and other plants, and feathers.



Chickadee feeding young

Photo by L. S. Horton

The eggs are 5 to 8 in number, white in ground color spotted with reddish brown, with a tendency to form a wreath near the larger end of the egg, which is broadly ovate, almost spherical at times, in outline. They average .60 by .47 inches in dimensions. Both birds labor not only in the construction of the nest, but in incubating the eggs and caring for the young. Building operations in western New York begin from the 18th of April to the 10th of May, and fresh eggs are usually found between the 12th and 26th of May, frequently as late as the 20th of June, although I am inclined to think that rarely more than one brood is reared in a season.

Penthestes carolinensis carolinensis (Audubon)*Carolina Chickadee*

Parus carolinensis Audubon. Orn. Biog. 1834. 2:341

DeKay. Zool. N. Y. 1844. pt 2, p. 61, fig. 123

Penthestes carolinensis carolinensis A. O. U. Check List. Ed. 3. 1910. p. 350. No. 736

Description. In color very similar to the common chickadee, but *smaller*; the *wing coverts not margined with whitish*; the wing and tail feathers with very little white visible. Length 4.06-4.75 inches; wing 2.2-2.48; tail 1.88-2.12; bill .30-.32.

Distribution. This little Chickadee inhabits the southeastern United States from central Missouri, Indiana, central Ohio, Pennsylvania and central New Jersey south to southeastern Louisiana and the gulf coast. Although it has been referred to New York State by several writers, there are no actual specimens of the species taken within our borders. According to Mr Dewitt Miller, of the American Museum of Natural History, who has found it in neighboring parts of New Jersey and is familiar with its notes and habits, there are no chickadees on Staten Island, or in the lower Hudson valley which he has suspected of belonging to this species. Nevertheless, it is possible it may yet be taken on Staten Island and the neighboring portions of the State.

Haunts and habits. Mr Chapman describes the whistled call of the Carolina chickadee as consisting of four tremulous notes instead of the two clear notes of the northern bird, and notes a substantial difference in its other calls, one of which sounds to his ears like the words "*my watcher key, my watcher key.*" Doctor Richmond states that the "chickadee call of *carolinensis* is higher pitched and more hurriedly given than that of *atricapillus*," and that the whistle consists of three notes. Mr Brewster says the "low, plaintive *tswee-dee-tswede-dee* of the Carolina chickadee contrasts sharply with the ringing *te-derry* of its northern cousin."

Penthestes hudsonicus littoralis (H. Bryant)*Acadian Chickadee*

Plate 103

(Acadian chickadee, in error, on p. 11)

Parus hudsonicus, var. *littoralis* Bryant. Proc. Bost. Soc. N. H. 1865. 9:368

Penthestes hudsonicus littoralis A. O. U. Check List. Ed. 3. 1910. p. 351. No. 740a

hudsonicus, Lat., Hudsonian; *littoralis*, of the coast, that is, the Acadian district

Description. *Upper parts ashy brown; the back similar to the crown but lighter; wings and tail grayish; throat black; sides of the head, the breast and the belly, white; sides rufous; in size the same as the common chickadee.*

Distribution. This subspecies inhabits northeastern America from northern Quebec and Newfoundland to the Adirondacks, northern Vermont and central New Hampshire, occasionally straggling southward in winter to Massachusetts and Connecticut. In New York this chickadee was found by Roosevelt at Bay Pond, Franklin county, in small flocks, during the early part of August 1877. Dr F. H. Headley found it as abundant as the common chickadee in the vicinity of Big Moose lake during February and March 1882; and Doctor Merriam collected four specimens in a balsam and tamarack swamp near Lake Terror, April 29, 1882 (Merriam, Adirondack notes mss., no. 13; also N. O. C. Bul. 6:226). Ralph and Bagg reported it from Remsen, Oneida county, December 25, 1886 (Auk, 7:232); and the list of Ralph and Bagg reports it as breeding in Herkimer and Hamilton counties on the authority of Doctor Merriam. A small flock has been reported from Utica, January 18, 1877, by "Avis" (Forest and Stream 7, 395), and from Charlotte, Monroe county, November 29, 1894, by Charles R. Taylor of Rochester; also from Highland Park, Rochester, January 2-16, 1914, by Wm. L. G. Edson. It is, however, characteristically a nonmigratory member of the boreal fauna. During my study of the birds near Mt Marcy, I noticed this chickadee on the Geological cobble, above Upper Ausable lake, on June 23, 1905; on the Bartlett ridge, July 31; Skylight camp, on July 12 and 13; and saw it on several occasions in the spruce and tamarack swamp about the Ausable inlet during June and July. On July 2, both male and female Hudsonian chickadees were seen feeding their young along the Ausable inlet about half a mile above the head of the Upper Ausable lake, which would indicate that about the first of June would be the breeding date for that locality. Doctor Merriam's breeding date is June 15, 1883, and the eggs in the Smithsonian Institution from Jocks lake, Herkimer county, New York, are labeled July 17, 1898, in this instance evidently a second brood or a delayed nesting.

The habits of the Hudsonian chickadee are very similar to those of the common chickadee, but his notes, though evidently chickadee notes, are distinctly different from those of the common species.

Family SYLVIIDAE

Old-world Warblers and Kinglets

The structural characteristics of this family are practically the same as those of the thrushes, both as to the nature of the wing, bill, nostrils and booted tarsus, as well as the condition of the toes, which are mostly cleft except the first half joint of the inner and outer. In size, however, they are diminutive as compared to the thrushes and they undergo a double moult each year, while the young are unspotted. They are fully as melodious as the thrushes to which they are so closely related, among their members numbering the famous Nightingale and Blackcap of Europe, while in our own country the Ruby-crowned kinglet is regarded by many as one of our very best songsters of the spring. They are probably more beneficial even than the thrushes as their diet is more exclusively insectivorous. They destroy immense quantities of small leaf-eating larvae and plant lice. I have also watched a Ruby-crowned kinglet during the spring migration swallow 137 scale insects in two minutes from the branch of a garden tree which was afflicted by these pests. There can be no doubt that like the Wood warblers they render invaluable service by destroying the scales and plant lice which are just beginning their season's operations at the time of the spring migration, when both the kinglets and the warblers frequent our gardens and orchards in large numbers.

Regulus satrapa satrapa Lichtenstein*Golden-crowned Kinglet*

Plate 104

Regulus satrapa Lichtenstein. Verz. Doubl. 1823. 35

DeKay. Zool. N. Y. 1844. pt 2, p. 62, fig. 95

Regulus satrapa satrapa A. O. U. Check List. Ed. 3. 1910. p. 356.
No. 748*regulus*, Lat., little king; *satrapa*, Lat., ruler

Description. Upper parts grayish *olive green*; wings and tail feathers edged with yellowish; the inner wing feathers with whitish streaks; middle and greater wing coverts tipped with whitish forming 2 *wing bars*; *crown*

black on sides and front inclosing a yellow patch which in the male is centered with flaming orange; black of the crown bordered on the sides and front by whitish, these crown markings giving the appearance of a striped head, the white lines being just above the eye succeeded by broad black line, followed by yellow and, in the male, with a central portion of orange; *under parts dull white*.

Length 4.1 inches; extent 6.75-7; wing 2.15; tail 1.75; bill .28.

Distribution. This species in eastern North America breeds from northern Alberta, southern Keewatin, southern Ungava and Cape Breton island south to northern Michigan, New York and the mountains of Massachusetts, southward to the mountains of Arizona and New Mexico, and in the higher Alleghanies to North Carolina. In New York, as far as my records show, it is confined as a breeding species to the boreal zone in the Adirondacks and higher Catskills, being, with the Winter wren, the Brown creeper, the Hermit thrush, the White-throated sparrow and the Junco, one of the commonest summer birds of the higher Adirondacks. In the remainder of the State it is an abundant transient visitant and a fairly common winter resident. Throughout central and western New York it is much less common in winter than the Chickadee, and about as common as the Brown creeper. During the migrations it is abundant, appearing in large numbers from March 30 to April 5, sometimes not arriving in force till the middle of April and passing northward between the 4th and the 12th of May, a few females sometimes lingering as late as the 25th. In the fall it makes its appearance between the 20th of September and the 5th of October, being abundant again until the early part of November, when the greater number of migrants have passed farther south. In the lower Hudson valley and the other warmer portions of the State it is common as a winter visitant.

Haunts and habits. In winter the kinglets prefer the shelter of evergreens, frequenting hemlocks, pines and cedars in the swamps and ravines, in company with chickadees, nuthatches, creepers and Downy woodpeckers. During the migration season they are found about our dooryards and shade trees, parks, groves and woodlands, sometimes being fully as abundant as the Junco, especially in the country just south of Lake Ontario and in

the Genesee valley, where troops of hundreds of kinglets are a common sight during early April. They are extremely active in habits, continually flying from branch to branch and almost as acrobatic as chickadees in their search for cocoons and hibernating insects. As they fly about they utter very often a high "ti-ti," which Chapman says is audible only to the practised ear. I have never heard it, the sound being pitched too high for my auditory organs. In its summer home the Kinglet gives voice to a lisping warble which Brewster describes as a succession of five or six shrill, high-pitched, somewhat faltering notes, ending with a short, rapid, rather explosive warble. The opening notes are given in a rising key but the song falls rapidly at the end. The whole may be expressed as follows: *tsee-tsee-tsee-tsee, ti, ti, ter, ti-ti-ti-ti*. The nest of the Kinglet is placed in coniferous trees at varying heights from the ground, sometimes within reach, sometimes 60 feet high. It is suspended among the thicker portions of the branches, composed of soft inner bark of trees, green mosses and feathers. The eggs are 8 to 10 in number, creamy white in ground color, speckled and blotched with pale brown and lavender. They average .55 by .44 inches in dimensions.

In its service to the agriculturist, this bird should be considered fully as beneficial as the chickadees and the nuthatches, for its food consists almost entirely of insects, whereas both nuthatches and chickadees consume a considerable portion of seeds and fruits.

Regulus calendula calendula (Linnaeus)

Ruby-crowned Kinglet

Plate 104

Motacilla calendula Linnaeus. Syst. Nat. Ed. 12. 1766. 1:337

Regulus calendula DeKay. Zool. N. Y. 1844. pt 2, p. 64, fig. 119

Regulus calendula calendula A. O. U. Check List. Ed. 3. 1910. p. 356.

No. 749

calendula, Lat., gerund from *calco*, to be warm or glow, that is the flaming crest

Description. Upper parts *greenish olive*; 2 *whitish wing bars*; *male with a flaming ruby patch* in the center of the crown which is absent or dimly

indicated in the female. *Under parts dull whitish* tinged on the sides with buffy.

Length 4.1-4.5 inches; extent 7-7.35; wing 2.25; tail 1.75; bill .29; tarsus .67.

It is well for the amateur to distinguish this Kinglet from the Golden-crowned species, not by trying to contrast the golden with the ruby center of the crown, but by the conspicuous black edges of the crown in the Golden-crested species, whereas the Ruby crown has no black about the head. It is well to note also the greater length of the present species and the dull *whitish eye ring*.

Distribution. The Ruby-crowned kinglet breeds from northwestern Alaska, Mackenzie, central Keewatin, and central Ungava, southward in the mountains to southern California, southern Arizona, central New Mexico and to northern Ontario, New Brunswick, Nova Scotia and northern Maine. It winters from southern British Columbia, Iowa and Virginia southward to Guatemala. In New York this is a migratory species, appearing in the spring from the 4th to the 23d of April according to the season and latitude, and passing northward from the 8th to the 17th of May. In the fall it reappears between the 20th and the 30th of September, passes southward between the 20th of October and the 11th of November. Some records of winter birds have recently occurred in "Bird Lore" in the Christmas census from Long Island, and a record of what was supposed to be a nest of this species containing young was reported by Ernest Ingersoll (N. O. C. Bul. 1:116). Near Skylight camp, Mt Marcy, the author saw, on July 19, 1905, what he felt sure was a kinglet of this species, evidently carrying food to its young, but as he had no means of securing the specimen or of definitely verifying the observation, the Ruby-crowned kinglet still remains without definite breeding record for this State. It is probable, however, that it will be found to nest occasionally in the cooler and damper portions of the higher Adirondacks.

Haunts and habits. The Ruby-crown, like the Gold-crest, is found throughout our woods, groves, shade trees, and the shrubbery of our lawns during the migration season, especially in the springtime, and many a morning in April I have been awakened by its ecstatic melody delivered from

just without my window. Its song is one of the sweetest among our native birds. Giraud described it as "excelling the finest tones of the trained canary." Chapman calls the song "mellow and flutelike, loud enough to be heard several hundred yards, an intricate warble past imitation or description and rendered so admirably that I never hear it without feeling an impulse to applaud." I am forced to believe that the flaming crest of the kinglet has the function not only of charming a prospective mate, but also of striking terror to the heart of rivals and antagonists. One morning while I was bird hunting among the spruces, I came upon a kinglet which was warbling so madly as to attract my attention, and I discovered him with his neck stretched up, and his flaming crest erected, as his notes were delivered, like a flame of fire from the top of his head. He slowly made his way toward the top of a limb where a kinglet, evidently a male but younger and less vigorous, was cowering as if afraid of annihilation and yet unable to flee from its approaching antagonist. This bird, at any rate, had a ruby crest, although it was not so brilliant as that of the other male, and at the beginning of the contest he sang a song which I supposed to be uttered only by the males. When his antagonist approached within a few inches, he finally dropped from the limb and flew away. The behavior of the flaming crest during this contest assured me that it aided both the warlike attitude of the singer and his wonderful song in convincing his rival of greater superiority.

***Polioptila caerulea caerulea* (Linnaeus)**

Blue-gray Gnatcatcher

Plate 104

Motacilla caerulea Linnaeus. Syst. Nat. Ed. 12. 1766. 1:337

Culicivora caerulea DeKay. Zool. N. Y. 1844. pt 2, p. 109, fig. 126

Polioptila caerulea caerulea A. O. U. Check List. Ed. 3. 1910. p. 357.

No. 751

polioptila, Gr., gray-feather; *caerulea*, Lat., blue

Description. Upper parts *grayish blue*; under parts *grayish white*; tail *black*, the *outer feathers* mostly white, the second partly white and the

third tipped with white; forehead and line over the eye black. *Female:* Similar but duller, no black on the head.

Length 4.5-5 inches; extent 6.3-7; wing 2.1; tail 2.

Distribution. This species ranges from eastern Nebraska, southern Wisconsin, Michigan, Ontario, southwestern Pennsylvania and southern New Jersey to Texas and central Florida. Winters from the Gulf States to the Bahamas, Cuba and Guatemala. In New York it is an irregular and uncommon summer visitant. There is, as far as I know, no definite record of its breeding within our limits, except that a nest evidently of this species was found in the fall of 1890 at Coldwater, Monroe county, by Ernest H. Short, reported in his "Birds of Western New York," page 20. The following records of its occurrence may be of interest to New York bird students: Canarsie, L. I., 1849 (Dutcher, Auk, 10:277); Far Rockaway, L. I., April 18, 1874 (N. T. Lawrence, Auk, 2:272); Fort Hamilton, L. I., October 11, 1879, young bird (Berier, N. O. C. Bul. 6:126); Penn Yan, N. Y., May 1877 (Gilbert, Auburn List, page 8); Montauk Point, L. I., September 2, 1885 (Dwight, Auk, 5:324); Canandaigua, N. Y., June 3, 1886, a pair collected by Elias J. Durand; Rochester, N. Y., May 10, 1891 (Charles R. Taylor); April 30, 1892 (Harry Denslow); Piermont, N. Y. (Chapman, Auk, 6:305); Bridgehampton, L. I., July 1, 1893 (Knoess and Dutcher); Shelter Island, L. I., September 22, 1896 (W. W. Worthington); Bellport, L. I., summer of 1899 (W. A. Babson); Central Park, N. Y., May 22, 1901 (Isham, Auk, 19:91); Rochester, N. Y., May 3, 1903 (E. H. Eaton); Branchport, May 30, 1901 (C. F. Stone); Charlotte, Monroe county, N. Y., May 7, 1905 (Lawrence and Paul Achilles); Canandaigua, April 25, 1906 (Maurice Blake, Auk, 24:226); Middle Granville, August 12, 1908 (Weber, Auk, 26:82).

It is evident that this species, like the Tufted titmouse and the Carolina wren, is of frequent occurrence in the interior of New York, but has never established itself as a breeding species.

Haunts and habits. The Gnatcatcher is a bird of the forest and is usually found in trees of dense foliage. It is restless in habit like the

kinglets, to which it is related. Chapman compares the bird, both in character, appearance and song, to the famous Nightingale, the song being an exquisitely finished production, though lacking in strength and volume. The characteristic call note is compared to the ting of a banjo string and can be heard at a greater distance than the song. The nest of the Gnatcatcher is a beautiful structure, composed of tendrils, bits of bark and fine grasses woven into a firm, deep structure, carefully covered over the exterior with lichens and resembling very much in general appearance the nest of the Ruby-throated humming bird, though, of course, larger and comparatively deeper than the humming bird's. It is placed on a horizontal branch or at the crotch of a limb from 10 to 50 feet from the ground. The eggs are 4 or 5 in number, bluish white in ground color, thickly speckled with reddish brown and umber, averaging .57 by .46 inches in dimensions.

Family **TURDIDAE**

Thrushes

Wing rather elongate, pointed, the primaries 10 in number, the first very small or spurious; tail rather square or slightly rounded, shorter than the wing, the feathers widening toward their tips; bill moderate in length, a little shorter than the head, rather slender, pointed, notched near the tip, nearly straight, but the upper mandible slightly decurved near the end; nostrils oval or roundish, uncovered; rictus more or less bristly; tarsus hooted, long for perching birds, slender, laminiplantar on sides and rear, with the front toes deeply cleft, the outer one, however, joined to the inner for half the basal joint.

The birds of this family are of medium size for perching birds. The plumage of the adults is usually unvariegated, except for the spotting of the breast, which is common with the woodland species, and the young of all, which are spotted both above and on the breast. They undergo but a single moult each year. They are migratory in habits and largely insectivorous, though varying their diet with ripe fruits in the summer, fall and winter. They are mostly arboreal in habit, though a large portion of their insect food is captured on the ground, some species like the Robin and Hermit thrush being particularly terrestrial in feeding habits. Others

like the Bluebird simply light upon the ground long enough to seize the insects which they have discovered from near-by perches, then return to the higher station.

The nests of thrushes are rather bulky and inartistic in structure and usually have a central wall of mud or soggy, rotten wood. The eggs are from 4 to 6 in number, of bluish green color, in some species spotted with brown. The flight of thrushes is slightly undulating, in long sweeps. Our native forest species usually have curious buffy streaks across the bases of the wing feathers which show like glances of sunlight as they fly in front of one through the forest, evidently of use as directive or disappearing marks, like similar patches in the wings of plovers, sandpipers, and Brown creepers.

Thrushes are among our most melodious birds, the common names in European languages undoubtedly being attempted reproductions of the characteristic mellow quality of the prevailing family note — thrush, throstle, drossel, merle and turdus. As inhabitants of our gardens, orchards and groves, they are not only interesting because of their music, but largely beneficial. No serious complaints have been brought against any members of the family, with the exception of the Robin, which feeds extensively on cultivated cherries and other garden fruits during their season; and it is probable that all members of the family kill a considerable number of ground beetles which are predaceous in their habits; but in general, their insect fare is of species which are injurious, and they all render efficient service in scattering the seeds of fruit-bearing trees and shrubs along our hedgerows and through the forests.

Myadestes townsendi (Audubon)

Townsend solitaire

Ptilogonys townsendi Audubon. Birds Amer. 1838. (folio) 4. pl. 419, fig. 2
Myadestes townsendi A. O. U. Check List. Ed. 3. 1910. p. 359. No. 754

Description. The tail forked in the central feathers and graduated on the lateral feathers, thus appearing doubly rounded. Bill short and

depressed. *Adults:* Dull *brownish ash*, paler below, especially on the throat and belly; *wings and tail blackish*; the inner *secondaries edged and tipped with white* and the *outer tail feathers edged and broadly tipped with white*, nearly all the *flight feathers extensively fulvous* or yellowish brown at the base, the middle ones edged on the outside with the same color, these tawny markings appearing in the closed wing as an oblique spot separated by a bar of blackish from the tawny patch on the outer webs of the quills near their ends; white eye ring; iris brown; bill and feet black. *Young:* Speckled like the young thrush, but the spots disappearing after the first moult.

Length 8 inches; wing 4.25; tail 4.25; bill .5; tarsus .75.

Distribution. Townsend's solitaire inhabits western North America, breeding in the boreal zone from eastern Alaska, southwestern Mackenzie and western Alberta southward to the San Bernardino mountains, and in the Rocky mountains to Arizona and New Mexico. Winters from southern British Columbia and Montana southward, occasionally straggling eastward in migration. The occurrence of this species in New York is based on a single record. The specimen was captured at Kings Park, L. I., November 25, 1905, by A. J. Weber (Dwight, Auk, 23:105).

Hylocichla mustelina (Gmelin)

Wood Thrush

Plate 105

Turdus mustelinus Gmelin. Syst. Nat. 1789. 1:817

Merula mustelina DeKay. Zool. N. Y. 1844. pt 2, p. 71, fig. 86

Hylocichla mustelina A. O. U. Check List. Ed. 3. 1910. p. 350. No. 755
hylocichla, from Gr., meaning wood-thrush; *mustelina*, Lat., weasel-like, tawny

Description. Upper parts *cinnamon brown, brightest on the head, neck and foreback, becoming olive brown on the rump and tail; under parts white, boldly spotted with black* on the breast and sides.

Length 8 inches; extent 13; wing 4.25; tail 3; bill .75; tarsus 1.25.

Distribution. The Wood thrush breeds from South Dakota, Minnesota, Wisconsin, southern Ontario and southern New Hampshire to Texas and northern Florida; winters in southern Mexico and Central America. In New York it is a summer resident of all portions of the State but is not uniformly distributed. It is common in the southeastern portion of the State as well as in western New York in all mixed and deciduous wood-

lands which are well watered and provided with a fair stand of undergrowth. In 1905 I found it in the mixed forest between the Upper and Lower AuSable lakes at an altitude of 2000 feet. It also occurs in various other portions of the Adirondack region, but does not breed in the spruce and balsam forests, as far as I know. In the Catskill region it is somewhat erratic in distribution, but is fairly common in various localities of the mixed and deciduous forest up to a considerable altitude. I have noticed in various parts of the State where this bird occurs that it may be fairly abundant in certain stretches of woodland for several years and then almost entirely disappear, being supplanted, perhaps, by the Veery; but it does not commonly occur abundantly where the Veery is also in possession of the woodlands. It has adapted itself somewhat to civilized conditions and in various cities and parks is a common breeder in the shade trees. This is particularly true of the south side of the city of Rochester, of the lake bank in the city of Geneva, of the northern portion of Central Park in New York City, of some portions of the city of Albany, and various smaller villages in the State. It is to be hoped that it may become more and more adapted to civilization and become as common with us as the Robin. This thrush arrives from the 25th of April to the 10th of May, sometimes in the vicinity of New York appearing as early as the 20th of April, and in the northern portion of the State not before the 15th of May. In the fall it leaves us usually from the 1st to the 10th of October.

Haunts and habits. The Wood thrush is mostly arboreal in habits, singing in the tree tops, sometimes on the dead branches at the very top of a tall forest tree, and feeds to a considerable extent among the branches; but, like all thrushes, the principal portion of its food is gleaned from the ground, his brown back matching well with the dead leaves among which he seeks the beetles, bugs, and snails from which he principally makes his fare. As soon as the wild fruits begin to ripen he partakes plentifully of the June berry, the dogwood, viburnum and wild cherries. I never heard complaints that he has made himself a nuisance among the cultivated cherries and berry fields.

The nest of the Wood thrush is commonly placed in a sapling or on the limb of a tree at a height of from 8 to 30 feet from the ground. It resembles considerably the nest of the Robin. The exterior is composed of leaves, and weed stalks and within these a wall of mud or rotten wood is commonly placed. The lining consists mostly of fine dark rootlets and



Wood thrush's nest and eggs Photo by Ralph S. Paddock

a few grass leaves. The eggs are 3 to 5 in number, usually 4, greenish blue in color, like those of the Robin, and average 1.08 by .71 inches in dimensions. They are usually laid from the 17th to the 30th of May, but later sets are frequently found as late as June 25 and the 10th of July.

The song of the Wood thrush has been admired by all naturalists since the days of Wilson and Audubon. He sings from the date of his arrival until July and sometimes as late as the middle of August. Chapman describes the song as "calm and restful, ringing through the woods like a hymn of praise pure and clear from a thankful heart; the flutelike opening notes are an invitation to his haunts, a call from nature to yield ourselves to the ennobling influences of the forest." He says the opening notes sound like the words "Come to me." Others syllabize his notes as "ee-o-lee." The song is peculiarly rich and organlike in quality. Some birds, however, rest for a considerable time between the phrases, whereas others weave them into more of a connected anthem, yet the stately and deliberate method of his phrasing distinguish it readily from those of our other species. Besides the song, it frequently utters sharp call notes sounding like the syllables "pip-pip-pip" and also a shrill "tsee, tsee" as well as a low "tut, tut" similar to the Robin's.

***Hylocichla fuscescens fuscescens* (Stephens)**

Veery

Plate 105

Turdus fuscescens Stephens. General Zoology. 1817. 10:182

Merula wilsoni DeKay. Zool. N. Y. 1844. pt 2, p. 74

Hylocichla fuscescens fuscescens A. O. U. Check List. Ed. 3. 1910.
p. 359. No. 756

fuscescens, Lat., growing dusky, somewhat dark (not very applicable to the Veery)

Description. *Upper parts uniform cinnamon brown; lower parts white strongly tinged on the breast with buffy and lightly spotted with dusky.*

Length 7-7.5 inches; extent 12; wing 3.85-4; tail 3; bill .6; tarsus 1.18.

Distribution. The Veery breeds from northern Michigan, central Ontario and Newfoundland to northern Illinois, northern Ohio and northern New Jersey, and south in the mountains to northern Georgia, being particularly a bird of the Alleghanian zone. In New York it is a common summer resident of a large portion of the State, rather uncommon on Long Island, but quite universally distributed in the damp forests of the

Alleghanian zone, practically absent from the spruce and balsam forests of the Catskills and Adirondacks where it is displaced by the Olive-backed and Bicknell thrushes. It arrives from the south from the 26th of April to the 12th of May, slightly later in the northern counties, and in the fall



Photo by L. S. Horton

Wilson thrush's nest and eggs

usually disappears between the 5th and the 30th of September, rarely later than the 15th.

Haunts and habits. The Veery or Wilson thrush prefers a damper, swamplier forest than the Wood thrush and is usually very common in those forests which are flooded early in the season, and in May and June

have a dense ground cover of shrubs, moss-covered logs and thick herbage. Here they nest among the ferns and low shrubbery. The nest is commonly found on the ground or very near it, composed of leaves, strips of bark, weed stalks, lined with rootlets. Between the lining and the outside of the nest is usually a layer of well-rotted wood or mud. The eggs are commonly 4 in number, of a greenish blue color, very rarely spotted with brown near the larger end. They average .88 by .66 inches in dimensions. The nests with eggs are found from the 20th of May to the 10th of June, sometimes as late as the 30th of June.

Chapman describes the Veery's song as a "weird ringing monotone of blended alto and soprano notes. Neither notes nor letters can tell one of its peculiar quality. If you can imagine the syllables *vee-r-r-hu* repeated eight or nine times around a series of intertwining circles, the description may enable you to recognize the song." The call of the Veery is a sharply whistled *pheeu*, which is often heard during migration or when one enters his favorite coverts, repeated over and over again as one journeys through the woods or whistles in imitation of the bird.

Hylocichla fuscescens salicicola Ridgway

Willow Thrush

Browner, less tawny, than Wilson thrush; spots on breast slightly darker; size the same, or slightly smaller. (A. O. U. no. 756a)

This subspecies inhabits western North America, but straggles eastward in migration as far as New York (South Bristol, October 15, 1904, E. H. Eaton) and Connecticut (Bishop, Connecticut Geol. and Nat. Hist. Sur. Bul. 20, p. 177).

Hylocichla aliciae aliciae (Baird)

Gray-checked Thrush

Plate 105

Turdus aliciae Baird. Rep. Expl. & Surv. R. R. Pac. 1858. 9:217

Hylocichla aliciae aliciae A. O. U. Check List. Ed. 3. 1910. p. 360.
No. 757

aliciae, to Miss Alice Kennicott of Illinois

Description. Upper parts *olive brown*, slightly darker than the Olive-backed thrush; *under parts whitish*, spotted on the sides of the throat and

on the breast with dusky; paler spots on the sides; spotting fully as heavy as in the Olive-backed thrush; eye ring and cheek gray with no perceptible buffy tinge; breast very slightly tinged with buffy.

Length 7.5-8 inches; extent 12.5-13.5; wing 4-4.25; tail 3; bill .55; tarsus 1.25.

Distribution. This species breeds in the Hudsonian zone from northwestern Alaska, northwestern Mackenzie, to central Ungava and Newfoundland; winters in northern South America. In New York it is only a transient visitant, arriving from the south from the 9th to the 20th of May and passing northward between the 20th of May and the 2d of June. In the fall it returns from the 18th to the 30th of September and passes southward from the 15th to the 25th of October. It is fairly common as a migrant both in the coastal district and in central, northern and western New York.

Haunts and habits. The Gray-checked thrush is found about our lawns and shrubbery as well as in the forests and swamps during the migration time. It is shyer than the Olive-backed thrush and retreats, at the slightest disturbance, to the coverts of the hedges and trees, assuming rather an erect posture upon alighting. Its call note is a rather sharp, petulant "fee-a." It is also said by Mearns to utter a low note resembling the call of the Brown creeper and a bubble-bursting sound often heard during the spring. Its haunts and habits in general resemble those of the Olive-backed thrush, which is slightly more common with us.

Hylocichla aliciae bicknelli Ridgway

Bicknell Thrush

Hylocichla aliciae bicknelli Ridgway. Proc. U. S. Nat. Mus. 1882. 4: 377
A. O. U. Check List. Ed. 3. 1910. p. 360.

No. 757a

bicknelli, to E. P. Bicknell, the discoverer of this subspecies

Description. *Smaller* than *aliciae*; colors practically the same, but the upper parts *slightly* darker and *browner*, especially the tail, and the chest *slightly* more buffy; the bill *slightly* slenderer.

Length 6.50-7.40 inches, the females being the smaller; extent 11-11.5; wing 3.4-3.8; tail 2.6-2.9; bill .50-.54; tarsus 1.1.

Distribution. This subspecies breeds in the upper Canadian and Hudsonian zones of Nova Scotia, northern New England and in the higher portions of the Catskills and Adirondacks as well as Mt Greylock and Mt Mansfield; winters in Hayti and probably South America. In New York, Bicknell's thrush is found as a summer resident of the higher portions of the Catskills, where it was discovered, and in the Adirondacks above an altitude of 2500 to 3000 feet. Our Adirondack party in 1905 found it fairly common in the vicinity of Mt Marey, both on the Geological cobble, Bartlett ridge and the slopes of Mt Marey, Skylight, Haystack and various other neighboring peaks up to the limit of tree growth. Standing on the top of Mt Marey after sunset, one could hear the Bicknell thrushes in the stunted spruce and balsam just below the tree line in every direction, singing their evening hymn. We found them feeding their young on July 12 near Skylight camp, and on July 18 took an adult male in full song near Lake Colden, at an altitude of 2800 feet.

Haunts and habits. Although the song of this thrush is so commonly heard in the higher portions of the Adirondacks as well as the Catskills, it escapes observation on account of its shy, secretive habits. The song resembles considerably that of the Veery, having the same ringing, flutelike quality, but is slightly more interrupted than the Veery's performance. Howell describes the quality as of a "fine, high-pitched reed. Unlike the Olive-backed thrush, it does not change its pitch perceptibly. The syllables *wee-a, wee-a, wee-a, chi-chi-wee*, the opening notes *wee-a* are open and flowing, followed by two staccato notes; the closing note resembling the open one is without special emphasis. The last three notes taken together form the characteristic portion of the song and are frequently given by themselves without the prelude." Besides its song, this thrush has a call, very similar to the whistled *phew* of the Veery, and a *pink* resembling that of the Olive-backed thrush.

The nest is like that of the Olive-backed thrush and is placed in low bushes or trees only a few feet from the ground. The eggs are greenish blue, spotted and speckled with reddish brown and cinnamon brown but

more finely than those of the Olive-backed thrush. The ground color is also greener.

During migration this thrush is not rare in the coastal district, especially around the shores of Long Island, appearing in the spring between the 20th and the 30th of May. In the fall it is first observed between the 18th and 23d of September and the latest records occur between the 12th and the 23d of October. It is probable that it occurs occasionally in central or western New York during migration. Doctor Merriam took one specimen at Locust Grove, but of all the specimens from western New York which I have examined I have found none which were smaller than the smallest dimensions given for the Gray-cheeked thrush and I am inclined to think they were all of that species.

Hylocichla ustulata swainsoni (Tschudi)

Olive-backed Thrush

Plate 105

Turdus swainsoni Tschudi. Fauna Peruana. 1845-46. Orn. 28
Merula olivacea DeKay. Zool. N. Y. 1844. pt 2, p. 73
Hylocichla ustulata swainsoni A. O. U. Check List. Ed. 3. 1910.
 p. 391. No. 758a
ustulata, Lat., scorched, ashy, referring to the color; *swainsoni*, to William Swainson, English naturalist

Description. Upper parts *olive brown*; under parts white, washed with grayish olive on the sides and *spotted on the breast and sides with dusky*; the *chest perceptibly tinged with buff*, and the *eye ring, ear coverts and cheeks plainly buffy*.

Length 7-7.5 inches; extent 12-12.5; wing 3.8-4.2; tail 2.9-3.2; bill .5; tarsus 1.1.

Distribution. The Olive-backed thrush breeds in the Canadian and lower Hudsonian zone from northwestern Alaska, central Keewatin, southern Ungava and Newfoundland, southward to eastern Oregon, Nevada, Colorado, Utah, northern Michigan, New York and the mountains of Massachusetts and Pennsylvania and West Virginia; winters from southern Mexico southward to Argentina. In New York it is a common summer resident of the Canadian zone, both in the Catskills and in the Adirondacks, being more abundant in the higher forests of the mountains than the

Hermit thrush, as the latter is slightly more abundant in the swamps and lower altitudes. It also breeds sparingly on the highest mountains near the Pennsylvania border where the altitude surpasses 3000 feet and has been reported from several of the colder gullies and swamps of western New York; but I have never found it breeding in these localities and think it possible that most of these reports that come to us are due to error, as they are all based on the eggs which were considered certainly those of the Olive-backed thrush because they were spotted, but they probably were spotted eggs of the Veery. During the migration season this is one of the most abundant thrushes about our shrubbery and shade trees and woodlands both of southeastern New York and the central and western portion of the State, arriving from the 9th to the 15th of May and passing northward from the 18th to the 31st of the month. A few spring dates as early as May 2 have come to my attention. In the fall it appears between the 10th and 20th of September and is last seen between the 10th and 22d of October.

Haunts and habits. During the migration, this species is not so shy as the Gray-cheeked thrush and is often seen hopping about the lawns or sitting unconcernedly in our shade trees. When flying about or disturbed it utters a subdued *plup* or *whit*, and occasionally a high-pitched note of alarm like the syllable *puk*. In its breeding grounds it utters an alarm note which I never heard during the migrations. It has been written *chee-urr*, *chee-urr*, the second syllable being especially harsh and strongly accented. The song of the Olive-back is frequently heard during the migration time and reminds one forcibly of the Veery's song. It is spontaneous and lyrical. Bicknell's description states, "The first note is loudest and most liquid, after which the melody becomes rapidly fainter, seeming to dissolve upon the ear like the spent vibrations of a stringed instrument." Hoffman describes the song as like a Veery's inverted, going up instead of down the scale, but throatier, more gurgling, inferior in purity, richness and suggestiveness. My impressions of the Olive-back, as heard in the Ausable swamp in the Adirondacks, were more favorable

than those expressed by Hoffman. In purity and sweetness they seemed practically to rival the Hermit thrush which was singing in the same locality at the same time, though decidedly different in character.

The nest of the Olive-back is placed in low balsams, spruces or beeches from 4 to 15 feet from the ground. It is composed mostly of mosses, dead leaves and plant stems, lined with dark rootlets. The eggs are greenish blue, spotted with reddish brown, 3 or 4 in number, and average .90 by .64 inches in dimensions. The nesting season varies from June 5 to July 20.

***Hylocichla guttata pallasii* (Cabanis)**

Hermit Thrush

Plate 105

Turdus pallasii Cabanis. Archiv fur Naturg. 1847. p. 205

Merula solitaria DeKay. Zool. N. Y. 1844. pt 2, p. 72, fig. 80

Hylocichla guttata pallasii A. O. U. Check List. Ed. 3. 1910. p. 362.

No. 759b

guttata, Lat., spotted; *pallasii*, dedicated to the famous Russian naturalist

Description. Upper parts *olive brown*, but browner than the Olive-backed thrush; *rump and tail rufous*; under parts whitish, washed with brownish olive on the flanks; *spotted* on the *breast* with black rather more heavily than in the case of the Olive-backed and Gray-checked thrushes.

Length 7-7.25 inches; extent 11-12; wing 3.52-3.75; tail 2.74-2.85; bill .53; tarsus 1.2.

Young, as in the case of the other members of the genus, are spotted above with ochreous and dusky.

Distribution. The Hermit thrush breeds in the Canadian and Transition zones of eastern North America from southern Yukon, southwestern Keewatin and northern Quebec south to central Alberta, central Minnesota, northern Michigan, Ontario, New York, Massachusetts and Connecticut and in the mountains of Pennsylvania and Maryland. Winters from Massachusetts, southeastern New York and the Ohio valley to Texas, Florida and Cuba. In New York it is a summer resident of all the Canadian zone of the Catskills and Adirondacks and of the colder portions of the Transition zone near the Pennsylvania border as well as in the colder swamps, gullies and hill slopes of eastern, central and western New York.

It nests near Lake Ronkonkoma, Long Island (Braislin, Cherrie, Harper and Davis); in Bergen swamp, Genesee county; in some of the gullies near the head of Canandaigua lake; near Branchport on Keuka lake and various other localities of the central lake region. It therefore does not seem to confine itself to the Canadian zone in this State, but at the same time is practically absent from all the forests of the greater portion of the State excepting the spruce, balsam and hemlock zones. It is a common transient in all parts of the State, where it does not occur as a summer resident, and in various localities in the lower Hudson valley and on Long Island is found throughout the winter. The spring migration begins from March 25 to April 10, and where it is not a summer resident the last migrants are found to disappear between the 5th and 20th of May. It arrives from the north from the 1st to the 18th of October and passes southward from October 20 to November 26. Thus it is evidently one of the hardiest of the family, practically rivaling the Robin and Bluebird in its ability to withstand the northern cold.

Haunts and habits. During migration time this thrush is frequently seen about our lawns as well as in the woodlands in all parts of the State. It feeds mostly on the ground after the manner of the Robin, and when slightly disturbed utters a low *chuck* and flies to the low branch of a tree. Upon alighting it almost always tilts its tail slowly, thereby giving an "ear mark" of its identity when the bird is so far away that its colors can not be recognized. Besides this common call of the Hermit, it has also a harsh "*speke*" note which is usually heard only on the breeding grounds, when one is in the vicinity of its nest. The Hermit thrush is often called the Swamp robin, on account of his beautiful song and his preference for cool, damp forests. Balsam and spruce coverts are his special abode. In the winter he prefers cedar groves and evergreen swamps near the coast. In the Adirondack forest his exquisite song can be heard morning and evening throughout the breeding season, frequently through the greater portion of the day, especially in cloudy weather. Bicknell says: "The Hermit thrush bears high distinction among our songbirds. The notes are not remarkable for variety or volume, but in purity and

sweetness of tone and exquisite modulation they are unequalled, in tranquil clearness of tone and exalted serenity of expression going beyond any woods music we ever hear." Hoffman says: "The song of the Hermit is divided into cadences of different pitch. Each cadence is introduced by a pure fluted note, then follow two or three higher notes given with a tremulo effect. These are either given three on the same pitch or, more often, the last two are a little higher or lower than the first. The introductory note is held long enough to give a calm, meditative effect to the song. It also serves to give the pitch to the cadences, one of which is



Photo by Verdi Burtch
Hermit thrush on nest



Photo by Verdi Burtch
Hermit thrush's nest and eggs

so high it is hardly to be heard at a distance. The others are very full soprano or mezzo-soprano. There are no bass notes such as the Wood thrush strikes and no great intervals between any two notes."

The Hermit makes its nest on the ground or in the low branches of some thick tree. It is composed of coarse grasses, leaves and mosses, lined with dark rootlets or pine needles. Beneath the lining is usually a cup of mud or damp rotten wood as is customary with the other thrushes. The eggs are 4 to 6 in number, usually 4, greenish blue in color, lighter than those of the Wood thrush, and average .88 by .69 inches in dimensions.

Planesticus migratorius migratorius (Linnaeus)*Robin*

Plate 106

Turdus migratorius Linnaeus. Syst. Nat. Ed. 12. 1766. 1:292

Merula migratoria DeKay. Zool. N. Y. 1844. pt 2, p. 70, fig. 83

Planesticus migratorius migratorius A. O. U. Check List. Ed. 3.
1910. p. 363. No. 761*planesticus*, poorly formed from Lat., *planus*, a plain, the Robin being a plains bird;
migratorius, Lat., migratory

Description. Upper parts *slate color* more or less tinged with olive brown; the *head black*; small white spot above, below and in front of the eye; the throat largely white streaked with blackish; *breast* and nearly all the under parts *reddish brown* or rufous; the lower abdomen white; tail and wings blackish; the outer tail feathers tipped with white. *Female*: Considerably duller than the male, the breast sometimes almost ochereous brown. *Young*: *Spotted* above with whitish; *under parts* whitish tinged with cinnamon on the sides and *spotted with black*.

Length 10 inches; extent 16; wing 5-5.5; tail 4-4.5; bill .8; tarsus 1.25.

Distribution. Breeds from northwestern Alaska; northern Mackenzie, northern Ungava and Newfoundland south to central Alberta, southeastern Wyoming, Kansas, Indiana, Ohio, Pennsylvania, New Jersey and along the Alleghanies to North Carolina; winters from Kansas, the Ohio valley and New Jersey, to the gulf coast, and irregularly farther north. In New York the Robin is an abundant summer resident in all portions of the State, being probably our most familiar native bird and known more unmistakably than the English sparrow, the Song sparrow or the Chippy. It has adapted itself to civilized conditions and prefers to nest near the habitations of man. It does still frequent the woods, however, to a considerable extent, and I have found it breeding in the slashings of the Adirondack forest miles from any settler's house and in the woods near the lumber camp or the open summer camps of tourists in all portions of the North Woods. There can be little doubt that the Robin is and will remain our most dominant native species. The spring migration of the Robin begins often as early as the 15th of February in southeastern New

York, rarely later than the 10th of March. Dutcher's migration dates for Long Island some years begin on February 7; in western New York, March 4 to 10 is perhaps the normal time of arrival. Some years they are common as early as the 24th of February when there is an exceptionally warm wave. In an unusually late spring they sometimes are not common before the 22d of March, but it is a rare season when the Robin is not in evidence at least as early as March 12. In the fall the last migrants depart from central and western New York about the 1st to the 12th of November, a few remaining occasionally until the last of the month. Fisher gives the date of departure from Ossining as November 30, but a few remain, as stated before, in nearly all the central and southern portions of the State in favored localities throughout the winter.

Haunts and habits. The Robin places its nest even on the window ledge or the veranda post, the brackets of porches, on projections about the sheds, or under the eaves of the barn; likewise in all manner of trees on the lawn, in the orchard and shade trees along the street, or even on the trees in the forest. I have found robins' nests within 1 foot of the ground, at other times 60 feet high in elm trees, and 80 feet high on the beams which supported a water tank. The materials used in the nest construction are almost invariably grass stems and weed stalks for a foundation layer, upon which is built a shell of mud held together with blades of grass carefully mingled with it by the mother bird, who shapes the nest by pressing her breast against it, until a well-rounded cup of sufficient size to support the young birds has been constructed; then the interior is lined with fine blades of dry grass. The eggs are usually 4 in number, rarely 5, and on one occasion I found 7 eggs evidently laid by the same bird. They are of a characteristic bluish green color, rather elongated ovate in shape and average about 1.2 inches in length by .82 in diameter. Robins begin to build the nest in April; some seasons when there is a warm wave during the last week in March I have seen nests completed by the 28th of that month; usually, however, the nest is not finished before the 15th of April and fresh eggs are commonly found from April 22 to May 8. The

second brood is started from May 30 to June 15, and oftentimes a third brood from the 1st to the 19th of July. In one exceptionally early season I found a Robin's nest with fresh eggs on the 31st of March. The time of incubation varies from 11 to 13 days and the young birds remain in the nest about 12 days after hatching, sometimes leaving it in 10 days, sometimes in 2 weeks. They are fed with a great number of caterpillars, cut worms, white grubs and earthworms. As their appetite increases the old birds seem to resort almost exclusively to angleworms, as a plentiful supply of these can usually be obtained. As the young birds become nearly feathered, ripe cherries are brought them, if they have not left the nest before the cherry season arrives. I have watched the old birds feed a nestful of 4 young ones ripe cherries at the rate of 16 to 30 an hour and the young birds every few minutes would shake their heads and pump their necks until they had regurgitated the cherry pits which would rattle on the veranda floor like grape shot. By actual count the cherry pits would rattle across the floor at the rate of 7 in 15 minutes. On several occasions I have noticed that the old robins brought half ripe cherries to the young who were unable to digest them in this condition and perished accordingly. After the nesting season is past, robins seem to disappear for a time from the gardens and dooryards, the old birds and young resorting more to the woodlands and hedgerows and remote fields for feeding, and as the fall season comes on they are found in the woods partaking of pokeberries, black cherries and all kinds of wild fruit. They also become much more wary and can not be approached as in the spring and summer when they live about the garden. During the winter months, even in central and western New York where heavy snow and a temperature often below zero is recorded, the robins remain with perfect safety throughout the winter provided they have swamps or cedar thickets or a sheltered gully to which they may retreat and a convenient supply of wild grapes, barberries, wild privet, poison ivy and juniper berries to furnish them abundant nourishment.

The vocal attempts of the Robin are more varied than those of any

other of our familiar birds. Nearly everyone knows his various songs and call notes, but in the early spring the notes of many other birds are frequently mistaken for those of the Robin. Many a time my neighbors have informed me that they had heard the Robin's first spring note when my own observation taught me it was some note of the Nuthatch or the Downy woodpecker. The loud cries of the Robin which signify distress and alarm are well known to everyone. As the cats carry off the young birds one by one this distressing cry is often heard about our gardens and lawns. Also the fighting cry of the Robin when contending for the possession of a mate or endeavoring to drive intruders from the feeding ground is fully as familiar. The *tut-tut* note which is delivered as the Robin flies up into a tree and bobs its tail, is of doubtful significance, but evidently is simply intended to notify his friends that he is there. The rather explosive ejaculation of four or five rapid notes uttered as the birds start for a more or less extended flight, evidently serves the purpose of keeping the company together. The ordinary song of the Robin is familiar to all, the common evening chant heard from the time of the birds' arrival in the spring till late in July. It is also heard in the morning from daybreak until sunrise, as well as before rain and, in the nesting season, at almost any time of day.

Much discussion has taken place regarding the Robin's economic status, and the general opinion of state and government experts seems to be that he is a beneficial species, principally because of the great numbers of cut worms, white grubs, smooth caterpillars, crane fly larvae and wire worms which he destroys, and there can be no question but that he does destroy immense numbers of those pests. The harm which he does — if harm it must be considered — results from the destruction of predaceous beetles like the black ground beetles and the tiger beetles which destroy injurious insects. Of these he takes a considerable number, but it may well be, as Mr Forbush contends, that if they were allowed to increase indefinitely they might become too numerous and thus destroy each other, so that the Robin's destruction of a few of these is not to be considered

a serious offense. The next count which has been made against the Robin is his unquestioned destruction of great numbers of earthworms which are usually considered among the agriculturist's best friends, for they are continually loosening the earth and bringing up the subsoil and depositing it on the surface, thereby returning many soluble minerals from deep down to the surface again, and carrying down bits of vegetable mould, so that they are to be regarded as among the most efficient soil makers and preservers of the fertility and looseness of the ground. The same argument can be made in regard to the Robin's destruction of earthworms, that it is necessary to have the surplus individuals removed in order to keep up the vitality of the race, and undoubtedly this is a potent argument, as has been shown by British ornithologists in discussing the relationship of falcons to the game coverts of England. Where no birds of prey are present to remove the weaker individuals the race gradually loses its stamina. The third, and probably the most serious count against the Robin in the eyes of New York agriculturists is his inordinate appetite for ripe cherries, and this is a serious offense from the standpoint of the small fruit grower or of the farmer who has a few cherry trees planted for his own use. I have seen robins clear as many as a dozen cherry trees so effectively, as fast as the cherries turned ripe, that the owner was obliged to content himself in the end with 6 or 8 quarts of fruit from the dozen trees. There is scarcely any effective way of driving robins from these cherry trees. I have myself attempted to discover some means of protecting the crop, but even if one remains in the tree with a stick or flag, waving it to drive the birds away, they will continue to come and carry off the fruit in spite of one's endeavors. Even the shotgun will not frighten them away; they must be killed in order to save the crop. Many have suggested that trees of early fruit be planted in the neighborhood to attract the robins from the cherry trees and this has been found effective in many cases, but the mulberries which have been advised for this purpose, do not ripen early enough, and the author believes that a few early cherries furnish the best food for the purpose. About the only native fruit tree which comes early enough

to be of any use is the shadbush, *Amalanchier canadensis*. Perhaps if some enterprising bird student could introduce a very early variety of this service berry, and grow it for planting as ornament about the lawns and farmyards, he would do a great service to the Robin and to the horticulturist.

***Ixoreus naevius naevius* (Gmelin)**

Varied Thrush

Turdus naevius Gmelin. Syst. Nat. 1789. 1:817

Ixoreus naevius naevius A. O. U. Check List. Ed. 3. 1910. p. 364.
No. 763

ixóreus = ἰξορόρος, eating the mistletoe, the Missel thrush; *naevius*, Lat., spotted

Description. Upper parts dark slate color; wings and tail blackish; *2 conspicuous wing bars of orange brown*; some of the quills edged with the same; quills white at the base on their inner webs, but this marking is not visible when the wing is closed; one or more of the lateral tail feathers are tipped with white; *bright black collar* crosses the breast and runs up the sides of the neck and head; *stripe on the side of the head* backward from the eye and under parts orange brown gradually changing to white on the lower belly; bill black; feet yellowish. *Female:* Very much duller on the back but in a similar pattern. *Young:* Resemble the female but have no white on the belly, but the under part often washed with umber brown, the young females sometimes showing scarcely a trace of the collar.

Length about 10 inches; extent 16; wing 5; tail 3.7; bill .8; tarsus 1.25.

Distribution. The Varied thrush inhabits the Pacific coastal region, breeding from Yakutat bay, Alaska, to Humboldt county, California, and wintering from southern Alaska to the Colorado river and frequently straggling eastward in the winter time. Besides several specimens from New Jersey and Massachusetts, at least three different specimens of this thrush have been taken in New York State, the first from Islip, L. I., reported by G. N. Lawrence (see Baird, Brewer and Ridgway, 1, 29; and Coues, "Birds of Colorado Valley," page 19; also Annals Lyc. Nat. Hist. N. Y., 8, 1866, 281; and Boston Society Natural History 3, 1848, 17). Specimen from Port Jefferson, L. I., December 20, 1889, a male, collected by A. H. Helme, reported by Dutcher, Linnaean Society of New York Proc., No. 2, page 9. A specimen from Millers Place, L. I., November 19,

1905, collected by A. H. Helme, reported by Braislin, "Birds of Long Island," page 100.

This thrush evidently follows occasionally the troops of robins which come south from Alaska and reaches the Atlantic coast in their company. When noticed by bird observers he will appear like a curiously variegated Robin, a bird about the same size and shape; but the regular wing bars and the black collar, with the black markings and black and reddish yellow markings on the side of the head, will distinguish him at once among his more common brethren.

Saxicola oenanthe leucorhoa (Gmelin)

Greenland Wheatear

Motacilla leucorhoa Gmelin. Syst. Nat. 1789. 1:966

Saxicola oenanthe leucorhoa A. O. U. Check List. Ed. 3. 1910. p. 366.

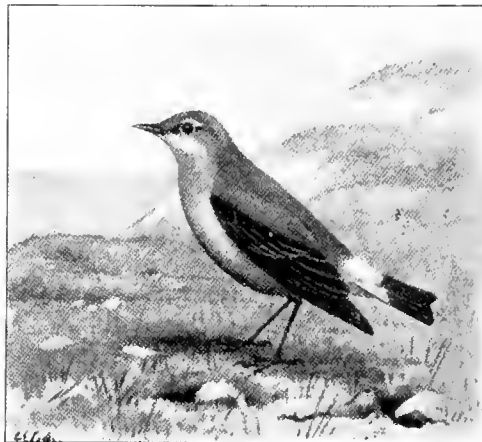
No. 765a

saxicola, Lat., rock dweller; *oenanthe*, Gr., name of some small bird; *leucorhoa*, Gr., white-rumped

Description. In summer, *ashy gray*; line over the eye, *under parts*, and *basal portion of tail*, white; breast sometimes tinted with buff; wings and *terminal portion of tail* black; *broad line* from the nostril through the eye and along side of the head black; bill and feet black. *Female*: Slightly more brownish. In *winter*: Both adults and young *olive brown above*; *under parts cinnamon brown*; wings and tail much as in summer.

Length 6.75 inches; extent 12.5; wing 4; tail 2.38; tarsus 1.2. *Female*: slightly smaller.

Distribution. This subspecies of the Wheatear breeds in northeastern Arctic America from Elsmere Land and Boothia peninsula to eastern Greenland, Iceland and northern Ungava. It winters in west Africa, migrating through the Shetland isles and Great



Wheatear. *Saxicola oenanthe leucorhoa* (Gmelin)
From Hudson's "British Birds." $\frac{1}{2}$ nat. size

Britain, occasionally straggling down the Atlantic coast to Quebec, Brunswick, Bermuda, Louisiana and Cuba. The Greenland Wheatear in New York has only four records, all of which have appeared in print as follows: Long Island, Lawrence collection (Lawrence, *Ann. Lyc. Nat. Hist. N. Y.*, vol. 8, 1866, page 282); Junius, Seneca county, September 9, 1872 (Baird, Brewer and Ridgway, "Birds of North America," p. 501); Long Island, about 1863, female, adult, collection D. G. Elliot, in the American Museum Natural History (Allen, *Auk*, 3:490); Jamaica, 1885, collection of Long Island Historical Society (Dutcher, *Auk*, 10:277).

The western New York specimen collected by Mr Hampton is now in the collection of Hobart College. The letter written to Mr Hampton by Professor Baird in regard to the specimen will be interesting to New York ornithologists.

Washington, November 7, 1873

C. J. Hampton

Junius, N. Y.

DEAR SIR:

On looking over some old letters I find yours of February 15 in reference to the occurrence of the Stone chat in New York and as it is not indorsed as responded to I fear I have neglected to answer it. I now write to say that you are entirely correct in your supposition and that the occurrence of this species in the interior of New York is a fact of extreme interest and one which I have introduced in my forthcoming work on the Birds of North America.

Very truly yours

SPENCER F. BAIRD

This Wheatear is one of the most interesting of the land birds of America for the reason that it crosses the North Atlantic every spring to nest on the bleak shores of Labrador and Greenland, and returns again in the fall to spend the winter in northwestern Africa, evidently being the only small species of land bird which still follows the ancient line of migration as it was evidently marked out before the glacial epoch and the subsidence of the north Atlantic connection between Europe and America.

Sialia sialis sialis (Linnaeus)*Bluebird*

Plate 109

Motacilla sialis Linnaeus. Syst. Nat. Ed. 10. 1758. 1:187*Sialia wilsoni* DeKay. Zool. N. Y. 1844. pt 2, p. 65, fig. 98*Sialia sialis sialis* A. O. U. Check List. Ed. 3. 1910. p. 366. No. 766*sialia*, Gr., *σιάλις*, a bird so called from its slavering or sibilant note; *sialis*, "To call this Anacreon a slobberer!" (Coues). To double call him that is infamy

Description. *Male:* Upper parts rich azure blue; throat, breast and sides chestnut rufous; belly white. *Female:* Considerably paler, but pure azure blue on the rump, tail and wings; rest of the upper parts are grayish blue. *Young in first plumage:* Upper parts streaked along the shaft lines with whitish; under parts closely freckled with brownish and white; a distinct white eye ring.

Length 6.5-7 inches; extent 12-13; wing 3.75-4; tail 2.75-3; bill .25; tarsus .7.

Distribution. Breeds from southern Manitoba, northern Ontario, southern Quebec and Newfoundland, south to Texas and the gulf coast; winters from the Ohio valley and Middle States to the gulf; resident in Bermuda. In New York the Bluebird is a common summer resident of all parts of the State and locally a winter resident in the coastal district and the lower Hudson valley. In western New York I have never seen a Bluebird in midwinter, but it may occasionally remain in sheltered cedar swamps, as it does in the coastal district. Spring migration begins in southeastern New York from the 10th to the 15th of February, in exceptional seasons not till March 10. In western New York it very rarely arrives before the first of March, the average date being March 12, sometimes not till March 22. Several records of arrival before me are in the last week of February. One year (1906) I noticed bluebirds common on the 24th of February at Ithaca, Geneva, Canandaigua and Rochester. In the fall they disappear from the 16th to the 29th of October, sometimes remaining until the 10th of November or even later.

During the severe winter of 1895, the bluebirds of our northeastern states were decimated. The following summer I made a careful search

for the species in many counties of central and western New York, only to find perhaps one pair nesting, where, the previous year, 20 or more pairs would certainly have been found. I noted, however, that the broods reared were exceptionally large. Often 7 eggs were found in each of the few nests which I examined. I am inclined to think this indicates simply the exceptional vitality of the birds which survived the severe weather in their winter home, and the result was that within 5 years this species was as abundant as ever throughout the State. It is even possible that the



Young Bluebirds

Photo by L. S. Horton

elimination of all weaker individuals was of final benefit to the stock. A similar catastrophe occurred during the winter of 1911-12. This is reported by Professor Cook in *Bird Lore* 1:59. In the country about the central lakes I believe that during the summer of 1912 there was not more than 10 per cent of the usual abundance of bluebirds. Now, as I am writing this paragraph (March 15, 1913), the bluebirds have just become common in their spring migration and it seems to me they are nearly as abundant as I had noticed them during the last 10 years. It

remains to be seen how soon those that nest in this immediate vicinity will be as abundant as they were from 1900 to 1911.

Haunts and habits. The Bluebird is one of our familiar summer birds, frequenting the orchard and garden as well as the edges of open woodlands. It is, however, characteristically a bird of the open, and delights in vineyards, stump lots, pastures surrounded by rail fences, cultivated fields interspersed with a few trees along the fence lines, especially dead trees with hollow branches which furnish it the favorite nesting site. This species readily accommodates itself to boxes erected for its use and will build even in cigar boxes nailed to the top of fence posts or a grape trellis, preferring a height of from 7 to 9 feet. In such situations I have noticed that it is less troubled by the English sparrow than it is in boxes which are erected in apple trees or on the corners of buildings.

The Bluebird takes its food mostly from the ground, flying down from its station on the top of the fence post or small tree, seizing a beetle, grub or grasshopper which has attracted its attention and flying up again to the top of the post to devour its prey. There is no question but many of the beetles taken are predaceous ground beetles and tiger beetles which are, in general, beneficial species; but, as Forbush has indicated, even these, when they become overabundant, feed to a considerable extent on vegetation, and as the Bluebird does not feed exclusively or principally upon them we can forgive him this slight offense.

The Bluebird's warble is a mellow, cheery song, a low-pitched lay of four or five notes. It has been syllabled as "*tu-ree-a-lee*," its syllables chattered and fluted in frequent repetition. When frightened or angry he also utters a rattling chatter; and while flying, a call note which in the fall is said to be "*far away, far away*," in the spring "*Come with me*." It certainly means "Come with me" or "Here I go," for as the little scattered company or the pairs of birds take flight, each one in succession calls the note at intervals, thus keeping the group together.

After the nesting season is finished the bluebirds remain in little family groups and will be found about the edges of the woods and in the

weedy pastures feeding largely at this season upon small grasshoppers which are so abundant in the fall. They remain until the sharp frosts of November hurry them southward. In the fall they vary their diet con-



Bluebird at nest

Photo by James H. Miller

siderably on wild fruits of all kinds, but have never been noticed as destructive to the gardener's crops.

The nest of the Bluebird is composed of grass blades and weed stalks,

lined with finer grasses, placed in a hollow limb, a woodpecker's hole or a "Bluebird box." The eggs are usually 4 to 6 in number, sometimes 7, the usual number in New York being 5. They are of a light blue color and average .80 by .60 inches in size. Two and sometimes three broods are reared in a season. As soon as the first brood is ready to leave the nest the old birds lure them gradually from tree to tree some distance from the nesting site, away to the fields and edges of the woods, the father Bluebird usually taking charge of them while the female returns to incubating the second brood. Of all our native birds, the Bluebird by many is regarded as the favorite. Its beautiful colors and lovable disposition, mellow voice and beneficial habits have endeared it to the country people. I can only regret that it is not as dominant in vitality as the Robin and needs more encouragement by having its nesting sites furnished it and protected against the encroachments of the English sparrow. We believe, however, that the species will continue to thrive in spite of the unfavorable conditions which frequently prevail in the winter and in spite of the sparrow's persecution, at least, wherever nature lovers furnish it with boxes which are kept free from the interloper.

ADDENDUM

NEW YORK BIRD HISTORY SINCE 1910

A few notable events have occurred since 1910 in New York ornithology which should be added to the histories recorded in volume I of this memoir. Besides the numerous notes published in the Auk, Bird Lore and other magazines which add somewhat to the knowledge of our birds, three separate publications which require special note have appeared.

The most significant of these in its additions to our ornithology is "The Vertebrates of the Cayuga Lake Basin, New York," by Hugh D. Reed and Albert H. Wright, Proceedings of the American Philosophical Society, vol. 48, p. 370-459, 1909. This paper represents the work of years by members of the department of vertebrate zoology in Cornell University and their assistants, and takes front rank among all faunal lists which have appeared in the State. The maps, discussion of life zones and records of migration and nesting dates have added materially to our knowledge. Although this publication arrived too late to be noted in the introduction to volume I, most of the records were furnished us to include in the Tompkins county list.

A new "Annotated List of the Birds of Oneida County, New York," was published by Egbert Bagg in the transactions of the Oneida Historical Society, vol. 12, p. 16-85, 1912. This edition brings the Oneida county list up to date, including all the additions made by Mr Bagg since the original list by himself and Dr Ralph was issued twenty-five years ago. No new additions to the Oneida county list not noted in volume I of this work occur, however, except the probable record of the Blue grosbeak.

Mr Ottomar Reinecke of Buffalo has printed his "Personal Observations and Notes on the Breeding, Migrating or Visiting Birds on the Niagara Frontier." This pamphlet of thirty-four pages (1912, no date on the impression received) gives many interesting experiences of Mr Reinecke while making his extensive oological collections in western New York.

Of the records of rare birds taken in the State since 1910, probably the most noteworthy is the capture of the Cory least bittern, *Ixobrychus neoxenus*, in the marsh at the head of Cayuga lake, May 27, 1913, by Mr Arthur A. Allen of Ithaca, N. Y., which gives us the first definite record of this rare bird for New York State. Mr Allen also took at the head of Cayuga lake on September 16, 1909 (Cornell University Collection 5,219) an American avocet, *Recurvirostra americana*, which is the only definite record of this species for our State during the last half century. Dr Carlos Cummings of Buffalo has reported another specimen of the White-faced glossy ibis, *Plegadis guarauna*, taken

at Grand island, Niagara river, September 18, 1908. It seems unaccountable that another specimen of this bird should be taken in the same spot as the specimen recorded in volume I after so many years and without any other specimen of the species having occurred in any of the adjoining states.

In 1912 there was another great slaughter of Whistling swans in Niagara river between March 18th and April 6th, but mostly on the latter date. Nearly 200 swans were swept over the falls and perished (see Fleming, Auk, 19:445-98). Since the "Niagara swan trap" is working such devastation upon one of our most interesting waterfowl, we believe that it should be the duty of the State Conservation Commission to station a protector on Goat island every spring between March 10th and April 10th, when the weather is favorable for swan migration, and drive the birds up the river, so as to prevent their destruction by being drawn over the falls.

In February 1912, on account of the unusual extent of ice formation on Lake Ontario and the entire freezing of Seneca, Cayuga and other central lakes, many hundreds of waterfowl perished of starvation, especially Canvasback, Redhead, Scaup, Whistler, Bufflehead, Horned grebe and Holboell grebe, but large numbers of the ducks were saved by feeding with grain under the direction of the Conservation Commission and various local sportsmen's clubs.

We regret to record that a further impetus to the extermination of the Wood duck has occurred in the continued draining of the Montezuma marshes in connection with the barge canal construction, and in the destruction of a large portion of the Potter swamp nesting coverts by reason of cutting away the timber for barrel staves.

Of all the species of birds which we had hoped to find nesting in the Adirondaeks, such as the Bay-breasted warbler and Philadelphia vireo, no success has as yet rewarded our efforts in adding any new breeding species to the New York list.

ELON HOWARD EATON

Hobart College
Geneva N. Y.

EXPLANATIONS OF PLATES

Plate 43

(See plates 44, 46, 47, 48, 49 and 51)

TURKEY VULTURE

Page 63

BALD EAGLE

Page 91

BUTEO (RED-TAILED HAWK)

Page 87

FALCON (DUCK HAWK)

Page 98

ACCIPITER (COOPER HAWK)

Page 77

ARCHIBUTEO (ROUGH-LEGGED HAWK)

Page 88

MARSH HAWK

Page 70

FISH HAWK

Page 106



Paris Agassiz Esq.

Appearance of Diurnal Birds of Prey in Flight

TURKEY VULTURE
 FALCON (DUCK HAWK)
 ACCIPITER (COOPER'S HAWK)
 MARSH HAWK-FEMALE

BALD EAGLE

BUTEO (RED-TAILED HAWK)
 ARCHIBUTEO (ROUGH-LEGGED HAWK)
 FISH HAWK

Plate 44
(See plates 43 and 46)

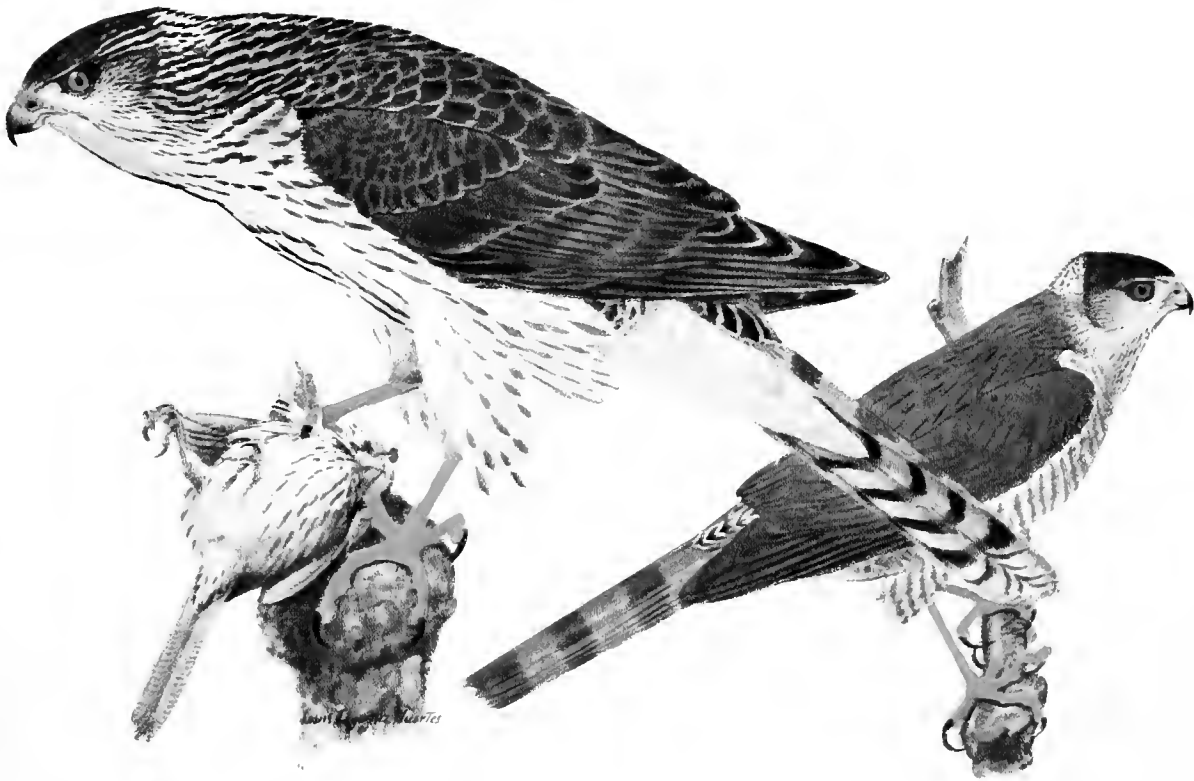
COOPER HAWK
Page 77

SHARP-SHINNED HAWK
Page 74

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 44



COOPER'S HAWK
Accipiter cooperi (Bonaparte)
IMMATURE FEMALE

All $\frac{1}{2}$ nat. size

SHARP-SHINNED HAWK
Accipiter velox (Wilson)
ADULT MALE

Plate 45

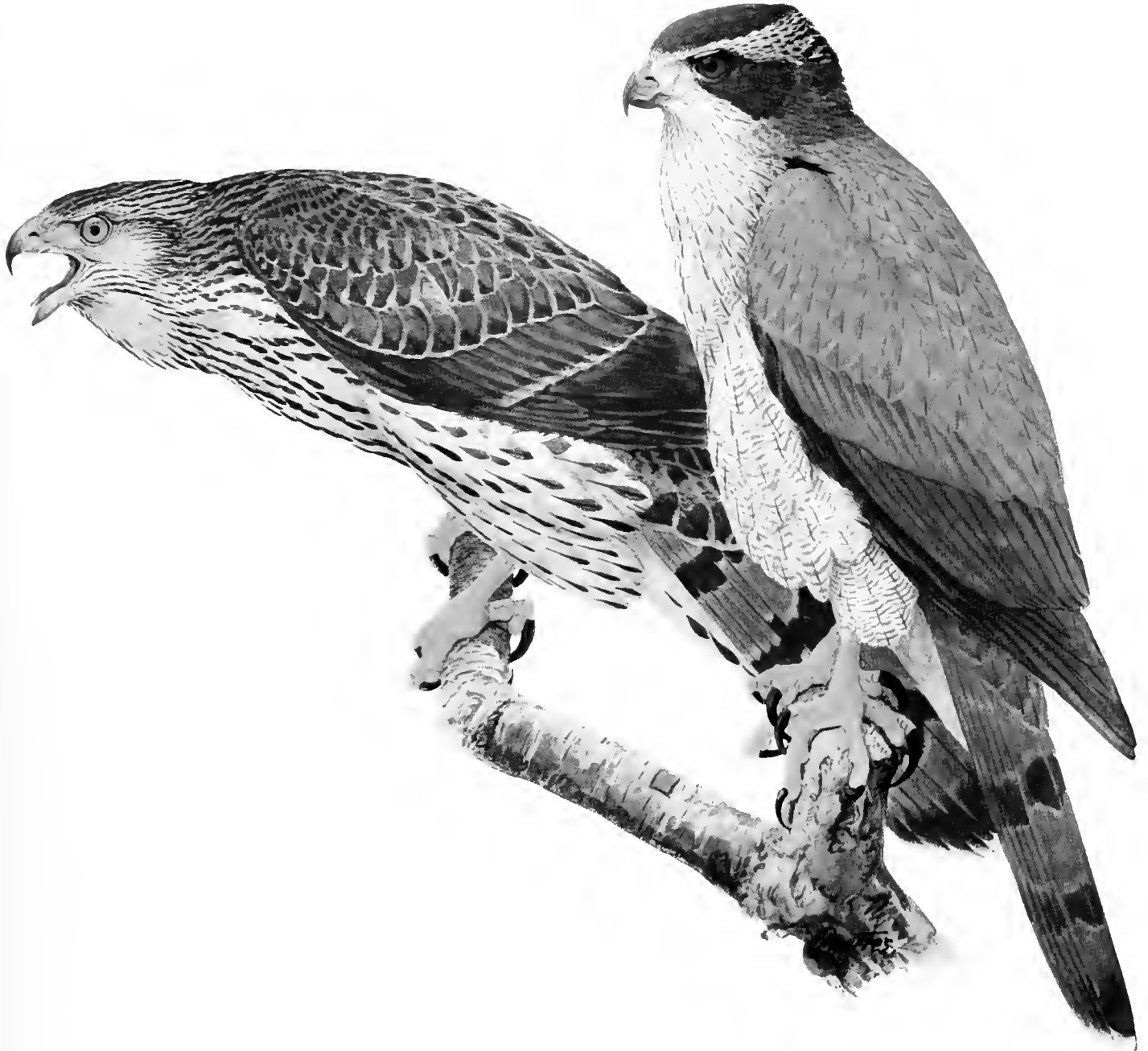
GOSHAWK

Page 78

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 45



GOSHAWK
Astur atricapillus atricapillus (Wilson)
½ nat. size

IMMATURE

ADULT

Plate 46

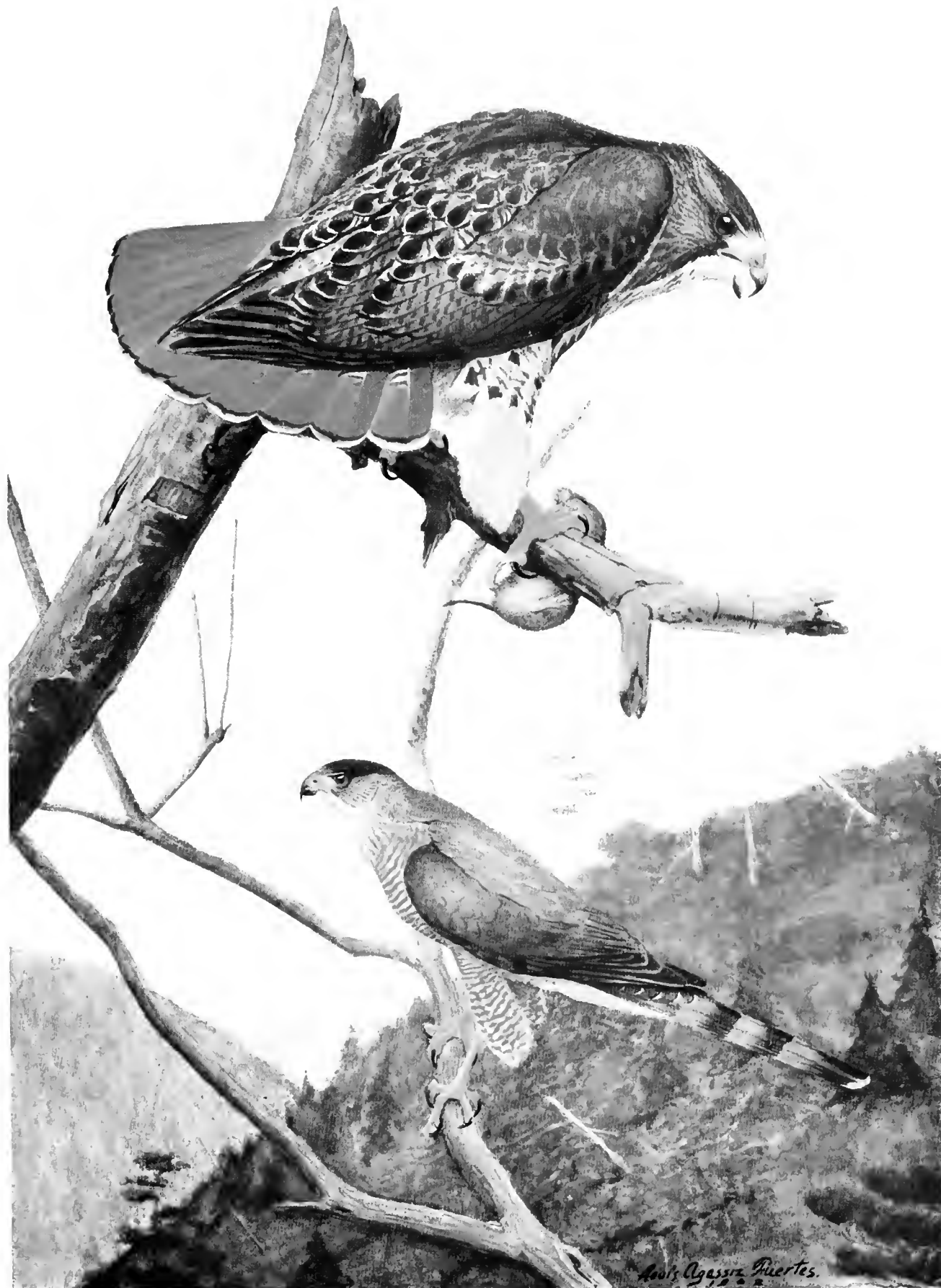
(See plates 43, 44 and 47)

RED-TAILED HAWK

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COOPER HAWK

Page 77

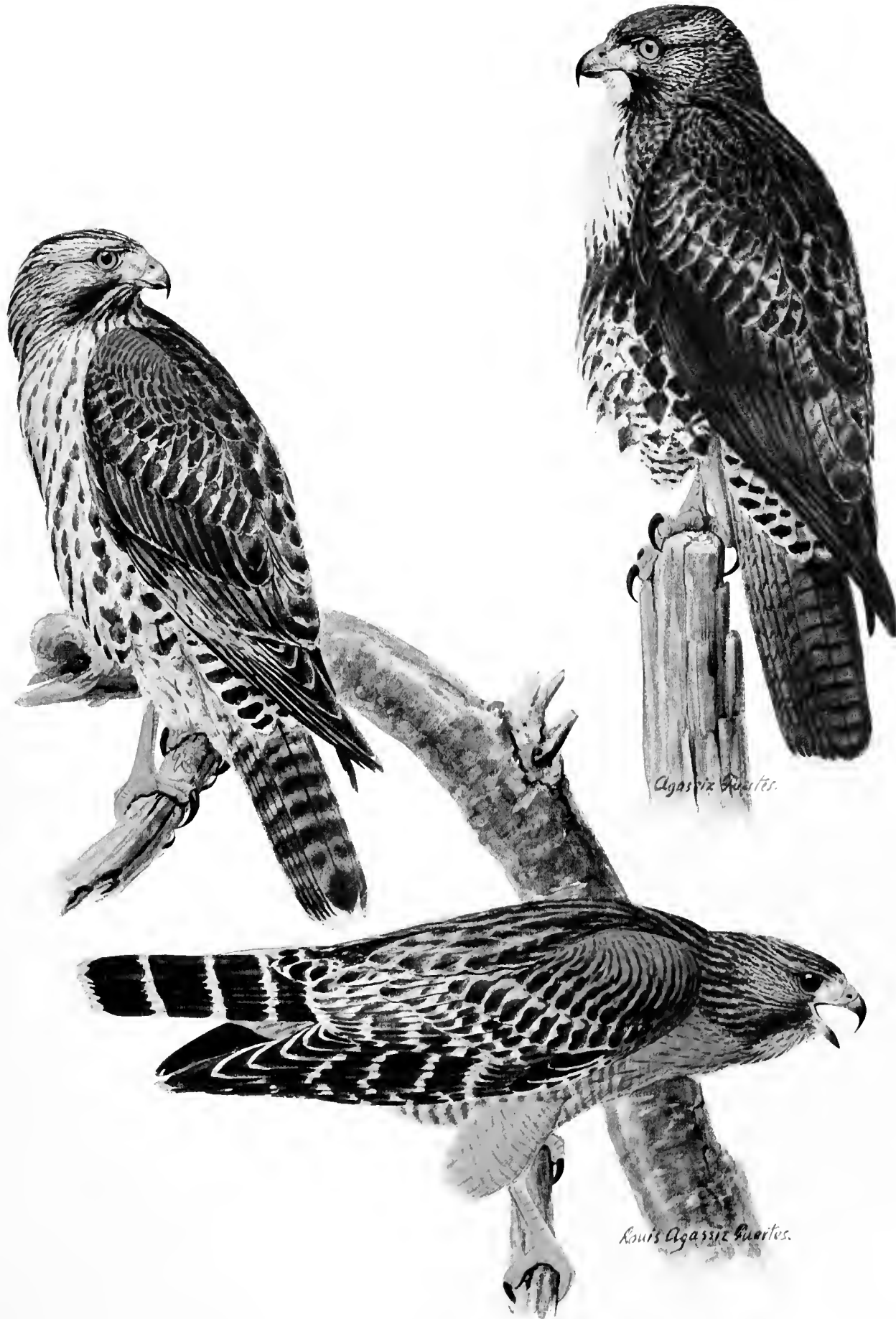


RED-TAILED HAWK *Buteo borealis borealis* (Gmelin)
ADULT
COOPER'S HAWK *Accipiter cooperi* (Bonaparte)
ADULT FEMALE
 $\frac{1}{2}$ nat. s.ze

Plate 47
(See plate 43)

RED-SHOULDERED HAWK
Page 83

RED-TAILED HAWK
Page 81



RED-SHOULDERED HAWK
Buteo lineatus lineatus (Gmelin)

IMMATURE

ADULT

All $\frac{1}{2}$ nat. size

RED-TAILED HAWK
Buteo borealis borealis (Gmelin)

IMMATURE

Plate 48
(See plate 43)

BROAD-WINGED HAWK

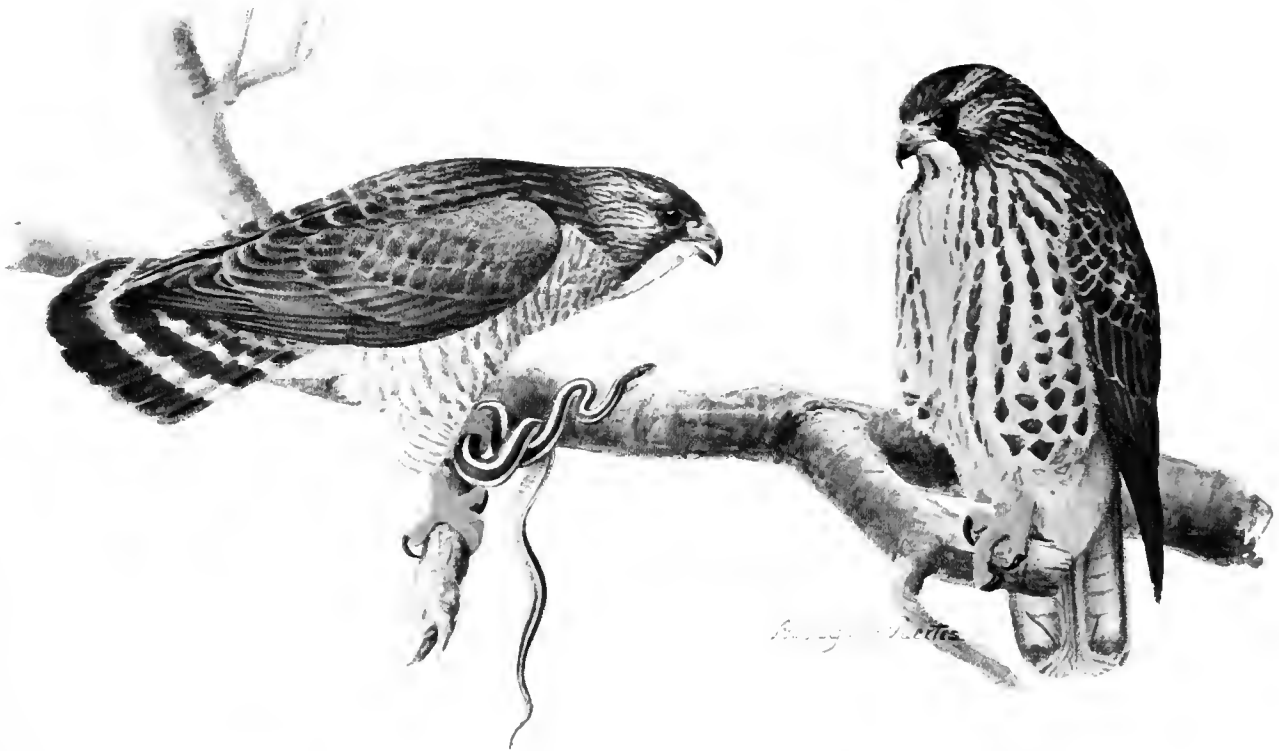
Page 86

ROUGH-LEGGED HAWK

Page 48

MARSH HAWK

Page 70



Louis Agassiz, Buxton



Louis Agassiz, Buxton



Louis Agassiz, Buxton

ROUGH-LEGGED HAWK
Archibuteo lagopus sancti-johannis (Gmelin)
Black phase

BROAD-WINGED HAWK *Buteo platypterus* (Vieillot)
ADULT

IMMATURE
MARSH HAWK *Circus hudsonius* (Linnaeus)
MALE

All $\frac{1}{2}$ nat. size

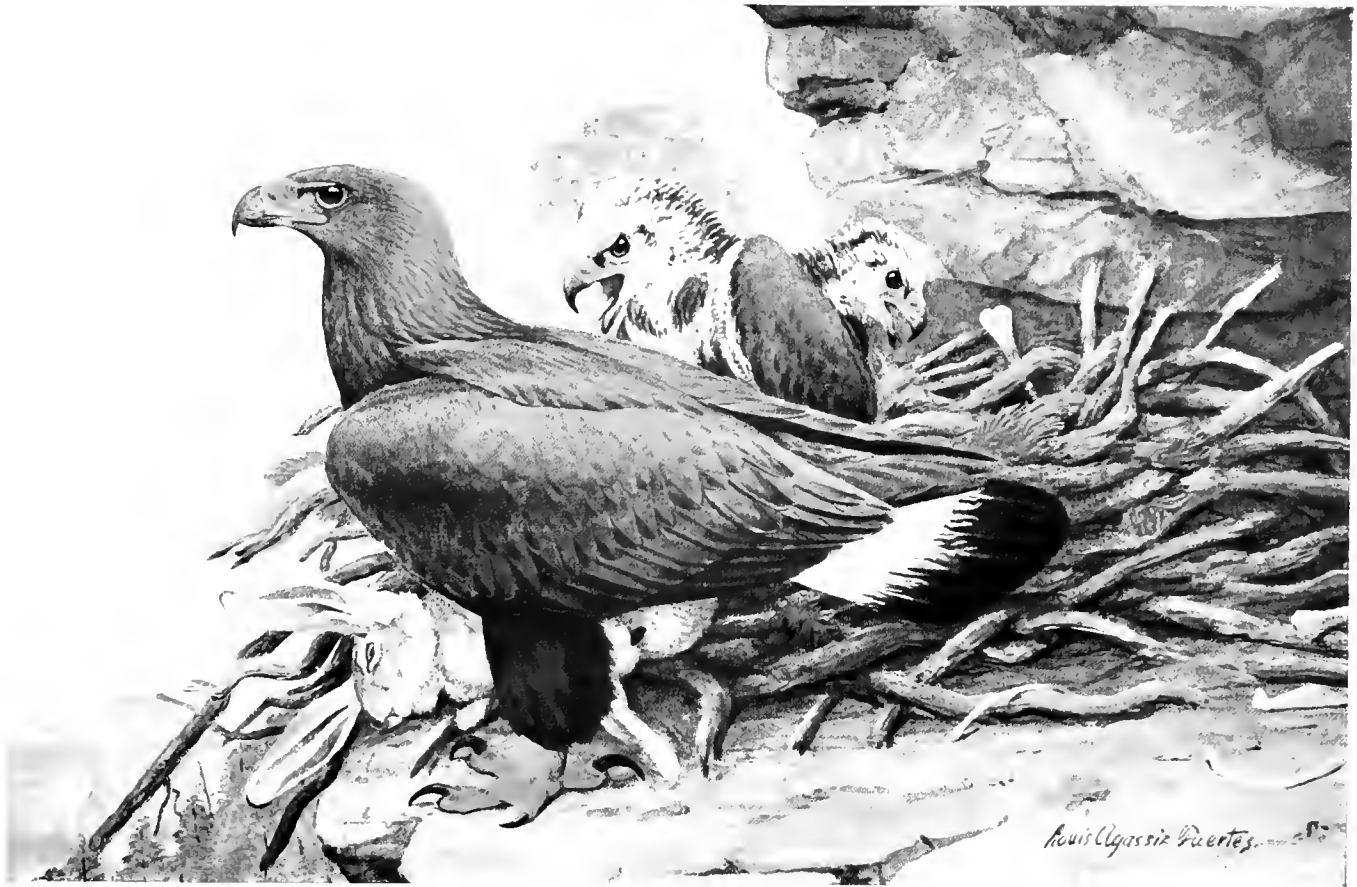
Plate 40
(See plate 43)

GOLDEN EAGLE

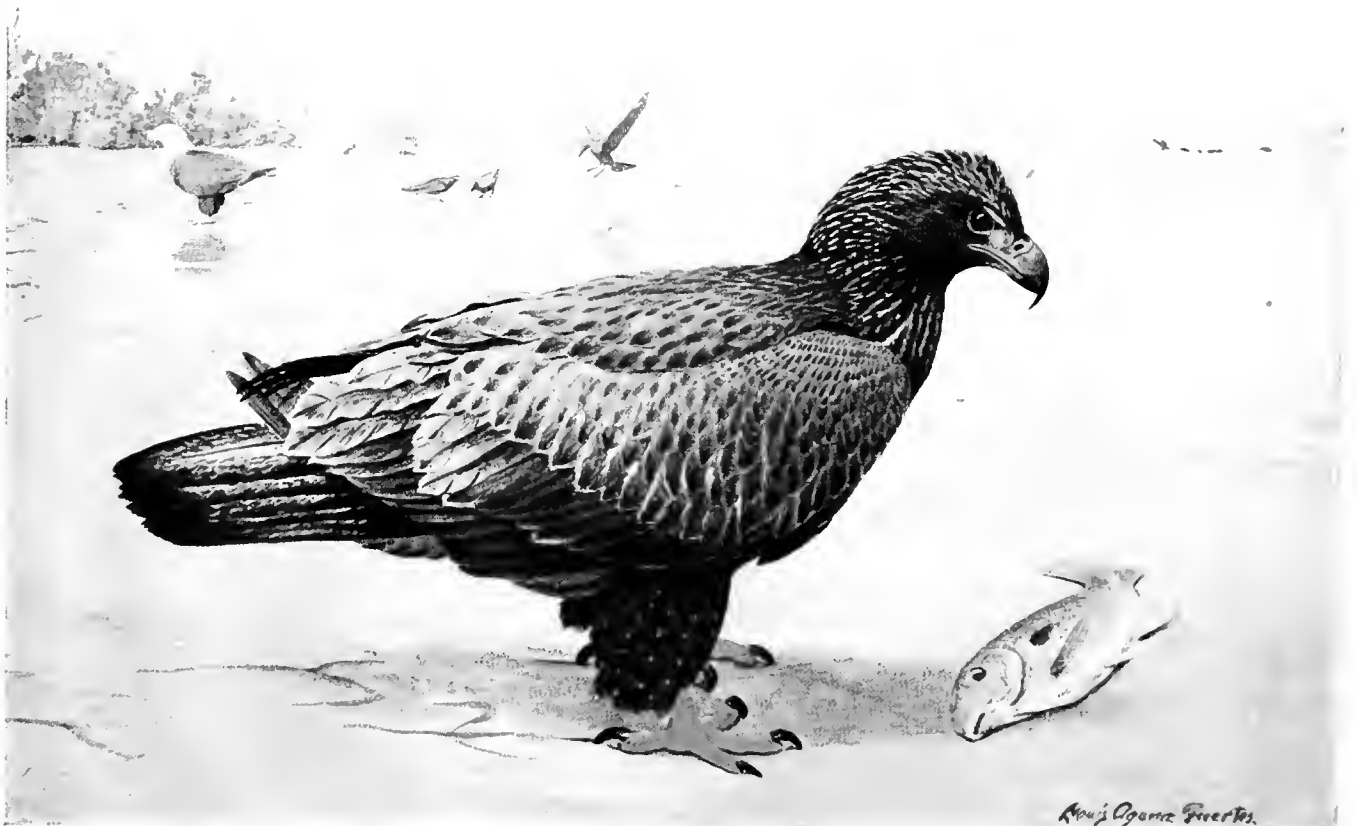
Page 90

BALD EAGLE

Page 91



GOLDEN EAGLE *Haliaeetus chrysaetos* (Linnaeus)
1/2 nat. size



BALD EAGLE *Haliaeetus leucorhynchus leucorhynchus* (Linnaeus)
IMMATURE
1/2 nat. size

Plate 50

GYRFALCON

Page 66

BLACK GYRFALCON

Page 97

WHITE GYRFALCON

Page 95

BIRDS OF NEW YORK



GYRFALCON
Falco rusticolus gyrfalco Linnaeus

WHITE GYRFALCON
Falco islandus Brunnich
BLACK GYRFALCON *Falco rusticolus obsoletus* Gmelin
All $\frac{1}{2}$ nat. size

Plate 51
(See plate 43)

DUCK HAWK
Page 98



Louis Agassiz Guertés

FIRST YEAR MALE

DUCK HAWK *Falco peregrinus anatum* Bonaparte
ADULT FEMALE
All 1/2 nat. size

CHICKS AND EGG

Plate 52

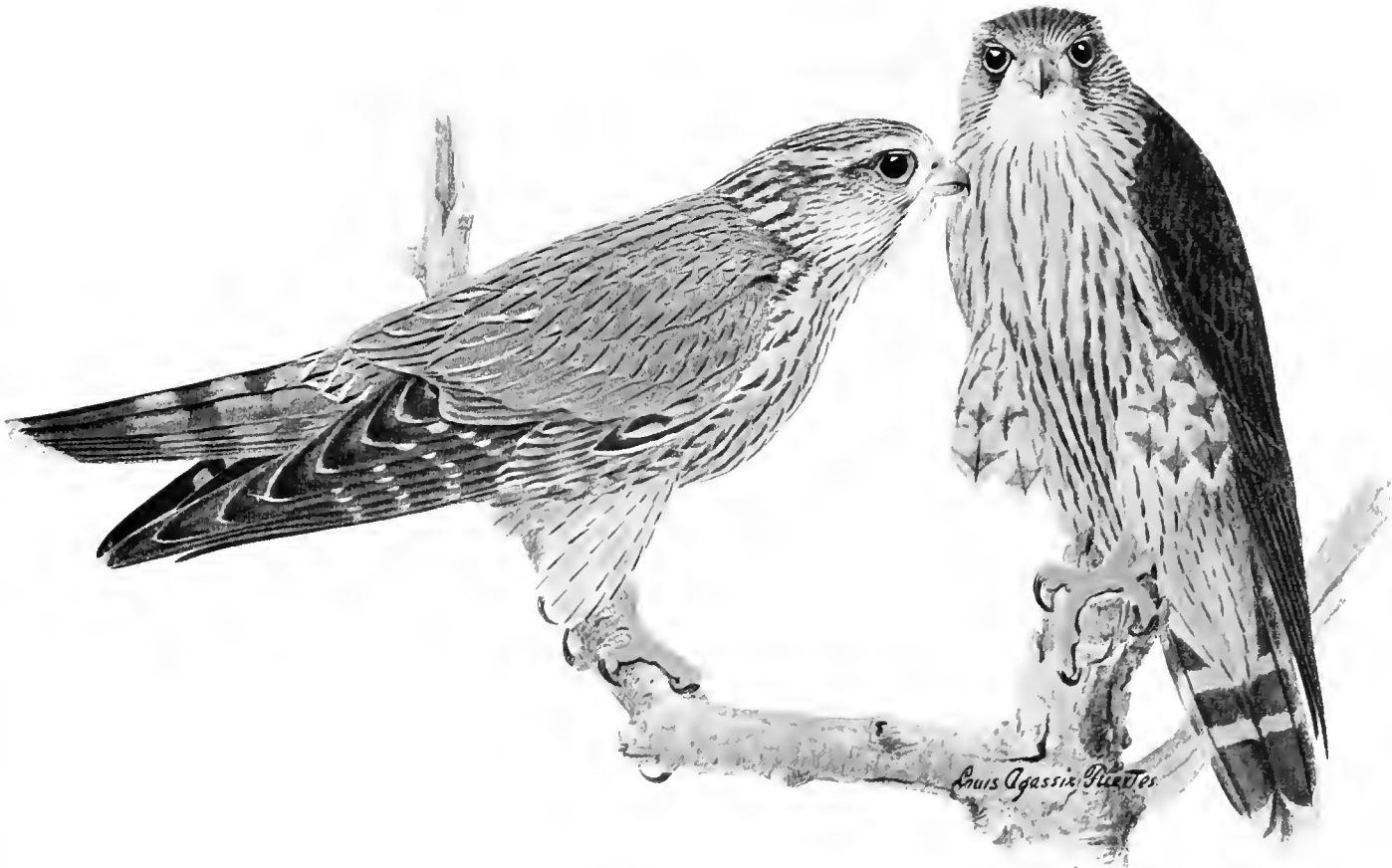
SPARROW HAWK

Page 103

PIGEON HAWK

Page 101

BIRDS OF NEW YORK



SPARROW HAWK *Falco sparverius sparverius* Linnaeus

MALE

PIGEON HAWK *Falco columbarius columbarius* Linnaeus

FEMALE

ADULT

All } nat. size

IMMATURE

Plate 53

BARN OWL

Page 109

LONG-EARED OWL

Page 112



Lewis Agassiz Quenby

BARN OWL
Aluco pratincola (Bonaparte)

1 nat. size

LONG-EARED OWL
Asio wilsonianus (Lesson)

Plate 54

GREAT GRAY OWL
Page 116

SNOWY OWL
Page 126

BARRED OWL
Page 115



GREAT GRAY OWL *Scotiapteryx nebulosa nebulosa* (J. R. Forster)
 SNOWY OWL *Nyctea nyctea* (Linnaeus) BARRED OWL *Strix varia varia* Barton
 All $\frac{1}{2}$ nat. size

Plate 55

SAW-WHET OWL
Page 118

HAWK OWL
Page 127

RICHARDSON OWL
Page 117



HAWK OWL *Surnia ulula caprock* (Müller)
SAW-WHET OWL
Cryptoglaux neotica acadica (Gmelin)

RICHARDSON'S OWL
Cryptoglaux junco richardsoni (Bonaparte)

All $\frac{1}{2}$ nat. size

Plate 56

SCREECH OWL

Page 120

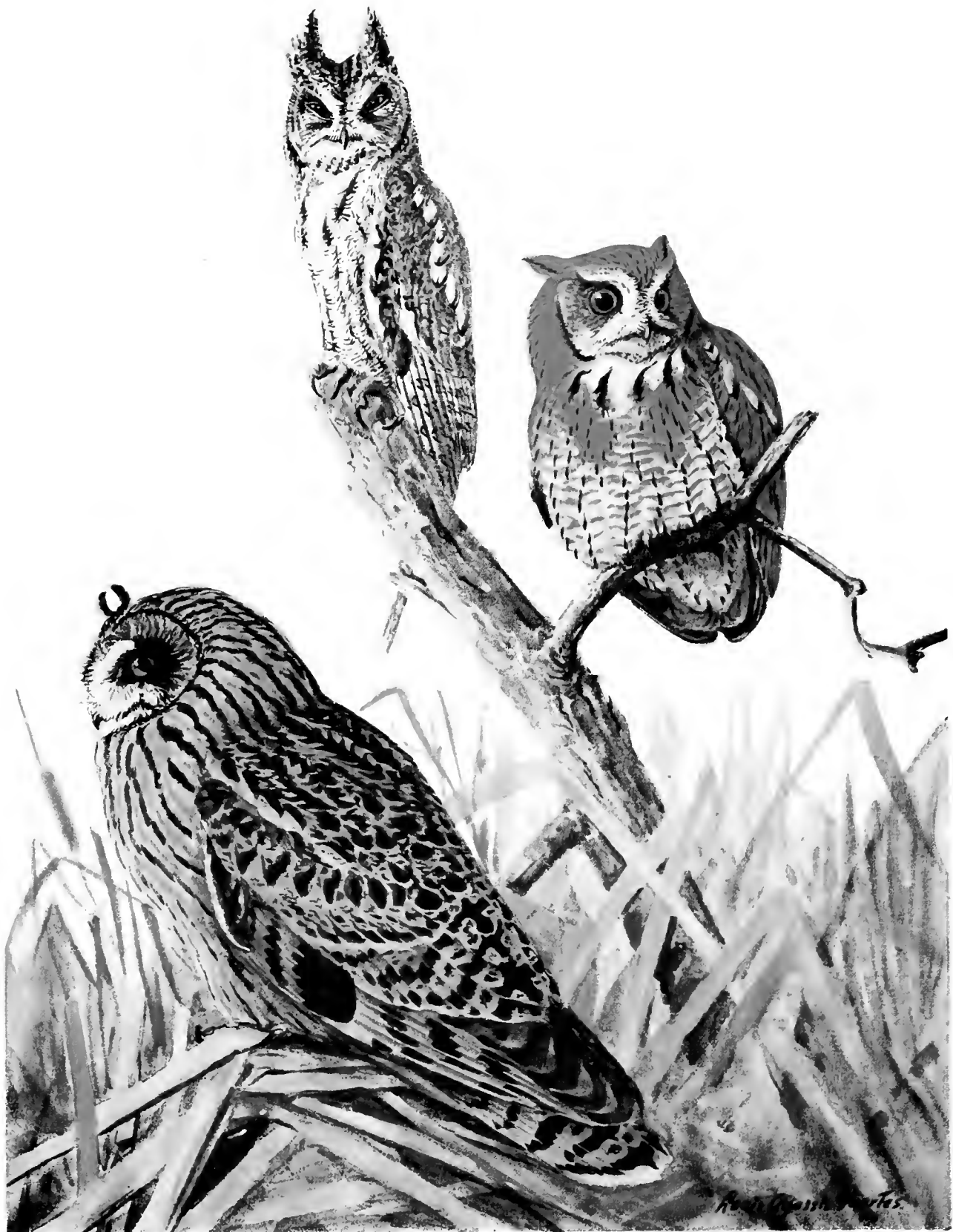
SHORT-EARED OWL

Page 113

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 56



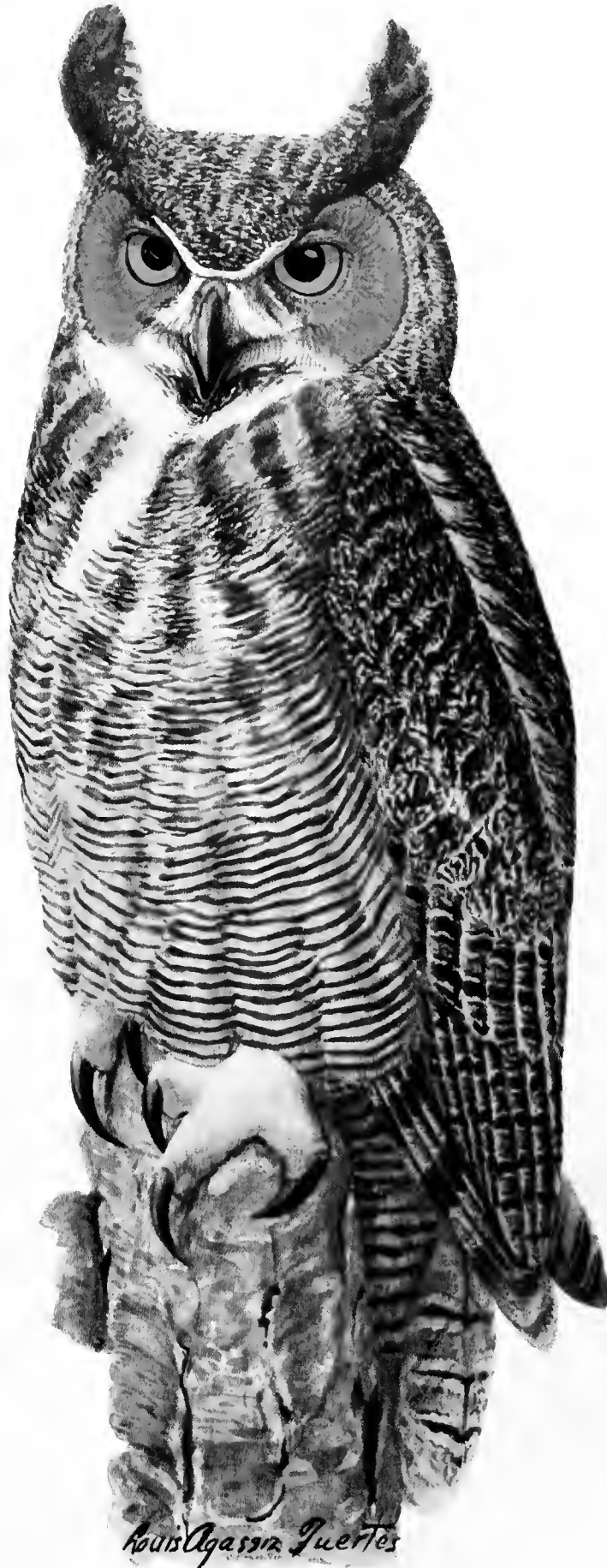
SCREECH OWL *Otus asio asio* (Linnaeus)
Gray and red phases

SHORT-EARED OWL *Asio flammeus* (Pontoppidan)
All $\frac{1}{2}$ nat. size

Platc 37

GREAT HORNED OWL

Page 123



GREAT HORNED OWL *Bubo virginianus virginianus* (Gmelin)
 $\frac{2}{3}$ nat. size

Plate 58

BELTED KINGFISHER

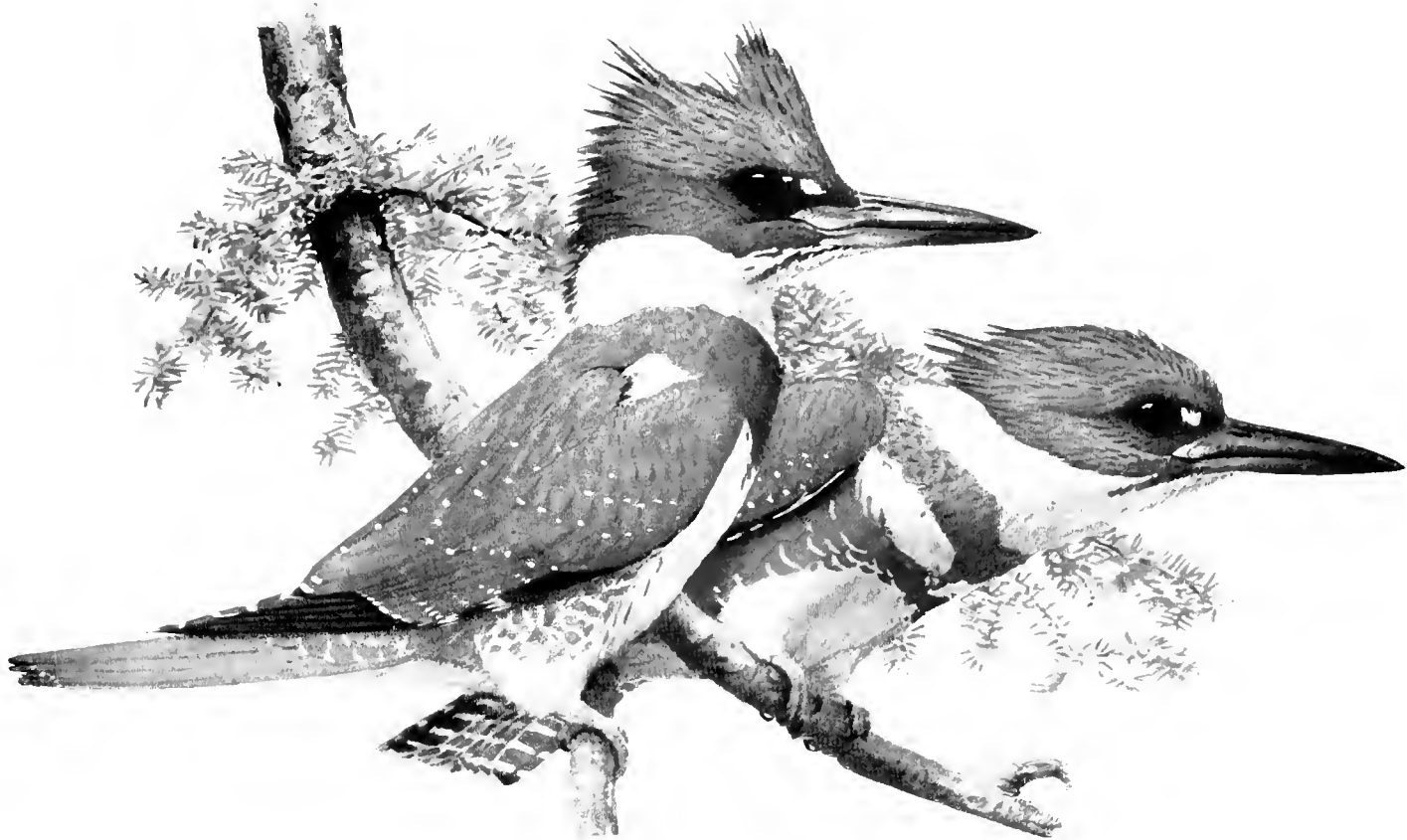
Page 136

BLACK-BILLED CUCKOO

Page 134

YELLOW-BILLED CUCKOO

Page 131



Rev. C. J. S. S. S. S.

BELTED KINGFISHER *Ceryle alcyon* (Linnaeus)

MALE

FEMALE

BLACK-BILLED CUCKOO
Coccyzus erythrophthalmus (Wilson)

YELLOW-BILLED CUCKOO
Coccyzus americanus americanus (Linnaeus)

All $\frac{1}{2}$ nat. size

Plate 59

HAIRY WOODPECKER
Page 141

DOWNY WOODPECKER
Page 142



HAIRY WOODPECKER
Dryobates villosus villosus Linnaeus
 MALE FEMALE

DOWNY WOODPECKER
Dryobates pubescens melanurus (Swainson)
 FEMALE MALE

All $\frac{2}{3}$ nat. size

Plate 60

ARCTIC THREE-TOED WOODPECKER

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BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 60



ARCTIC THREE-TOED WOODPECKER *Picoides arcticus* (Swainson)
FEMALE
MALE
1 1/2 IN. SIZE

Plate 61

AMERICAN THREE-TOED WOODPECKER

Page 146

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 61



AMERICAN THREE-TOED WOODPECKER *Picoides americanus americanus* Brehm
MALE ; nat. size FEMALE

Plate 62

RED-HEADED WOODPECKER
Page 151

YELLOW-BELLIED SAPSUCKER
Page 148

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 62



RED-HEADED WOODPECKER
Melanerpes erythrocephalus (Linnaeus)
ADULT
IMMATURE

All $\frac{1}{2}$ nat. size

YELLOW-BELLIED SAPSUCKER
Sphyrapicus varius varius (Linnaeus)
MALE
FEMALE

Plate 63

NORTHERN PILEATED WOODPECKER

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BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 63



MALE

NORTHERN PILEATED WOODPECKER *Phloeotomus pileatus abieticola* (Bangs)

FEMALE

About $\frac{1}{2}$ nat. size

Plate 64

NORTHERN FLICKER

Page 158

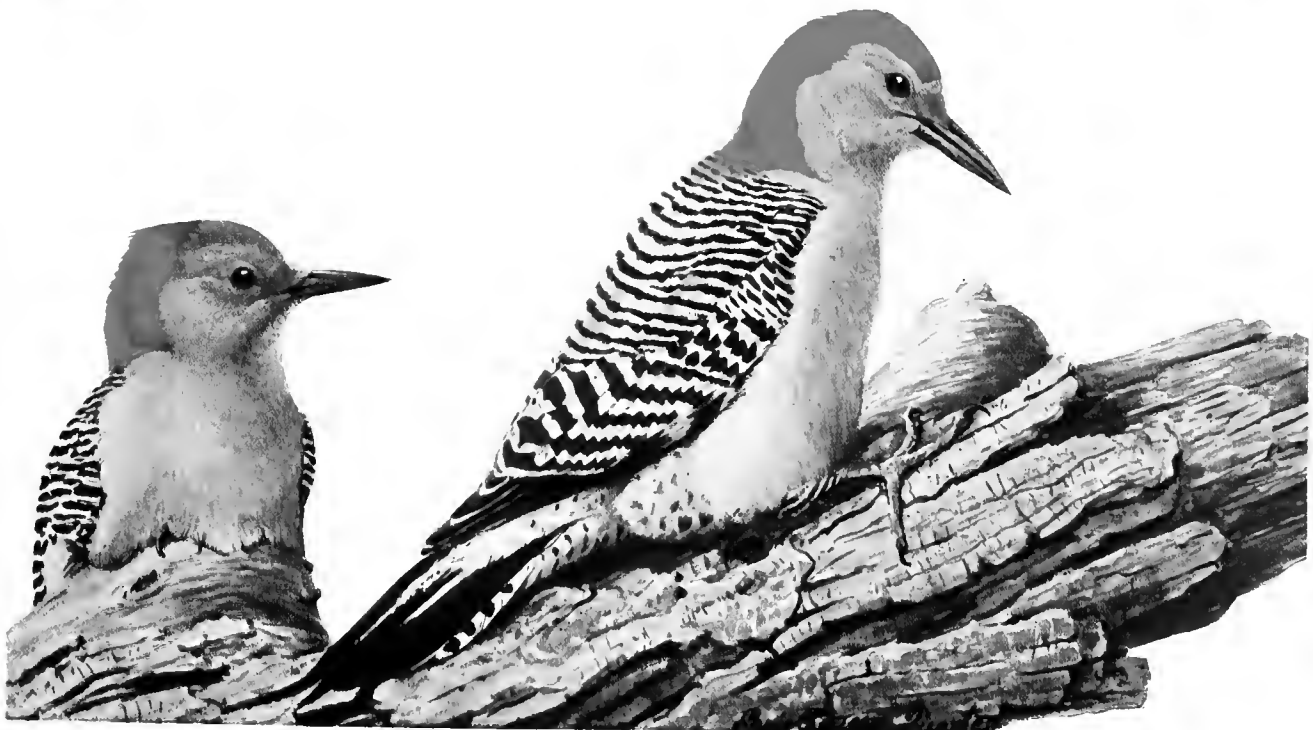
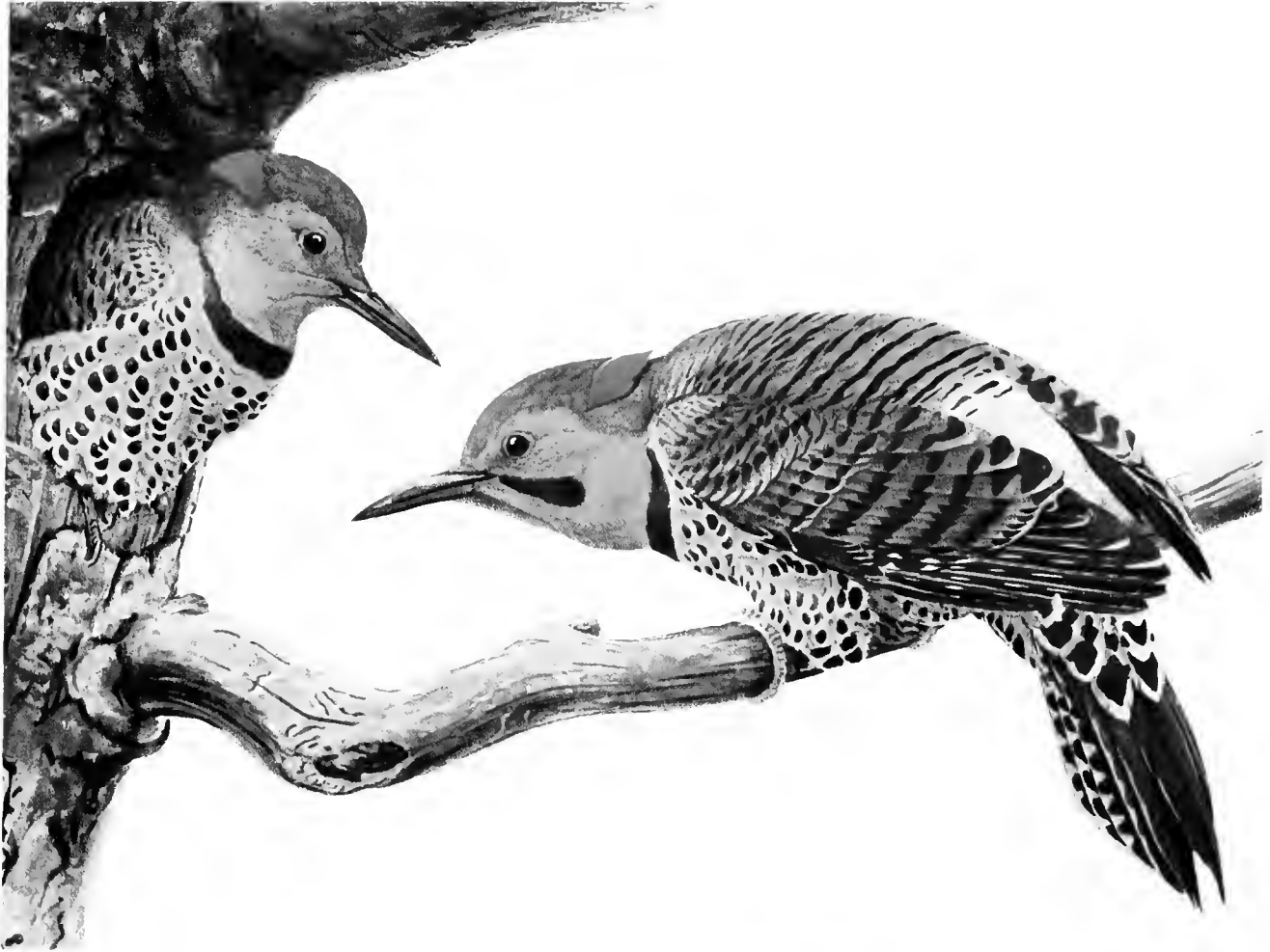
RED-BELLIED WOODPECKER

Page 157

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 64



FEMALE

NORTHERN FLICKER *Colaptes auratus luteus* Bangs

MALE

RED-BELLIED WOODPECKER *Centurus carolinus* (Linnaeus)

FEMALE

MALE

$\frac{1}{2}$ nat. size

Plate 6g

NIGHTHAWK

Page 107

WHIP-POOR-WILL

Page 164

BIRDS OF NEW YORK



NIGHTHAWK *Chordeiles virginianus virginianus* (Gmelin)
MALE $\frac{1}{2}$ nat. size
WHIP-POOR-WILL *Antrostomus vociferus vociferus* (Wilson)
MALE $\frac{1}{2}$ nat. size

Plate 66

RUBY-THROATED HUMMINGBIRD

Page 175

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 66



MALE

RUBY-THROATED HUMMINGBIRD *Archilochus colubris* (Linnaeus)

FEMALE

MALE

All life size

Plate 67

OLIVE-SIDED FLYCATCHER

Page 189

KINGBIRD

Page 182

CRESTED FLYCATCHER

Page 185

PHOEBE

Page 187

BIRDS OF NEW YORK



OLIVE-SIDED FLYCATCHER
Nuttallornis borealis (Swainson)

KINGBIRD *Tyrannus tyrannus* (Linnaeus)
All $\frac{1}{2}$ nat. size

CRESTED FLYCATCHER
Myiarchus crinitus (Linnaeus)

PHOEBE *Scolecophloebe phoebe* (Latham)

Plate 68

ALDER FLYCATCHER

Page 196

ACADIAN FLYCATCHER

Page 194

WOOD PEWEE

Page 190

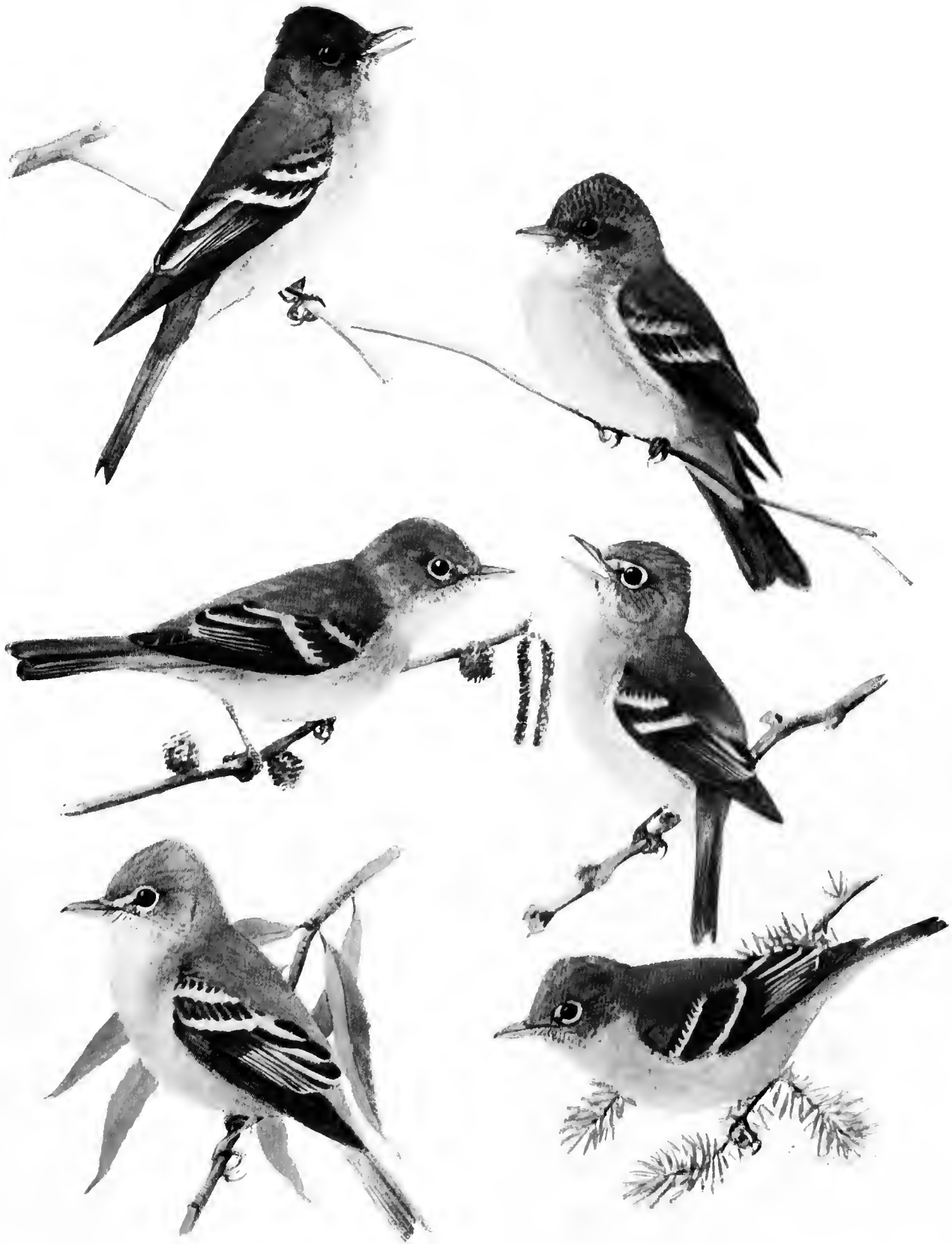
LEAST FLYCATCHER

Page 199

YELLOW-BELLIED FLYCATCHER

Page 193

BIRDS OF NEW YORK



WOOD PEWEE *Mniotilta virens* (Linnaeus)
 ADULT ALDER FLYCATCHER *Empidonax traillii aliorum* Brewster
 ACADIAN FLYCATCHER *Empidonax virescens* (Vieillot)
 IMMATURE LEAST FLYCATCHER *Empidonax minimus* (W. M. & S. F. Baird)
 YELLOW-BELLIED FLYCATCHER *Empidonax flaviventris* (W. M. & S. F. Baird)
 All $\frac{2}{3}$ nat. size

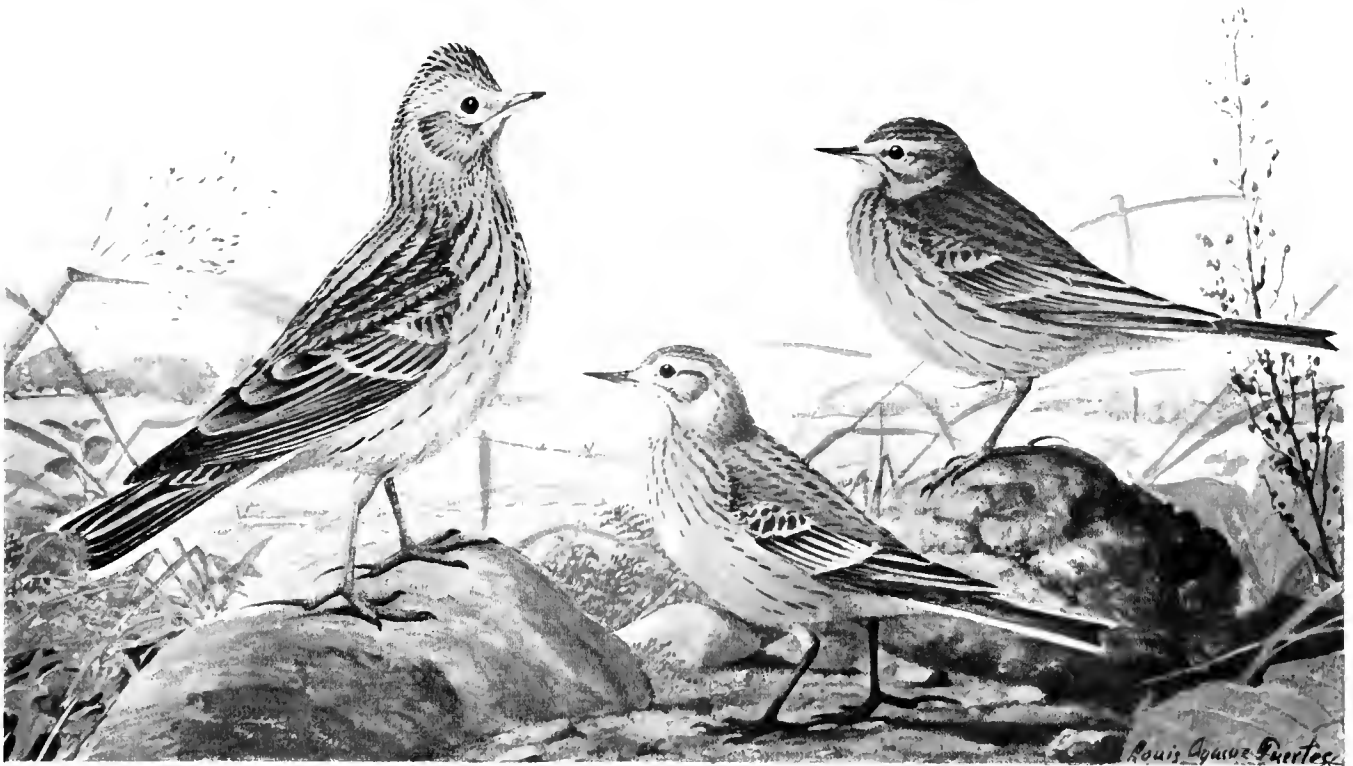
Plate 69

SKYLARK
Page 201

HORNED LARK
Page 202
PRAIRIE HORNED LARK
Page 203

PIPIT
Page 469

BIRDS OF NEW YORK



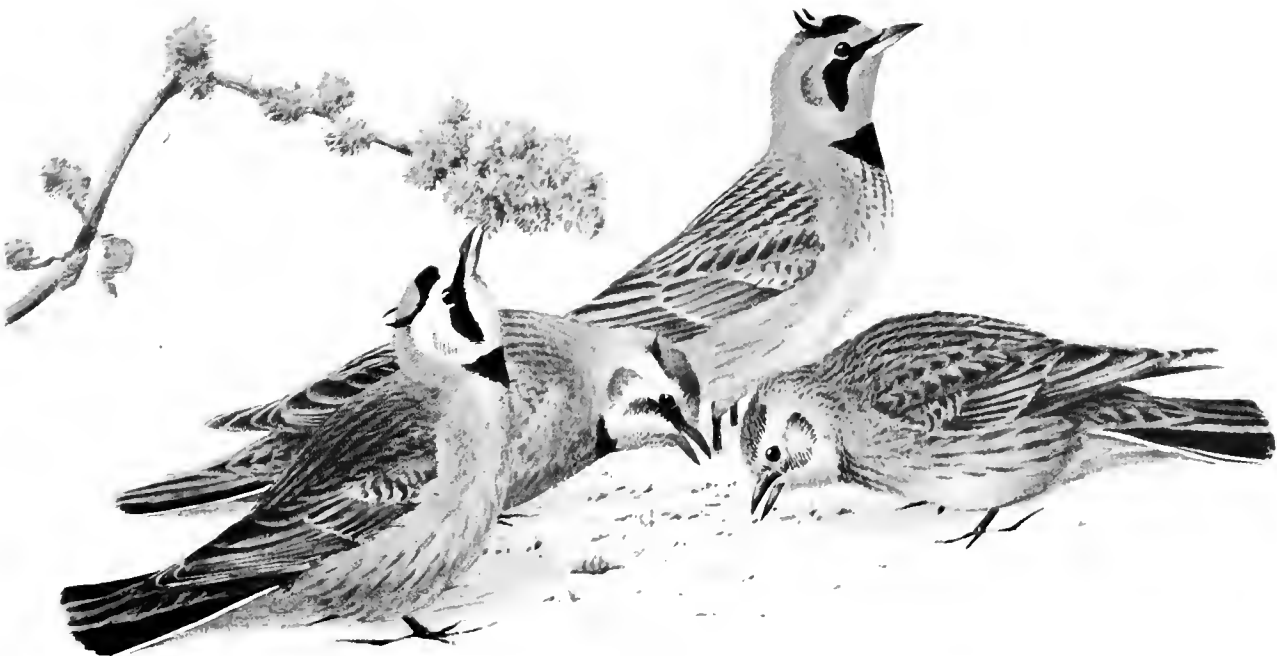
SKYLARK
Cantus arvensis Linnaeus

All $\frac{1}{2}$ nat. size

SPRING

PIPIT *Anthus rubescens* (Tunstall)

AUTUMN



HORNED LARK *Otocoris alpestris alpestris* Linnaeus

MALE

PRAIRIE HORNED LARK *Otocoris alpestris praticola* Henshaw

MALE

FEMALE

IMMATURE

All $\frac{1}{2}$ nat. size

Plate 70

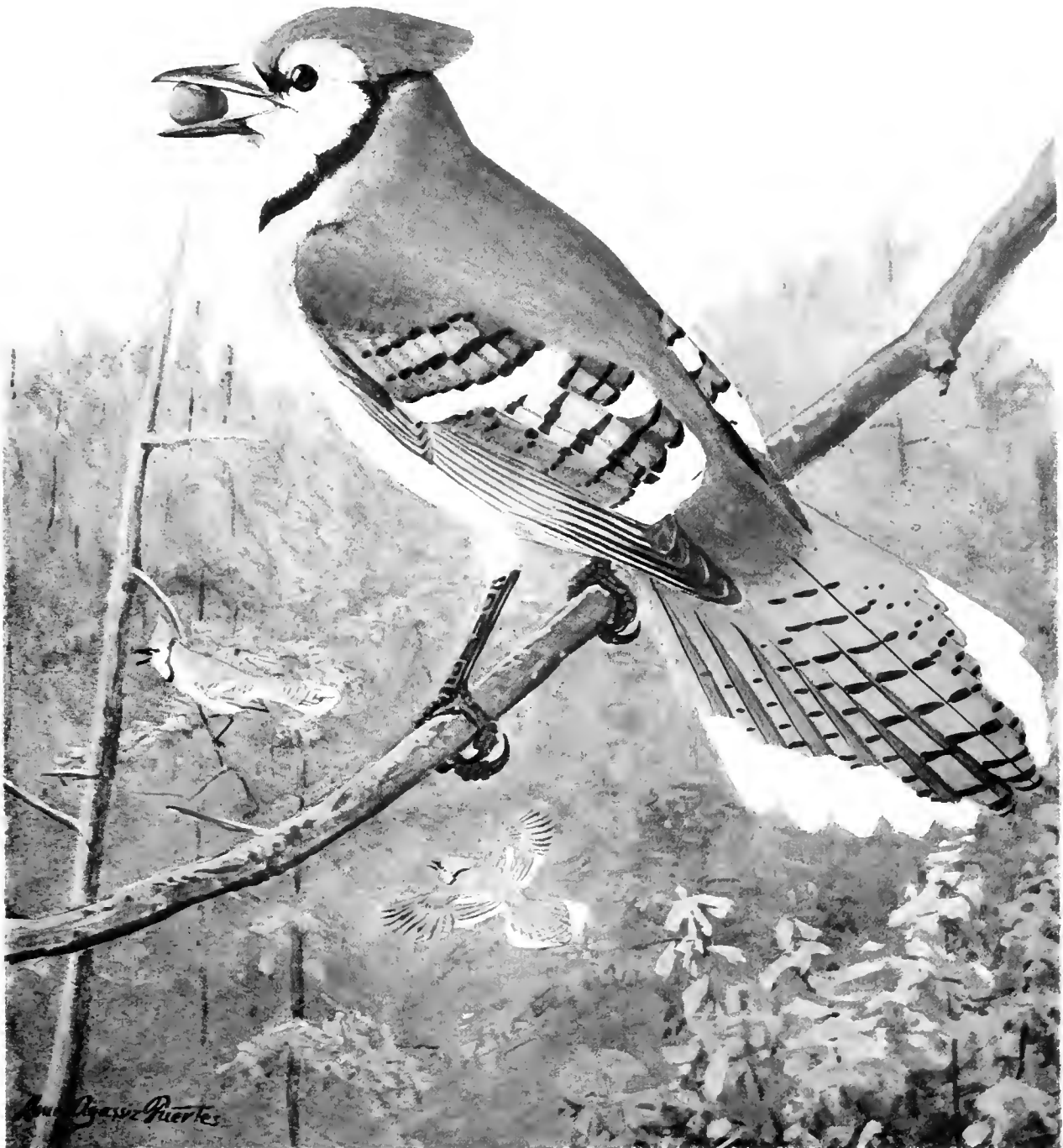
BLUE JAY

Page 208

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 70



BLUE JAY *Cyanocitta cristata cristata* (Linnaeus)
 $\frac{2}{3}$ nat. size

Plate 71

NORTHERN RAVEN
Page 212

CANADA JAY
Page 210

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 71



NORTHERN RAVEN
Corvus corax principalis Ridgway

Both, 1 nat. size

CANADA JAY
Perisoreus canadensis canadensis (Linnaeus)

John G. Cooper, Sc. et Del.

Plate 72

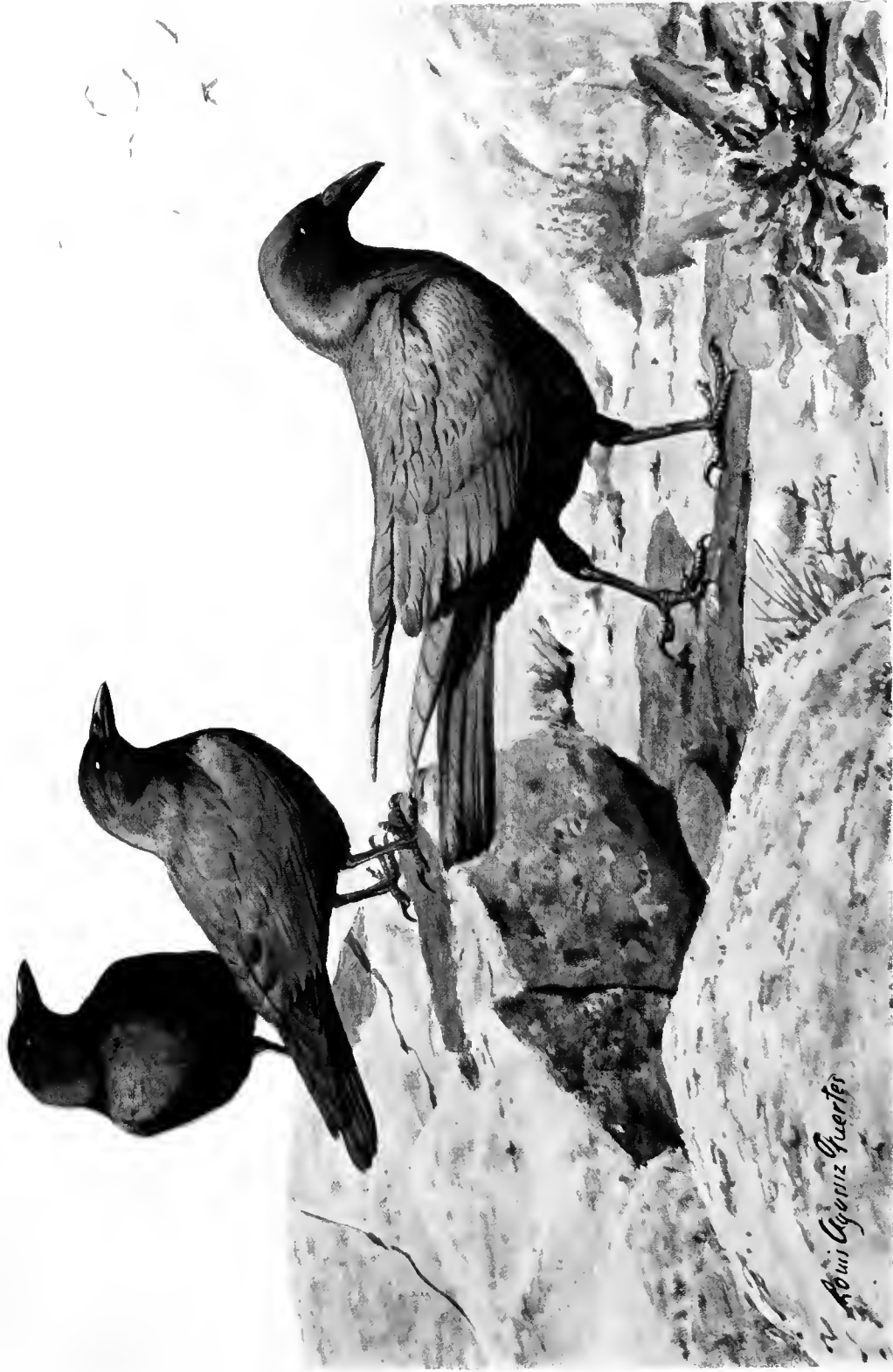
FISH CROW
Page 218

CROW
Page 214

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 72



FISH CROW
Curtus ossifragus Wilson

All $\frac{1}{2}$ nat. size

CROW
Cornus brachyrhynchus brachyrhynchus Brehm

Plate 73

RUSTY BLACKBIRD

Page 243

RED-WINGED BLACKBIRD

Page 250

BOBOLINK

Page 222



RUSTY BLACKBIRD *Euphagus carolinus* (Müller)

ADULT MALE IN SPRING

IMMATURE IN AUTUMN

RED-WINGED BLACKBIRD *Agelaius phoeniceus phoeniceus* (Linnaeus)

ADULT MALE IN AUTUMN

MALE IN AUTUMN

MALE IN SPRING

BOBOLINK *Dolichonyx oryzivorus* (Linnaeus)

FEMALE

MALE

FEMALE

All $\frac{1}{2}$ nat. size

Plate 74

PURPLE GRACKLE

Page 245

BRONZED GRACKLE

Page 249

STARLING

Page 219

COWBIRD

Page 225

BIRDS OF NEW YORK



PURPLE GRACKLE
Quiscalus quiscula quiscula (Linnaeus)
MALE

STARLING
Sturnus vulgaris Linnaeus

BRONZED GRACKLE *Quiscalus quiscula aeneus* Ridgway
MALE FEMALE

COWBIRD *Molothrus ater ater* (Boddaert)
MALE FEMALE

All $\frac{1}{2}$ nat. size

Plate 75

BALTIMORE ORIOLE

Page 238

ORCHARD ORIOLE

Page 239

MEADOW LARK

Page 233

BIRDS OF NEW YORK



BALTIMORE ORIOLE *Icterus galbula* (Linnaeus)
 MALE FEMALE
 ORCHARD ORIOLE *Icterus spurius* (Linnaeus)
 FIRST YEAR MALE FEMALE
 ADULT MALE MEADOWLARK *Sturnella magna magna* (Linnaeus)
 All $\frac{1}{2}$ nat. size

Plate 76

PINE GROSBEAK

Page 255

PURPLE FINCH

Page 262

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 76



ADULT MALE

PINE GROSBK *Pinicola enucleator leucura* (Muller)

IMMATURE MALE

FEMALE

PURPLE FINCH *Carpodacus purpureus purpureus* (Gmelin)

MALE

FEMALE OR IMMATURE MALE

All $\frac{2}{3}$ nat. size

Plate 77

CROSSBILL

Page 265

WHITE-WINGED CROSSBILL

Page 268



CROSSELL *Loxia curvirostris minor* (Brehm)

IMMATURE MALE

ADULT MALE

WHITE-WINGED CROSSELL *Loxia leucoptera* Gmelin

FEMALE

IMMATURE MALE

MALE

FEMALE

ALL NATURAL

Plate 78

REDPOLL
Page 271

GOLDFINCH
Page 276

PINE SISKIN
Page 278

GREATER REDPOLL
Page 274



Louis Agassiz Charter.

REDPOLL
Acanthis linaria linaria (Linnaeus)
 FEMALE

MALE

PINE SISKIN *Spinus pinus* (Wilson.)
 GOLDFINCH *Astragalinus tristis tristis* (Linnaeus)
 MALE AND FEMALE IN WINTER
 GREATER REDPOLL *Acanthis linaria rostrata* (Cous.)
 MALE

All $\frac{2}{3}$ nat. size

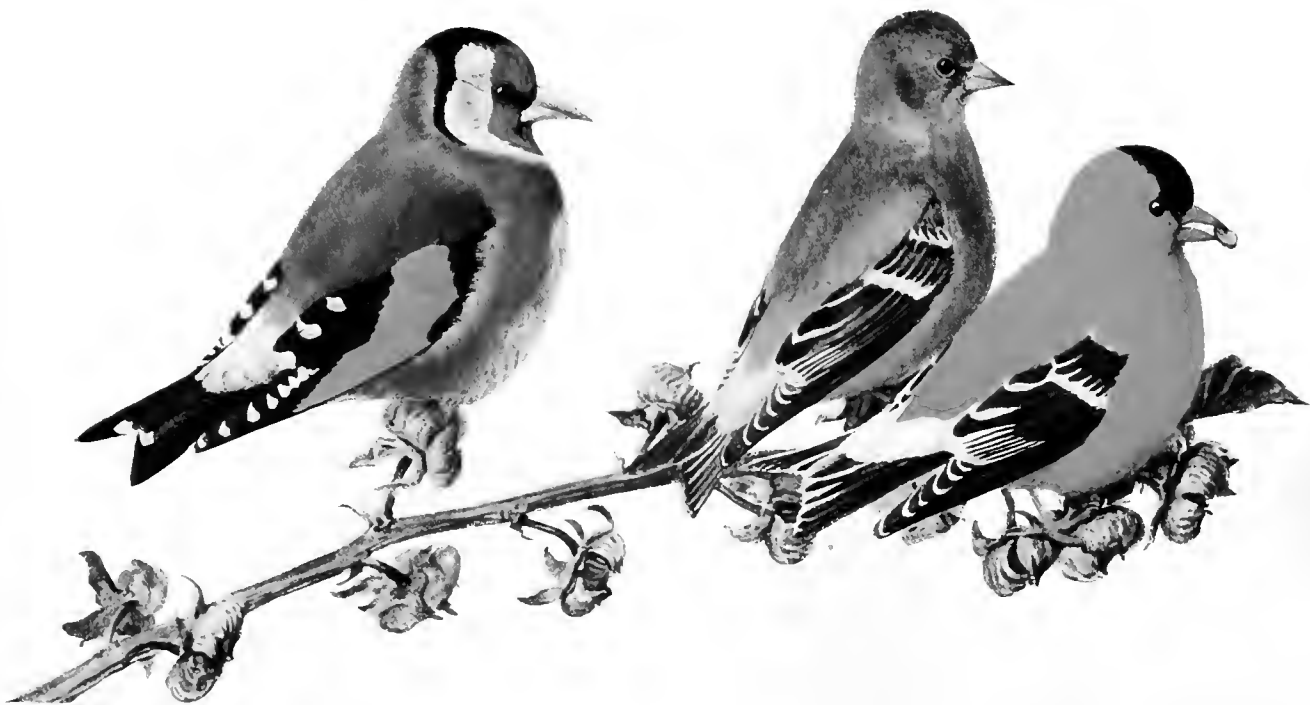
Plate 79

EUROPEAN GOLDFINCH
Page 280

EVENING GROSEBEAK
Page 252

GOLDFINCH
Page 276

BIRDS OF NEW YORK



Louis Agassiz Quertes

EUROPEAN GOLDFINCH
Carduelis carduelis (Linnaeus)

GOLDFINCH
Astragalinus tristis tristis (Linnaeus)
FEMALE AND MALE IN SUMMER

EVENING GROSBK *Hesperiphona vespertina vespertina* (W. Cooper)
MALE

FEMALE

All 1/2 nat. size

Plate 80

TREE SPARROW

Page 306

SNOW BUNTING

Page 281

BIRDS OF NEW YORK



TREE SPARROW *Spizella monticola monticola* (Gmelin)
SNOW BUNTING *Plectrophenax nivalis nivalis* (Linnaeus)
½ nat. size

Plate 8r

HENSLow SPARROW

Page 293

LECONTE SPARROW

Page 295

IPSWICH SPARROW

Page 287

SHARP-TAILED SPARROW

Page 296

GRASSHOPPER SPARROW

Page 291

SAVANNAH SPARROW

Page 288

SEASIDE SPARROW

Page 299

ACADIAN SHARP-TAILED SPARROW

Page 298

NELSON SPARROW

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BIRDS OF NEW YORK



HENSLOW'S SPARROW
Passerherbulus henslowi henslowi (Audubon)
 LECONTE'S SPARROW
Passerherbulus lecontei (Audubon)
 IMMATURE
 IPSWICH SPARROW
Passerculus princeps Maynard
 SHARP-TAILED SPARROW
Passerherbulus caudacutus (Gmelin)

GRASSHOPPER SPARROW
Ammodramus savannarum australis Maynard
 SAVANNAH SPARROW
Passerculus sandwichensis savanna (Wilson)
 SEASIDE SPARROW
Passerherbulus maritimus maritimus (Wilson)
 ACADIAN SHARP-TAILED SPARROW
Passerherbulus nelsoni subvirgatus (Dwight)
 NELSON'S SPARROW
Passerherbulus nelsoni nelsoni (Allen)
 All $\frac{1}{2}$ nat. size

Plate 82

WHITE-THROATED SPARROW

Page 304

VESPER SPARROW

Page 285

WHITE-CROWNED SPARROW

Page 301

SLATE-COLORED JUNCO

Page 311

BIRDS OF NEW YORK

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Plate 82



WHITE-THROATED SPARROW
Zonotrichia albicollis (Gmelin)

VESPER SPARROW
Pooecetes gramineus gramineus (Gmelin)

WHITE-CROWNED SPARROW
Zonotrichia leucophrys leucophrys (J. R. Forster)
ADULT

IMMATURE
SLATE-COLORED JUNCO
Junco hyemalis hyemalis (Linnaeus)
MALE FEMALE

All ♂ nat. size

Plate 83

FIELD SPARROW

Page 310

CHIPPING SPARROW

Page 308

FOX SPARROW

Page 321



FIELD SPARROW *Spizella pusilla pusilla* (Wilson)
MALE

CHIPPING SPARROW *Spizella passerina passerina* (Bechstein)
IMMATURE

MALE

FOX SPARROW *Fassarella iliaca iliaca* (Merrem)
All $\frac{2}{3}$ nat. size

Plate 84

SONG SPARROW

Page 315

SWAMP SPARROW

Page 319

LINCOLN SPARROW

Page 318

TOWHEE

Page 323

BIRDS OF NEW YORK



SONG SPARROW *Melospiza melodia melodia* (Wilson)
 SWAMP SPARROW *Melospiza georgiana* (Latham)
 SPRING AUTUMN
 LINCOLN'S SPARROW *Melospiza lincolni lincolni* (Audubon)
 All $\frac{2}{3}$ nat. size

TOWHEE *Pipilo erythrophthalmus erythrophthalmus* (Linnaeus)
 MALE
 FEMALE

Plate 85

ROSE-BREADED GROSBEAK

Page 327

CARDINAL

Page 325

BIRDS OF NEW YORK



ROSE-BREADED GROSBEEK *Zamelodia ludoviciana* (Linnaeus)
ADULT MALE
IMMATURE MALE IN AUTUMN
 FEMALE
 CARDINAL *Cardinalis cardinalis cardinalis* (Linnaeus)
FEMALE
MALE

All ♂ nat. size

Plate 85

BLUE GROSBEAK

Page 329

INDIGO BUNTING

Page 330

BIRDS OF NEW YORK



BLUE GROSBEAK *Gyraca caerulea caerulea* (Linnaeus)
 ADULT MALE
 CHANGING MALE

FEMALE
 INDIGO BUNTING *Passerina cyanea* (Linnaeus)
 MALE IN SUMMER

FEMALE All $\frac{3}{4}$ nat. size

MALE IN AUTUMN

Plate 87

SCARLET TANAGER

Page 337

SUMMER TANAGER

Page 339



CHANGING MALE
FEMALE

SCARLET TANAGER *Piranga erythromelas* Vieillot
MALE IN SUMMER MALE IN WINTER

SUMMER TANAGER *Piranga rubra rubra* (Linnaeus)
FEMALE MALE
CHANGING MALE

All $\frac{1}{2}$ nat. size

Plate 88

BARN SWALLOW

Page 346

CLIFF SWALLOW

Page 345

ROUGH-WINGED SWALLOW

Page 352

BANK SWALLOW

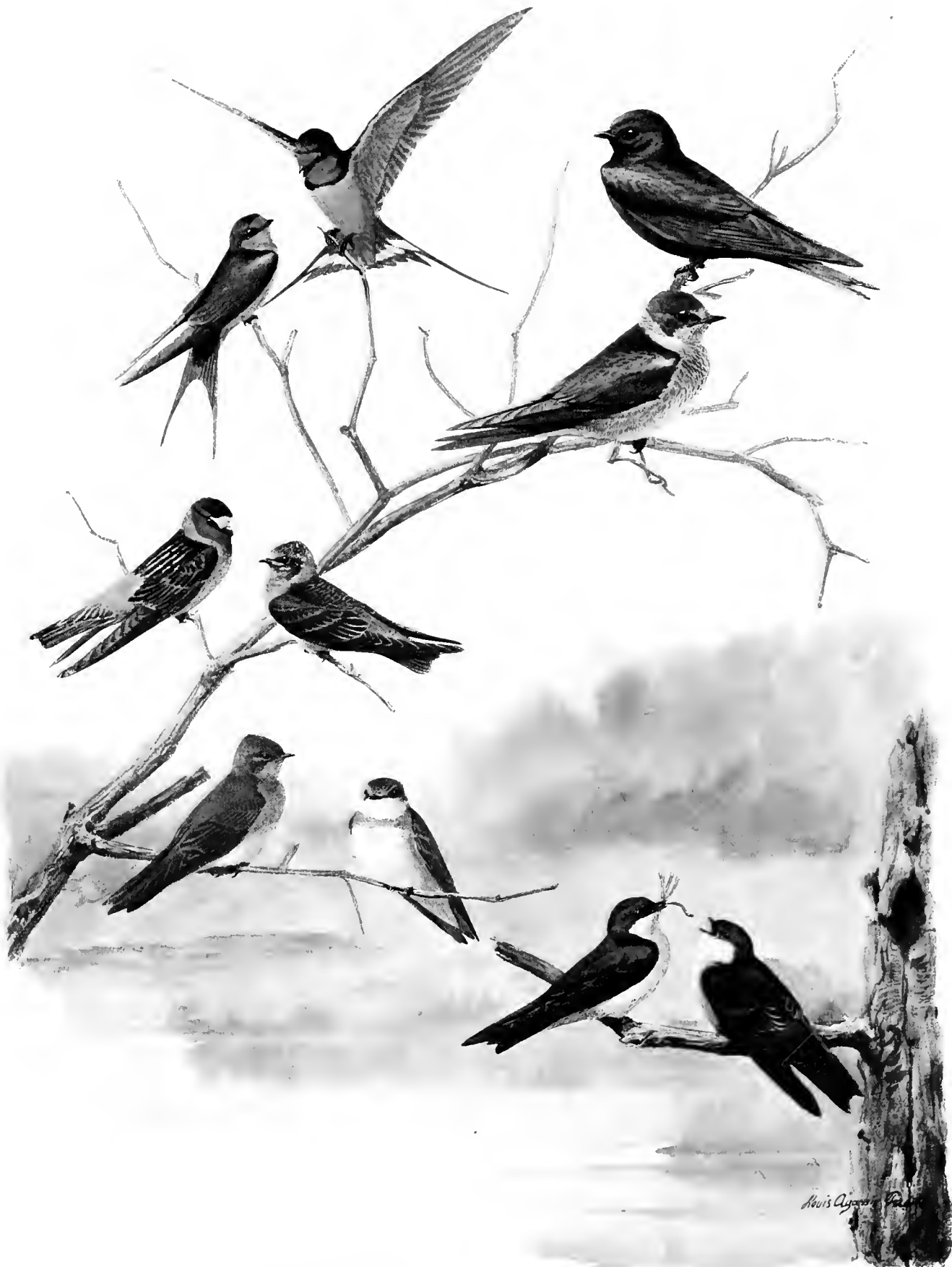
Page 350

PURPLE MARTIN

Page 342

TREE SWALLOW

Page 349



How's Agassiz's Plate

BARN SWALLOW *Hirundo erythrogastra* Boddaert
 FEMALE MALE
 CLIFF SWALLOW *Petrochelidon lunifrons lunifrons* (Say)
 ADULT IMMATURE
 ROUGH-WINGED SWALLOW
Stelgidopteryx serripennis (Audubon)
 BANK SWALLOW
Riparia riparia (Linnaeus)

PURPLE MARTIN *Progne subis subis* (Linnaeus)
 FEMALE MALE
 TREE SWALLOW
Iridoprocne bicolor (Vieillot)
 ADULT IMMATURE

All $\frac{1}{4}$ nat. size

Plate 89

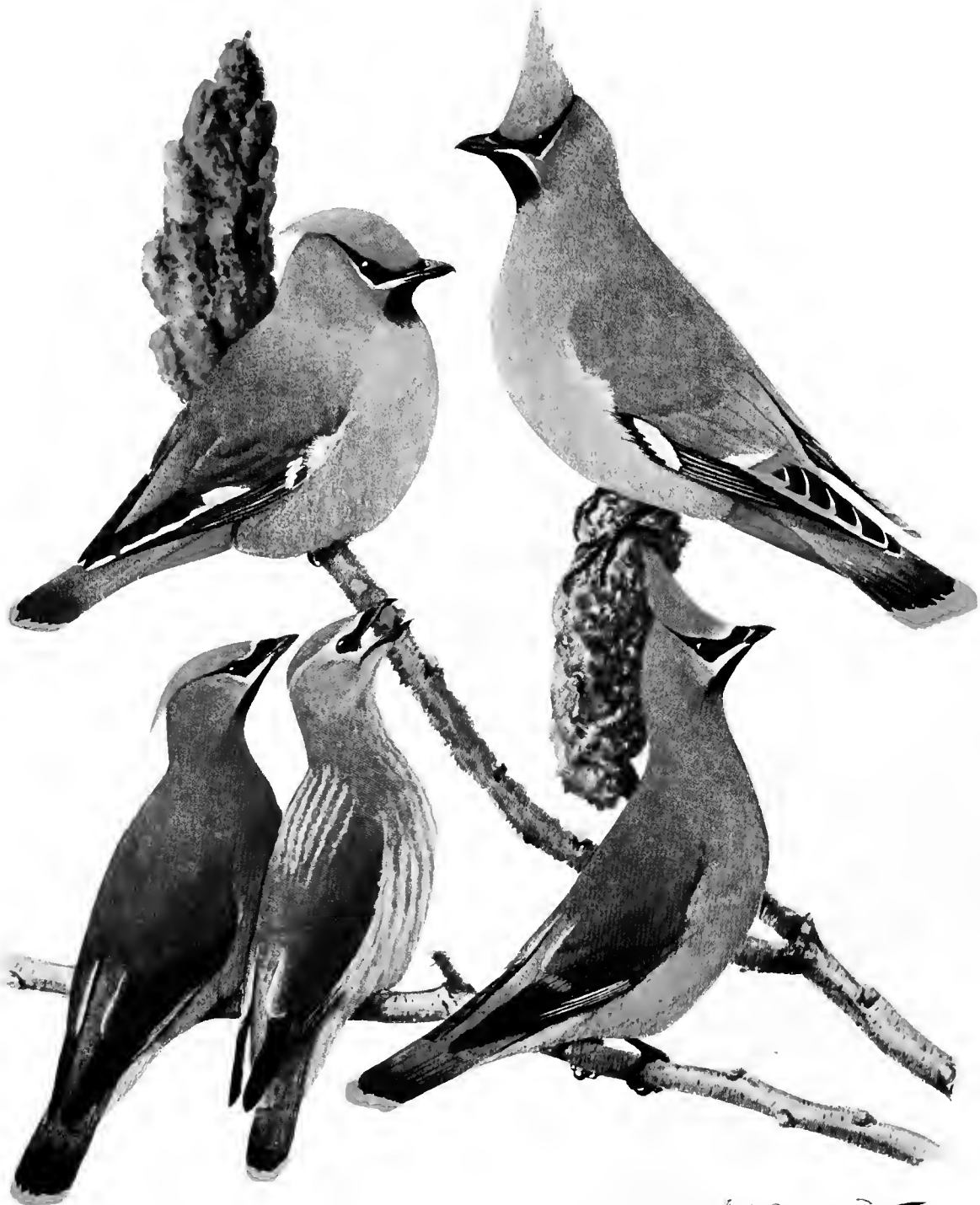
BOHEMIAN WAXWING

Page 355

CEDAR WAXWING

Page 356

BIRDS OF NEW YORK



Louis Agassiz Parrot

BOHEMIAN WAXWING *Bombycilla garrula* (Linnaeus)
FEMALE CEDAR WAXWING *Bombycilla cedrorum* Vieillot MALE
FEMALE IMMATURE MALE
 All $\frac{3}{4}$ nat. size

Plate 90

NORTHERN SHRIKE

Page 358

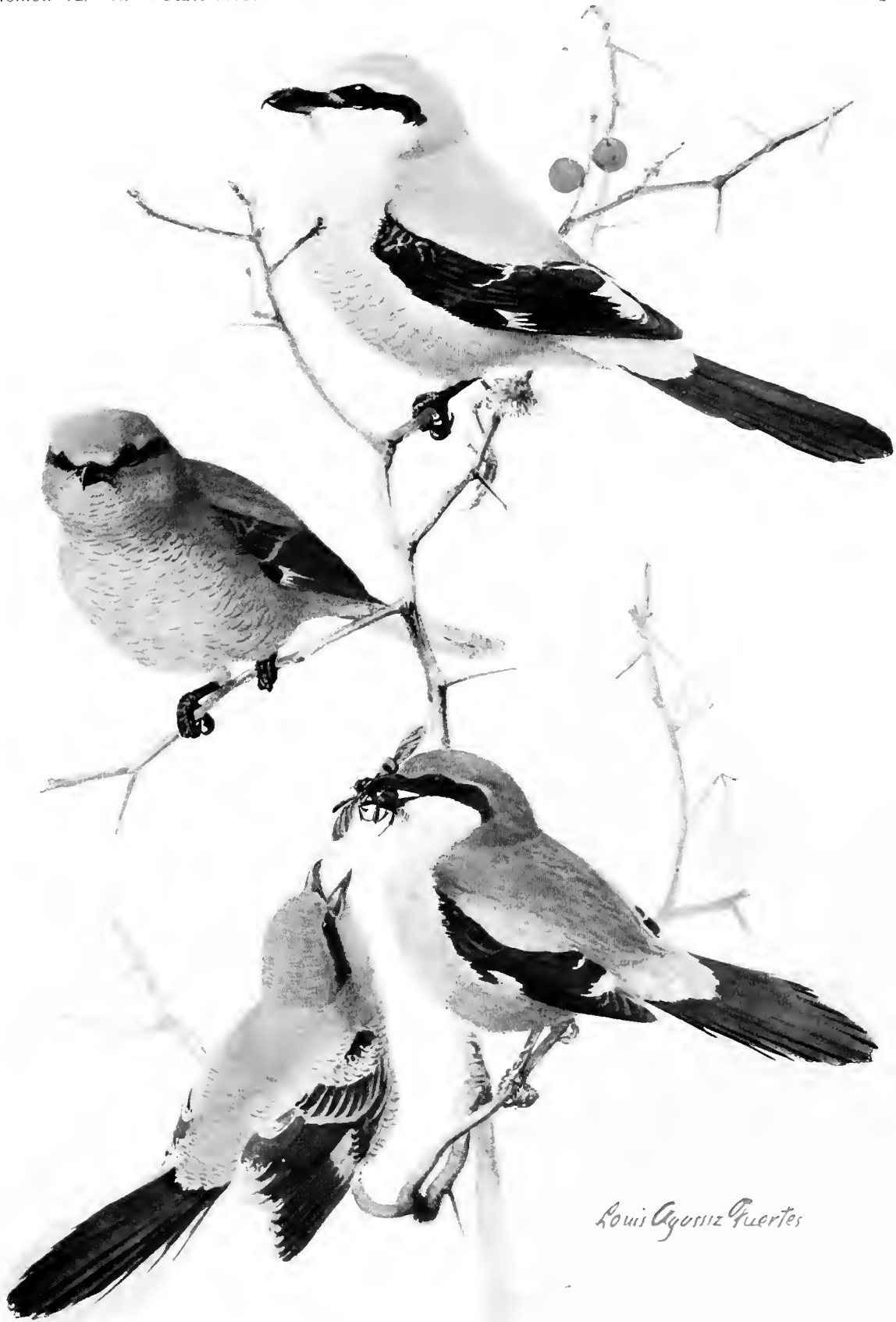
MIGRANT SHRIKE

Page 362

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 90



NORTHERN SHRIKE *Lanius borealis* Vieillot
ADULT MALE

IMMATURE
MIGRANT SHRIKE *Lanius ludovicianus migrans* W. Palmer
IMMATURE ADULT
All $\frac{1}{2}$ nat. size

Plate 91

WARBLING VIREO

Page 370

RED-EYED VIREO

Page 366

YELLOW-THROATED VIREO

Page 371

WHITE-EYED VIREO

Page 375

PHILADELPHIA VIREO

Page 368

BLUE-HEADED VIREO

Page 373



WARBLING VIREO *Vireosylva gilva gilva* (Vieillot)
 ADULT
 YOUNG
 RED-EYED VIREO *Vireosylva olivacea* (Linnaeus)
 YELLOW-THROATED VIREO *Lanius flavifrons* (Vieillot)
 WHITE-EYED VIREO *Vireo griseus griseus* (Boddaert)
 All 1 nat. size

PHILADELPHIA VIREO
Vireosylva philadelphia Cassin
 BLUE-HEADED VIREO
Lanius solitarius solitarius (Wilson)

Plate 92

BLACK AND WHITE WARBLER

Page 378

WATER THRUSH

Page 438

OVEN-BIRD

Page 435

WORM-EATING WARBLER

Page 382

PROTHONOTARY WARBLER

Page 381

LOUISIANA WATER-THRUSH

Page 441



BLACK AND WHITE WARBLER *Mniotilta varia* (Linnaeus)

MALE FEMALE

WATER-THRUSH

Scirurus waterhousei waterhousei (Gmelin)

OVEN-BIRD *Scirurus auricapillus* (Linnaeus)

ADULT

JUVENAL
All 1/2 nat. size

WORM-EATING WARBLER
Helmitheros vermivorus (Gmelin)

PROTHONOTARY WARBLER

Protonotaria citrea (Boddaert)

LOUISIANA WATER-THRUSH

Scirurus motacilla Vieillot

Plate 93

BLUE-WINGED WARBLER

Page 384

BREWSTER WARBLER

Page 389

LAWRENCE WARBLER

Page 388

GOLDEN-WINGED WARBLER

Page 386

ORANGE-CROWNED WARBLER

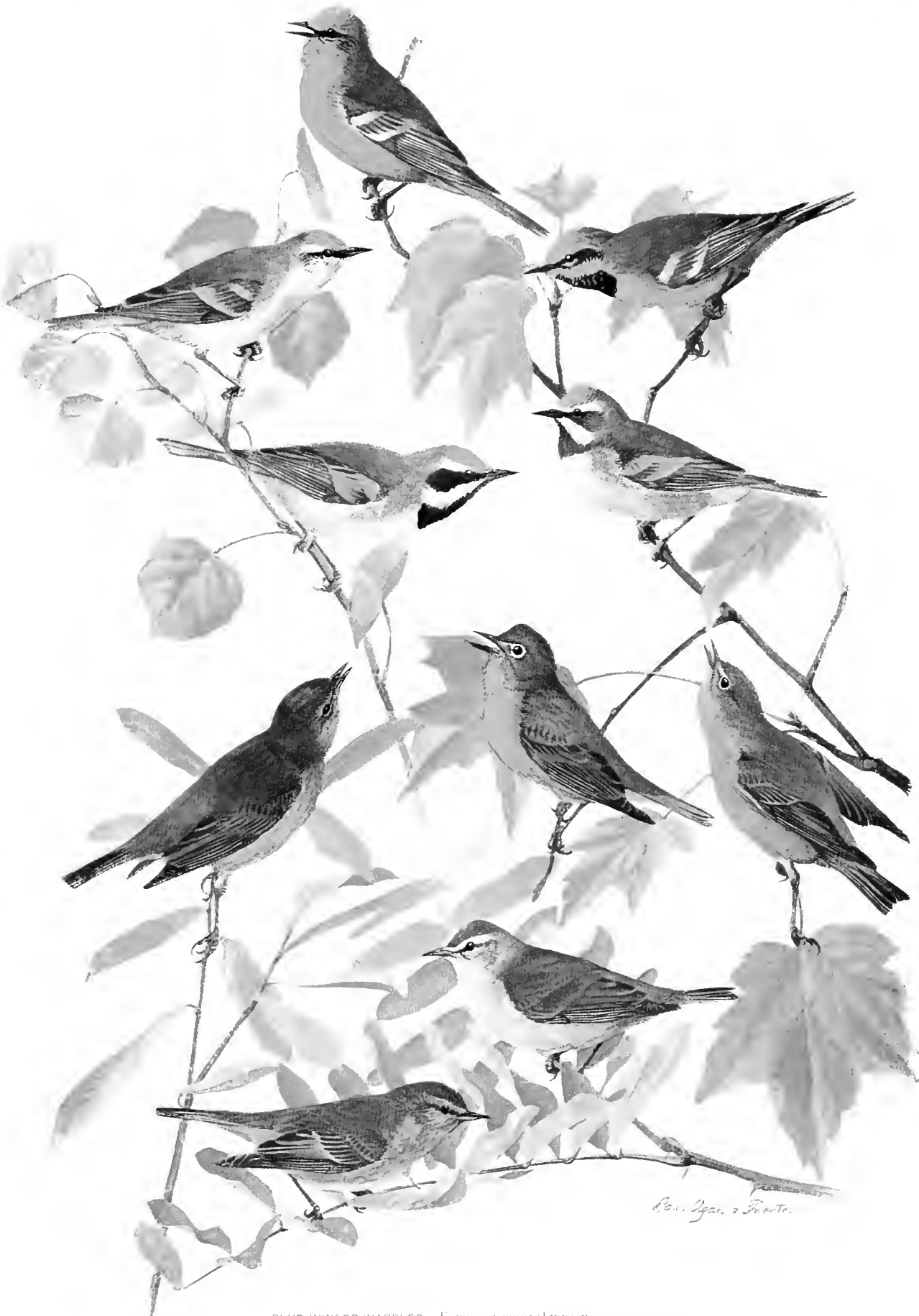
Page 392

NASHVILLE WARBLER

Page 390

TENNESSEE WARBLER

Page 393



Sci. Soc. & F. Stear.

BLUE-WINGED WARBLER *Vermivora pinus* (Linnaeus)
 BREWSTER'S WARBLER *Vermivora leucanucha* Brewster
 GOLDEN-WINGED WARBLER *Vermivora chrysoptra* (Linnaeus)
 ORANGE-CROWNED WARBLER *Vermivora celata celata* (Say)
 TENNESSEE WARBLER *Vermivora peregrina* (Wilson)
 LAWRENCE'S WARBLER *Vermivora lawrencei* (Herrick)
 NASHVILLE WARBLER *Vermivora rubicapilla rubicapilla* Wilson
 MALE FEMALE MALE FEMALE
 IMMATURE MALE IMMATURE MALE
 All $\frac{1}{2}$ nat. size

Plate 94

PARULA WARBLER
Page 395

MYRTLE WARBLER
Page 406

BLACK-THROATED BLUE WARBLER
Page 403

CERULEAN WARBLER
Page 411

CANADA WARBLER
Page 402



PARULA WARBLER
Comptothlypis americana (Linnaeus)
 MALE
 FEMALE

MALE
 BLACK-THROATED BLUE WARBLER
Dendroica caerulescens caerulescens (Gmelin)
 MALE
 FEMALE

MYRTLE WARBLER *Dendroica coronata* (Linnaeus)

CERULEAN WARBLER
Dendroica cerulea (Wilson)
 MALE
 FEMALE

FEMALE
 CANADA WARBLER
Wilsonia canadensis (Linnaeus)
 MALE
 FEMALE

All $\frac{1}{2}$ nat. size

Plate 95

CAPE MAY WARBLER
Page 397

PRAIRIE WARBLER
Page 432

PINE WARBLER
Page 427

YELLOW PALM WARBLER
Page 431

YELLOW WARBLER
Page 400

PALM WARBLER
Page 430



Louis Agassiz Quercy.

PINE WARBLER *Dendroica nigra* (Audubon)
 MALE FEMALE
 CAPE MAY WARBLER *Dendroica tigrina* (Gmelin)
 MALE FEMALE
 PRAIRIE WARBLER *Dendroica discolor* (Vieillot)
 MALE FEMALE
 YELLOW WARBLER *Dendroica aestiva aestiva* (Gmelin)
 MALE FEMALE
 PALM WARBLER *Dendroica palmarum palmarum* (Gmelin)
 YELLOW PALM WARBLER *Dendroica palmarum hypochrysa* Ridgway
 All $\frac{1}{2}$ nat. size

Plate 96

BAY-BREASTED WARBLER

Page 416

BLACK-POLL WARBLER

Page 418

CHESTNUT-SIDED WARBLER

Page 413



BAY-BREASTED WARBLER *Dendroica castanea* (Wilson)
 IMMATURE FEMALE MALE

BLACK-POLL WARBLER *Dendroica striata* (J. R. Forster)
 IMMATURE FEMALE MALE

CHESTNUT-SIDED WARBLER *Dendroica pensylvanica* (Linnaeus)
 IMMATURE FEMALE MALE

All $\frac{1}{2}$ nat. size

Plate 97

BLACKBURNIAN WARBLER

Page 420

BLACK-THROATED GREEN WARBLER

Page 424

REDSTART

Page 494

MAGNOLIA WARBLER

Page 408



BLACKBURNIAN WARBLER *Dendroica fusca* (Müller) FEMALE
 BLACK-THROATED GREEN WARBLER *Dendroica tirens* (Gmelin) MALE
 REDSTART *Setophaga ruticilla* (Linnaeus) FEMALE
 MAGNOLIA WARBLER *Dendroica magnolia* (Wilson) MALE
 IMMATURE FEMALE
 All $\frac{1}{2}$ nat. size

Plate 98

WILSON WARBLER
Page 460

YELLOW-BREASTED WARBLER
Page 455

KENTUCKY WARBLER
Page 445

MARYLAND YELLOW-THROAT
Page 452

HOODED WARBLER
Page 458



WILSON'S WARBLER *Wilsonia pusilla pusilla* (Wilson)
 FEMALE MALE

MARYLAND YELLOW-THROAT
Geothlypis trichas trichas (Linnaeus)
 FEMALE MALE

KENTUCKY WARBLER *Oporornis formosus* (Wilson)
 FEMALE

HOODED WARBLER *Wilsonia citrina* (Boddaert)
 MALE FEMALE

YELLOW-BREASTED CHAT
Icteria virens virens (Linnaeus)

All $\frac{1}{2}$ nat. size

Plate 99

CONNECTICUT WARBLER

Page 447



CONNECTICUT WARBLER *Oporornis agilis* (Wilson)
ADULT IMMATURE
Life size

Louis Agassiz - Guertles

Plate 100

MOURNING WARBLER

Page 448

BIRDS OF NEW YORK

Memoir 12 N. Y. State Museum

Plate 100



MOURNING WARBLER *Oporornis philadelphia* (Wilson)

FEMALE

MALE

½ nat. size

Plate 101

MOCKING BIRD
Page 471

CATBIRD
Page 473

BROWN THRASHER
Page 476

BIRDS OF NEW YORK

Memoir 12. N. Y. State Museum

Plate 101



MOCKINGBIRD *Mimus polyglottos polyglottos* (Linnaeus)
BROWN THRASHER *Toxostoma rufum* (Linnaeus)
CATBIRD *Dumetella carolinensis* (Linnaeus)
All $\frac{1}{2}$ nat. size

Plate 102

HOUSE WREN

Page 481

WINTER WREN

Page 485

SHORT-BILLED MARSH WREN

Page 487

CAROLINA WREN

Page 479

BROWN CREEPER

Page 492

LONG-BILLED MARSH WREN

Page 489

BIRDS OF NEW YORK



Louis Agassiz Puertes

HOUSE WREN

Troglodytes aedon aedon Vieillot

WINTER WREN

Nannus hiemalis hiemalis (Vieillot)

SHORT-BILLED MARSH WREN

Cistothorus stellaris (Naumann)

CAROLINA WREN

Thryothorus ludovicianus ludovicianus (Latham)

BROWN CREEPER

Certhia familiaris americana Bonaparte

LONG-BILLED MARSH WREN

Trimotodytes palustris palustris (Wilson)

All $\frac{2}{3}$ nat. size

Plate 103

CHICKADEE

Page 503

WHITE-BREASTED NUTHATCH

Page 495

ACADIAN CHICKADEE

Page 506

RED-BREASTED NUTHATCH

Page 499

TUFTED TITMOUSE

Page 502

BIRDS OF NEW YORK



CHICKADEE
Penthestes atricapillus atricapillus Linnæus

ARCADIAN CHICKADEE
Penthestes hudsonicus littoralis H. Bryant

RED-BREASTED NUTHATCH
Sitta canadensis Linnæus

WHITE-BREASTED NUTHATCH
Sitta carolinensis carolinensis Latham

TUFTED TITMOUSE
Baeolophus bicolor Linnæus

FEMALE MALE FEMALE MALE
 All, nat. size

Plate 104

GOLDEN-CROWNED KINGLET

Page 508

RUBY-CROWNED KINGLET

Page 510

BLUE-GRAY GNATCATCHER

Page 512

BIRDS OF NEW YORK



GOLDEN-CROWNED KINGLET
Regulus satrapa satrapa Licht.

MALE
RUBY-CROWNED KINGLET
Regulus calendula calendula (Linnaeus)

FEMALE

MALE

BLUE-GRAY GNATCATCHER
Poliophtila caerulea caerulea (Linnaeus)

FEMALE

MALE

All $\frac{2}{3}$ nat. size

FEMALE

Plate 105

WOOD THRUSH

Page 516

HERMIT THRUSH

Page 526

VEERY

Page 519

GRAY-CHEEKED THRUSH

Page 521

OLIVE-BACKED THRUSH

Page 524



HERMIT THRUSH *Hylocichla guttata pallasi* (Cabanis)
 WOOD THRUSH *Hylocichla ustulata* (Gmelin)
 GRAY-CHEEKED THRUSH *Hylocichla aliciae aliciae* (Baird)
 VEERY *Hylocichla fuscescens fuscescens* (Stephens)
 OLIVE-BACKED THRUSH *Hylocichla ustulata swainsoni* (Tschudi)
 All $\frac{1}{2}$ nat. size

Plate 106

ROBIN

Page 529

BLUEBIRD

Page 537



ROBIN *Planesticus migratorius migratorius* (Linnaeus)
 ADULT IN SPRING FALL

BLUEBIRD *Sialia sialis sialis* (Linnaeus)
 MALE FEMALE
 IMMATURE
 All $\frac{1}{2}$ nat. size

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