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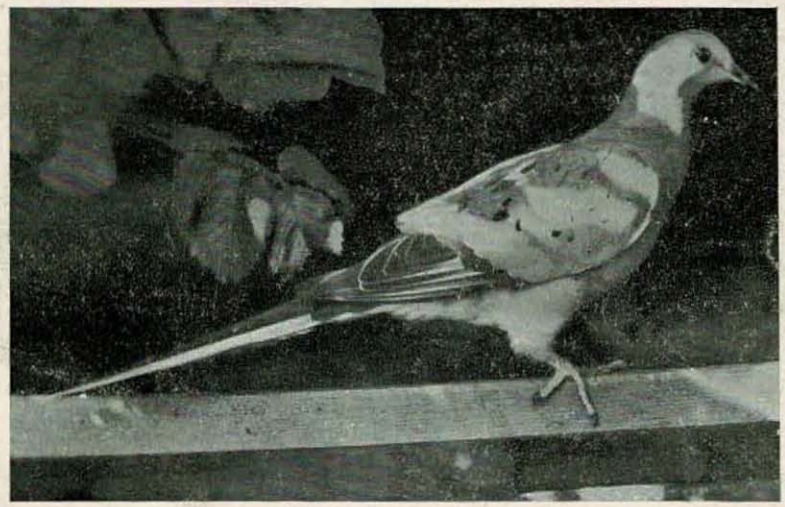

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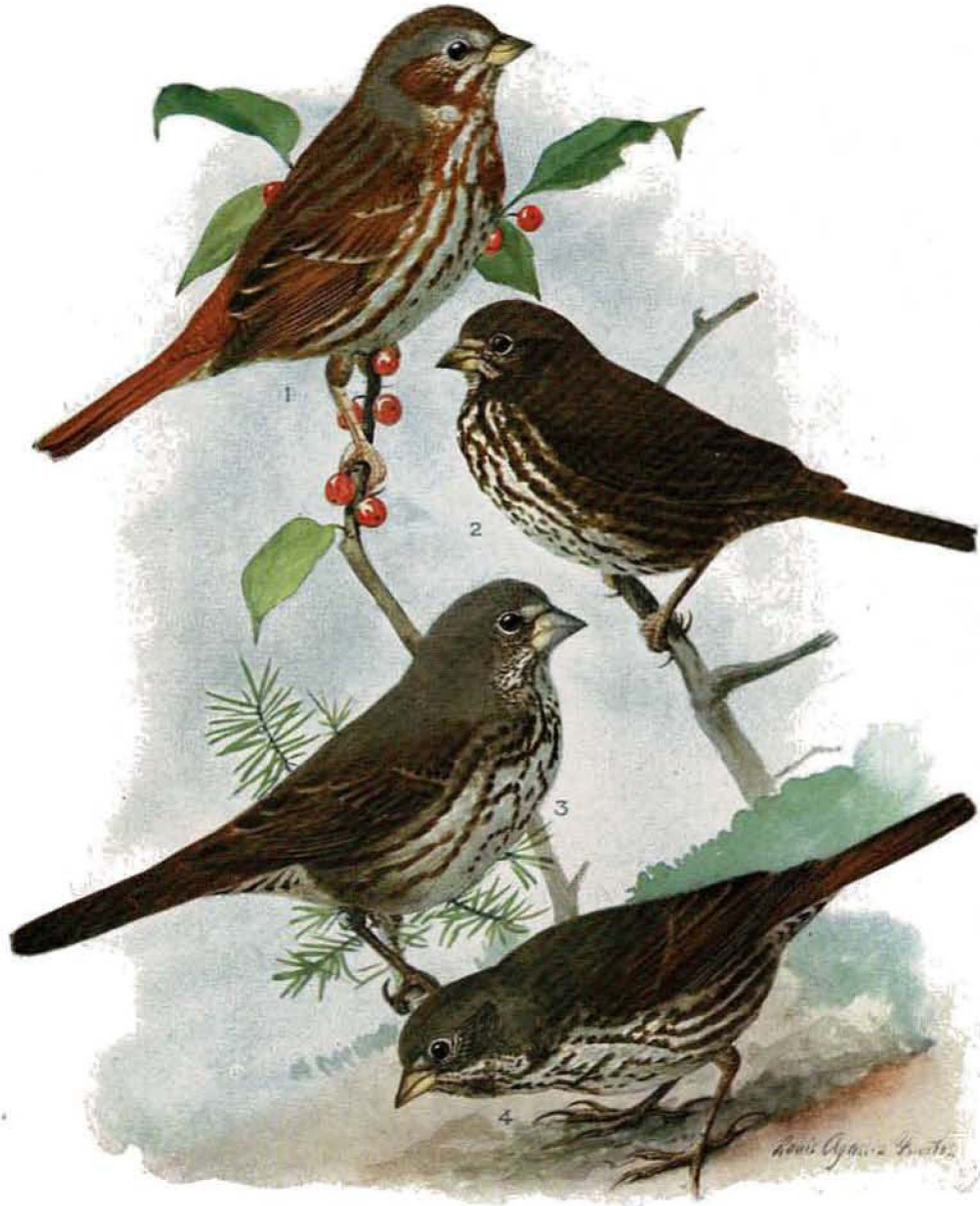


1. Fox Sparrow
2. Sooty Fox Sparrow
3. Thick-billed Fox Sparrow
4. Shumagin Fox Sparrow

(One-half Natural Size)

Bird-Lore

A BI-MONTHLY MAGAZINE
DEVOTED TO THE STUDY AND PROTECTION OF BIRDS
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Vol. XV MARCH—APRIL, 1913 No. 2

EDITOR'S NOTE.—The photographs of Passenger Pigeons appearing in this number of BIRD-LORE form a unique and important addition to our knowledge of the appearance in life of this beautiful and now lost species. They were made by Mr. J. G. Hubbard, who generously contributes them to BIRD-LORE, at Woods Hole, Massachusetts, in the summer of 1898, and represent birds in the aviary of Dr. C. O. Whitman which are referred to in the succeeding articles. The birds were in perfect condition, and the photographs are believed to be adequate portraits of a species which, if we except the single individual still living in the Cincinnati Zoölogical Garden, will never be photographed again.—F. M. C.

A Vanished Race

By MORITZ FISCHER

IN the memorable year of grace 1534, Jaques Cartier of St. Malo, master pilot of Francis I, king of France, entered the Gulf of St. Lawrence in search of a waterway to India for his royal patron. Coasting along the eastern shore of an extensive island, he one day landed to explore the country, and found that, to use his own words, the land was of the best temperature that it may be possible to see, and of great warmth, and that there were many Turtle Doves, Wood Pigeons, and other birds.

This casual reference to a few birds observed by the intrepid Breton near Cape Kildare on Prince Edward Island opens the marvelous and fragmentary story of a creature that ranged the unknown continent in flights of stupendous magnitude, and became known to later generations as the Passenger Pigeon.

When the great captains of the sixteenth century, of whom Cartier ranks as one of the first, discovered and explored the mainland of North America, and for more than two hundred years afterward, an unbroken forest of broad-leaved trees covered its eastern half. Fringed by evergreen wildwoods to the north, its western border, much indented by spacious grasslands or prairies, spread its verdant tents northward to the Height of Land and beyond. In this mixed forest there flourished here and there, as soil and climate favored, and indeed compelled, woods composed entirely of one species, and holding their own by shading out all other kinds. Such were the beech and oak forests of the Ohio and Mississippi Valley, those of maple and chestnut east of the

Appalachians, and the evergreen colonies, and belts of pine, hemlock, and allied species growing in the region of the Great Lakes and the basin of the St. Lawrence.

While most wild crops become available from the moment they are ripe, some plants, chiefly the shrubs, vines, and bushes cure their fruit and hold it for future delivery. The trees of mixed forests, on the other hand, with the exception of the hemlock, seed in alternate seasons, a beech-nut year following an acorn year in regular order. At all times, therefore, and in every part of its immense territory, did the forest provide enormous stores of provender readily accessible and perpetually renewed.

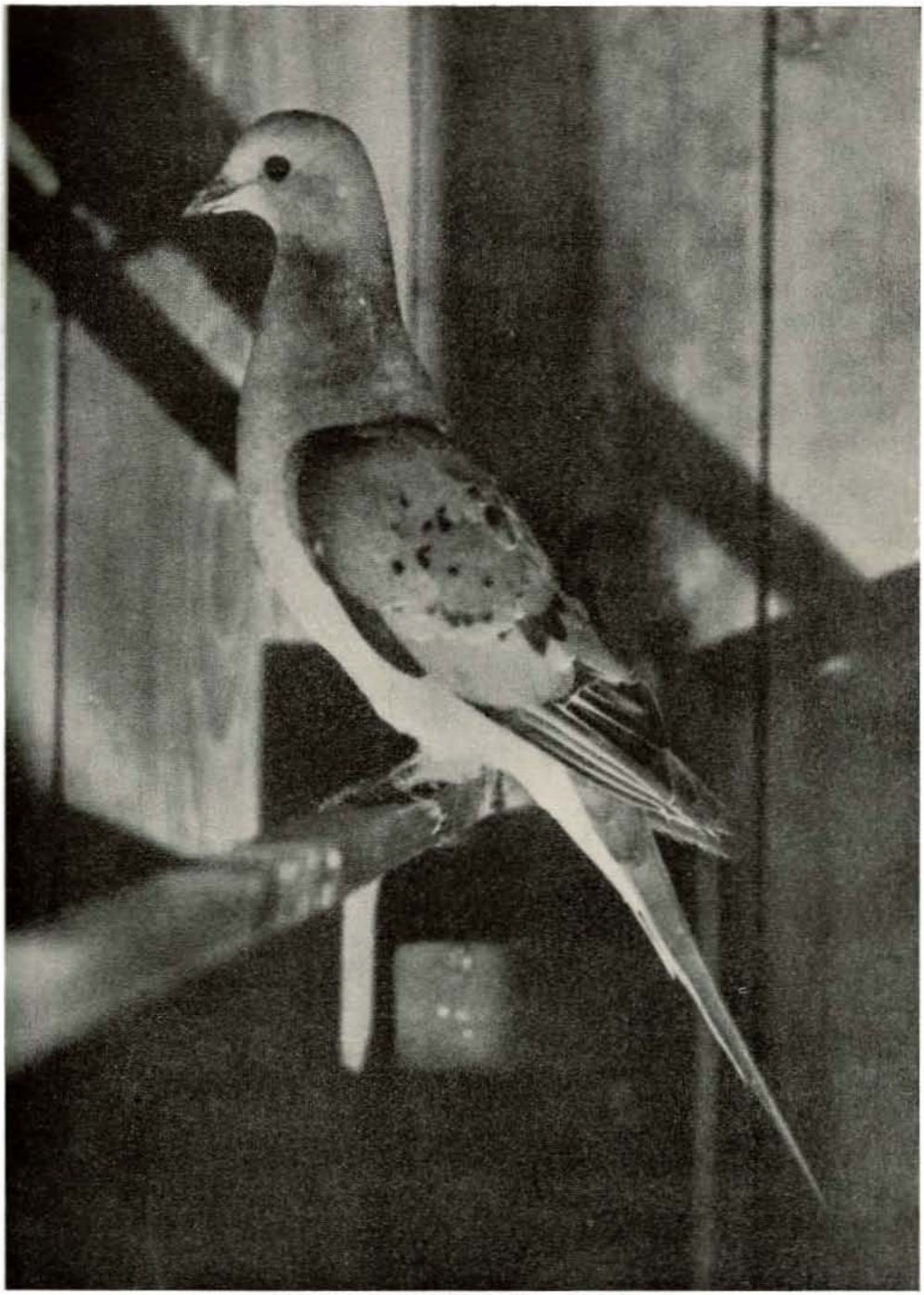
In this land of plenty, one of the host of creatures fed by the bounty of the forest primeval, lived the Passenger Pigeon, which, by the migration of its countless flocks and its striking habits, deeply stirred the sluggish curiosity of the first settlers. To their random notes and the later and more ample reports of our earlier travelers and naturalists we are indebted for most of the knowledge we possess of this best known and famed member of our avian fauna.

Built for speed and action, the Pigeon outstripped every bird of its size in swiftness of flight. Competent observers agree that the bird flew at the rate of a mile a minute, or 88 feet per second, a speed greater by far than that of its celebrated cousin, the Carrier Pigeon, one of which averaged fifty-two feet per second for a continuous flight of five hundred and ninety-one miles.

Destitute of natural weapons, and of a timid disposition, our bird was well protected from famine and pursuit by its swiftness. Social to an extraordinary degree, it not only nested and traveled together, as gregarious birds do at certain seasons, but it fed and slept in flocks throughout the year. So long as its wild homeland remained undisturbed, this habit proved of obvious advantage; but, with the gradual removal of the primeval forest, it became a positive detriment, preparing the way for ultimate extinction.

Since an actual study of the Passenger Pigeon in the field is no longer possible, information concerning its distribution and habits must be sought for in the records of former generations, and obtained from those yet living who knew the bird in its prime. Imperfect as this material is and difficult to procure, the recent revival of interest in its tragic fate has brought to light sufficient data to trace the life history of the race, and to fathom the causes which brought about its sudden and mysterious disappearance from the world of the living.

The habitat of the Pigeon, embracing as it did the vast native forest of eastern North America, offered the bird a choice of food and residence, definite regions thereof being occupied in proper season and in regular rotation. Even the fruits of the lowly herbs contributed to its bill of fare, and the handsome poke-weed is locally known as 'Pigeon' berry at the present day. But the bulk of its food consisted of the acorns of the numerous species of oak, the



PASSENGER PIGEON, ADULT FEMALE
Note the characteristically erect pose

seeds of beech, chestnut, maple, elm, and other hardwoods, of pine and hemlock, and of the fruits and berries of bushes and shrubs. Angleworms, snails, caterpillars, and soft-bodied insects, such as grasshoppers, helped to vary the vegetarian diet. From the frequent mineral springs and licks the bird gratified its craving for salt, a condiment eagerly sought by all grain feeders.

The winter range of the bird comprised the territory south of Mason and Dixon's line, a land well stocked with its chief food supply during the inclement seasons. In one of these natural granaries the flocks would settle down and forage until the mast within a radius of two hundred miles and over had been consumed. While feeding in concert, the rear ranks successively rose and, passing over the whole flock, alighted in front, giving every bird an equal chance. Like an enormous wheel in slow motion, the birds moved through the wood and rapidly gathered its plenteous stores; toward night the swarms would return to the roost.

The following description of such a locality is given by Faux, an English traveler who, about 1819, visited one of them in Tennessee. "The roost extends over a portion of woodland or barrens from four to six miles in circumference . . . The birds roost on the high forest trees, which they cover in the same manner as bees in swarms cover a bush, being piled one on the other from the lower to the topmost boughs which, so laden, are continually bending and falling with their crushing weight, and presenting a scene of confusion and destruction too strange to describe, and too dangerous to be approached by either man or beast. While the living birds are gone to their distant dinner, it is common for man and animals to gather up or devour the dead, thus found in cartloads."

Scattered in huge flocks throughout the hospitable south during autumn and winter, at the advent of spring the birds assembled in several stupendous hosts, which dispersed northward to find new pastures and breeding grounds. In this vernal journey, the flocks were so densely packed and followed one another so swiftly that they darkened the sky like a pall of thunderclouds, and by their impact produced the roar of an advancing storm with its attending wind.

Of the few attempts to compute the number of birds in one of the spring hosts, that of McGee who, in the sixties, frequently observed them coming up the Mississippi Valley, one of the old migration routes, probably comes nearest the truth. Assuming the cross section of an average flock to measure one hundred yards from front to rear, and fifty yards in height, he finds the same to comprise some 8,800,000 birds to the mile, or 30,000,000 for a flock extending from one woodland to another. "Such flocks passed repeatedly during the greater part of the day of chief flight at intervals of a few minutes. The aggregate number of birds must have approached one hundred and twenty millions an hour for five hours, or 600,000,000 Pigeons virtually visible from a single point in the culminating part of a single typical migration." During its pass-

age, this vast army would at times indulge in marvelous aërial displays, moving gracefully through intricate manœuvers as one body. Descending the Ohio in 1810, Wilson watched such a gymnastic feat: "The great host with its glittering undulations marked a space in the face of the heavens resembling the windings of a vast and majestic river . . Suddenly the birds would change their direction, so that what was in column before became an immense front, straightening all its indentures until it swept the heavens in one vast and infinitely extended line. Other lesser bodies also united with each other as they happened to approach, with such ease and elegance of evolution, forming new figures and varying these as they united or separated, that I never was tired of contemplating them."

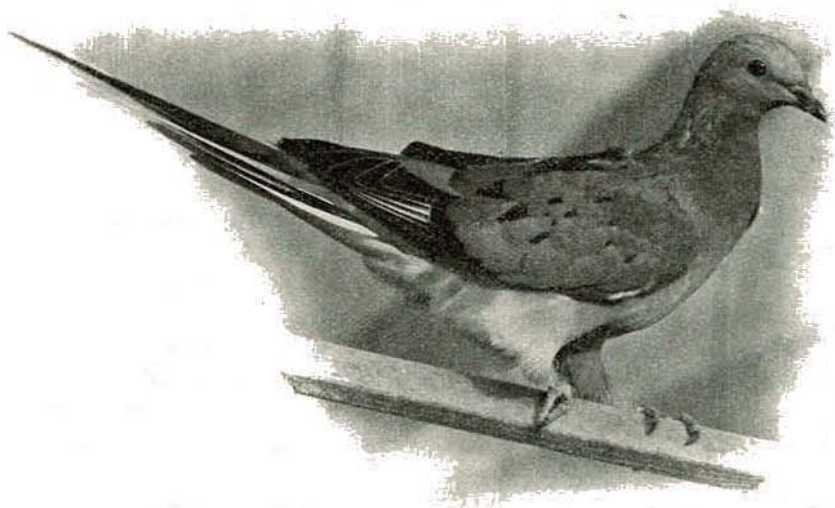
Previous to permanent settlement and for a few subsequent decades, the breeding range embraced the middle tier of states from Missouri to New York, its upper border east of the Appalachians curving sharply northward to follow the southern rim of the St. Lawrence drainage. From colonial times onward, great flights are frequently reported from this eastern section; but the bulk of the birds no doubt inhabited the western half of their habitat.

Simon Pokagon, the famous Indian chief, than whom no man knew better or loved more the O-me-me-wog of his people, writes that between 1840 and 1880 he visited many breeding places in the states of Ohio, Indiana, and Michigan that were from twenty to thirty miles long and from three to four miles wide, and that every tree in its limits was spotted with nests. A forest tract of thirty by three miles comprises ninety square miles. At fifty trees per acre, this area would contain some 2,880,000 of them. Allowing ten nests per tree, the number of adult birds present amounts to more than 57,000,000.

After the breeding season, swarms wandered about in the spacious summer range, and reveled in the delicious and inexhaustible crops of berries which ripened in rapid succession during their stay. With the coming of autumn, the flocks prepared to depart. Avoiding the spring routes for obvious reasons, they leisurely moved southward over new highways, tarrying for weeks at a time in the newly stocked granaries located within the zone of travel. During the final stages of the retreat, the vast hordes once more gathered in great flights. It was one of these which, in the fall of 1813, surprised Audubon by its magnitude. Watching the advance columns crossing the Ohio south of Louisville, he attempted to get at the number of flocks, and counted one hundred and twenty-three of them in twenty-one minutes. But so swiftly did they go by that the teller desisted. "Pigeons were passing in undiminished numbers that day, and continued to do so for three days in succession." Another observer, who for many years witnessed the return of the flights in northeastern Ohio, puts the number of birds in one of these flocks at 141,000,000.

Among the wild enemies of the Pigeon, indeed the most dangerous of

them, was the Indian who levied upon the flocks wherever he found them. The populous roosts of the southland he invaded at night, and, firing the underbrush, killed the birds by the thousands. Large numbers were caught around the numerous licks in simple traps. But it was at the great nestings that the tribe settled down to a continuous banquet, and during which it gathered a bounteous harvest of savory produce. Some of the older historians occasionally refer to those hunting camps. Writing about 1650, Adrian Van der Douk, in his Description of the New Netherlands, says: "The Indians, when they find the breeding places of the Pigeons, frequently remove to those places with their wives and children to the number of two to three hundred in a



PASSENGER PIGEON
A characteristic attitude assumed as the bird walked through branches

company, where they live a month or more on the young Pigeons which they take after flushing them from their nests with poles or sticks." Recalling the old days, Pokagon states that they seldom killed the old birds, but made great preparations to secure their young, out of which the squaws made squab butter, and smoked and dried them for future use. As to the amount of food preserved, John Lawson, who traveled among the tribes of the Carolinas in the first decade of the eighteenth century, relates: "You may find several Indian towns of not above seventeen houses, that have more than a hundred gallons of pigeon oil or fat, they using it with pulse or bread as we do butter." Savage people, the world over, carefully protect their organic resources, and the aborigines shared this wholesome instinct of self-preservation.

A pupil of Linnæus, Peter Kalm, whose name is perpetuated by our *Kalmia*, or sheep laurel, botanized in the forests of the Atlantic slope between 1740 and 1750. In his copious notes upon the Pigeon, he speaks of this universal

trait as shown by the natives. "While the birds are hatching their young, and while the latter are not able to fly, the savages or Indians in North America are in the habit of never shooting or killing them, nor allowing others to do so, pretending that it would be a great pity on their young, which would in that case have to starve to death."

But neither the modest tribute levied by the Indian nor the gigantic contribution exacted by the pioneers sensibly diminished the Pigeon population, which maintained its numbers until improved methods of communication and the decrease of its habitat created new and more adverse conditions. The rapid development of transportation by steam over land and water provided hunter and trapper with ample facilities for the shipment of game to the great cities. In a few years, the birds had become a marketable commodity. About 1840, professional catchers began to prey upon the unprotected flocks. By degrees they bettered the older methods of luring and taking. The chief contrivance universally employed consisted of a capacious net, which could be quickly dropped over a bed baited with salt, mud or grain, and to which the Pigeons were attracted by imitation of their call or by the voices of captive mates serving as decoys.

By 1870, the netters had much increased in numbers. The register book of pigeoners in Wisconsin lists some five hundred names of persons engaged in this unholy traffic at about that time. The business of locating, killing, and marketing the birds was now thoroughly systematized and assumed ominous proportions. Invading the winter home of the flocks, which so far had escaped their marauding expeditions, the pigeoners raided through the cold season. Tracking the birds to the breeding range, they continued their nefarious operations in the great nestings, sparing neither the brooding mates nor their young.

The unfortunately merely reminiscent accounts of some of the active participants in the forays of those days were brought together by Mershon in his valuable book of the Passenger Pigeon. With the convincing simplicity of practical men, the netters describe the remunerative business they followed, and frequently give estimates of the seasonal yield. Averaging these fairly reliable data, we find that the catch for the decade of 1866–1876 amounted to more than 10,000,000 Pigeons per year. This number represents shipments only. The birds used in the camps, those taken by farmers and Indians, and the vast numbers killed accidentally in the overcrowded rookeries probably exceeded 2,000,000 more. Excepting a negligible quantity of squabs, these 12,000,000 were brooding birds, and their death involved that of the nestlings. This annual and terrific loss suffered by the race, made irreparable by the break in the sequence of generations due to the fiendish destruction of the young, swiftly led to the inevitable end.

In the spring of 1878, the waning flocks established nestings near Petosky, in Emmet County, Michigan, to the south of this in the swampy woodlands of

the Manistee River, and near Sheffield, in Warren County, Pennsylvania. The descriptions of these nestings by the pigeoners yield sufficient data to compute their population which, counting five nests per tree, and reducing the figures given by one-third, reaches a total of some 50,000,000. It is known that the Manistee flock, protected by an almost inaccessible forest remote from transportation, escaped destruction. Not so the rookeries of Sheffield and Petosky. From these two localities there were shipped during the season, that is from April to September, some 30,000,000 birds. Thus culminated the relentless persecution of many years in a barbarous massacre where perished the last of the great flights, and which doomed the shattered and surviving remainder.

After the slaughter of 1878, the now utterly disorganized and terror-stricken flocks continued to resort to the breeding range in yet considerable numbers. In 1880, millions of birds passed over Tawas going westward, and a colony of some 10,000 bred in Benzie County. The last known nesting of importance took place near Grand Traverse in the year following. This final stronghold, some eight miles in length, probably sheltered more than 1,000,000 Pigeons. Some 20,000 birds were taken here, to be butchered within a week during a trap-shooting tournament at Coney Island, New York. Breeding flocks of a few hundred individuals appeared in later years. In the spring of 1888, large flocks and many small ones passed over Cadillac, Michigan, and departed forever from the sovereign state, which failed them in their hour of need.

Hand in hand with the extermination of the breeding hosts went that of the wintering flocks, of which no records seem to have been made. A shipment of several hundred dozens of birds, in 1893, marks their ultimate disappearance here. A pitiful remnant, some fifty in all, lingered for a few subsequent years in southwestern Missouri.

A small number of birds outlived the dissolution of the last flocks. Dispersed in couples, in bands of five or more, or as solitary individuals, these were sighted at rare intervals throughout the former breeding range during the nineties. A dozen or so bred near the headwaters of the Au Sable River in 1896. It is the last known nesting. With the beginning of the new century trustworthy records cease, and there is but little doubt that its first years witnessed the passing away of the hapless descendants of a favored race.

Down in the pleasant valley of the Ohio, amidst patriarchs of the forest primeval, lives to this day a captive and lonely daughter of her gentle tribe, and its sole relict, awaiting the final summons which comes to all that breathe.

The Passenger Pigeon: Early Historical Records, 1534–1860

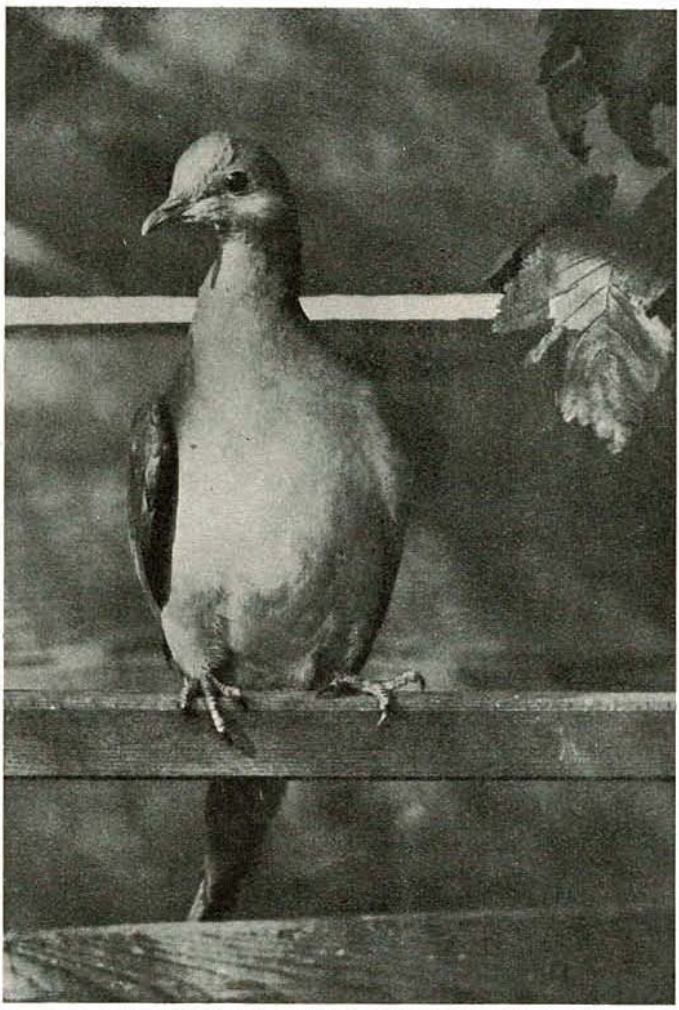
By ALBERT HAZEN WRIGHT

ALMOST the only sources of ornithological knowledge of the earlier times in North America are historical annals, quaint narratives of exploration, and travelers' sketches. Our predecessors had intense interest in birds, now rare, near-extinct, or extinct. The flocking of the Passenger Pigeon, or other habits equally peculiar, were in such bold relief, and so patent, as to attract the attention of any layman, whatever his mission. Only a small part of this mass of information from the contemporaries of the Pigeon can be presented, and this résumé can consider but a few topics, which are largely clothed in the language of early observers.

Migration.—The prodigious flights of these "millions of millions of birds" have exhausted the numerical superlatives of the English tongue. "They darkened the sky like locusts;" "the hemisphere was never entirely free of them;" "all the pigeons of the world apparently passed in review;" "their incredible multitudes were like thunder-clouds in heaven;" and countless other figures, mixed and pure, have entered the history of their migrations. In the early days, the writers apologized for such marvelous stories. John Clayton, the early Virginian botanist (1688), remarked, "I am not fond of such Stories, and had suppressed the relating of it, but that I have heard the same from very many . . . the Relators being very sober Persons." Bernaby, in 1759, felt that he must intrench himself, and asserted that "The accounts given of their numbers are almost incredible; yet they are so well attested, and opportunities of proving the truth of them so frequent, as not to admit of their being called in question." One of the Jesuit Fathers (1656) considered this migration one of the three remarkable facts of the natural history of America. LaHontan, in 1687, wrote, "that the Bishop had been forced to excommunicate 'em oftner than once, . . ." The early colonists of New England and Maryland often thought of them as ominous presages of approaching disasters, like Indian massacres, crop failures, etc. It was an old observation in America, whether true or not, that Pigeons were quite numerous in the springs of sickly years. Several authors claimed that the Pigeons came north in the spring by a route different from that of their return in the fall. "Wild pigeons, in their passage northward, begin to appear in New England, end of February and beginning of March, but not in large numbers, because they travel more inland for the benefit of last autumn berries of several sorts in the wilderness; they return in their passage southward, in larger quantities, end of August; . . . they at that season keep toward the plantations for the benefit of their harvest" (Douglass, 1755).

Two descriptions of their flights from eyewitnesses will suffice: "A gentleman of the town of Niagara assured me (Weld, 1795) that once, as he was

embarking there on board ship for Toronto, a flight of them was observed coming from that quarter; that, as he sailed over Lake Ontario to Toronto, forty miles distant from Niagara, pigeons were seen flying overhead the whole way, in a contrary direction to that in which the ship proceeded; and

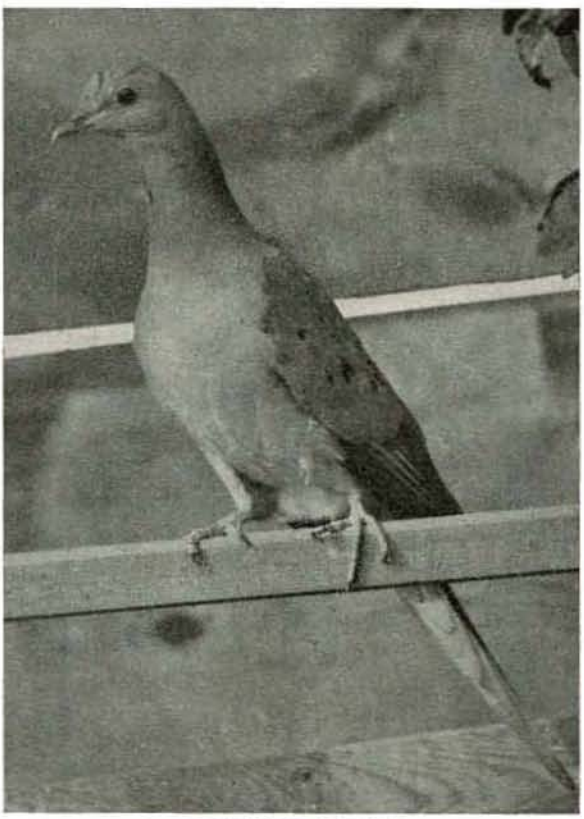


PASSENGER PIGEON, PARENT BIRD
The nearby presence of this bird's offspring induces an alert, defiant pose when confronted by the camera.

that, on arriving at the place of his destination, the birds were still observed coming down from the north in as large bodies as had been noticed at any one time during the whole voyage; supposing, therefore, that the pigeons moved no faster than the vessel, the flight, according to this gentleman's account,

must at least have extended eighty miles. . . . It is not oftener than once in seven or eight years, perhaps, that such large flocks of these birds are seen in the country. The years in which they appear are denominated 'pigeon years.'"

In 1844, Featherstonhaugh, in an excursion through the slave states, found that, "A new and very interesting spectacle presented itself, in the incredible quantities of wild pigeons that were abroad; flocks of them many miles long came across the country, one flight succeeding to another, obscuring the daylight, and in their swift motion creating a wind, and producing a rushing and startling sound, that cataracts of the first class might be proud of. These flights of wild pigeons constitute one of the most remarkable phenomena of the western country. . . when such myriads of timid birds as the wild pigeon are on the wing, often wheeling and performing evolutions almost as complicated as pyrotechnic movements, and creating whirlwinds as they move, they present an image of the most fearful power. Our horse, Missouri, at such times, has been so cowed by them that he would stand still and tremble in his harness, whilst we ourselves were glad when their flight was directed from us."



PASSENGER PIGEON
The same bird shown in the preceding picture

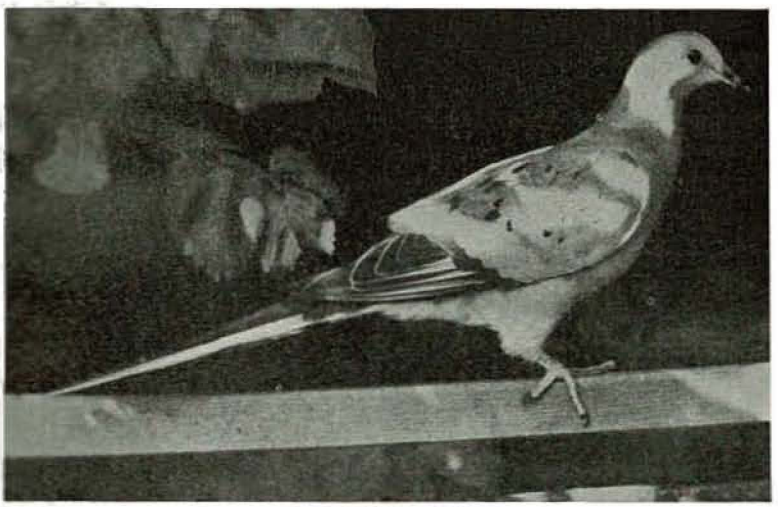
Pigeon Roosts.—If the accounts of the migrant hosts seem incredible, surely the most fervid imagination cannot conceive the numbers at the roosts. "Their roosting places are always in the woods, and sometimes occupy a large extent of forest. When they have frequented one of these places for some

time, the ground is covered several inches deep with their dung; all the tender grass and underwood are destroyed; the surface is covered with large limbs of trees, broken down by the weight of the birds clustering one above another; and the trees themselves, for thousands of acres, killed as completely as if girdled with an axe. The marks of this desolation remain for many years on the spot; and numerous places can be pointed out, where, for several years afterwards, scarcely a single vegetable made its appearance" (Hinton). Of the dung, another writes (1806) that, "Under each tree and sapling, lay an astonishing quantity of dung, of which, from specimens we saw, there must have been not only hundreds, but thousands, of waggonloads. Round each resting place was a hillock raised a considerable height above the surface, although the substance had been there eighteen months when we made our observations on the place. At that time the heaps were, no doubt, greatly sunk." Faux, in 1819, describes a Pigeon roost, which "is a singular sight in the thinly settled states, particularly in Tennessee in the fall of the year, when the roost extends over either a portion of woodland or barrens, from four to six miles in circumference. The screaming noise they make, when thus roosting, is heard at a distance of six miles; and, when the beechnuts are ripe, they fly two hundred miles to dinner, in immense flocks, . . . They thus travel four hundred miles daily." About the same time, the people along the New England coast noticed that the Pigeons used to visit the marshes for mud every morning, and then fly inland long distances. In this connection, "Sketches and Eccentricities of Colonel David Crockett, 1835," has a pertinent note. "They frequently fly as much as eighty miles to feed, and return to their roost the same evening. This was proved by shooting them at their roost of a morning when their craws were empty, and then shooting them again in the evening when they returned. Their craws were then filled with rice, and it was computed that the nearest rice-field could not be within a less distance than eighty miles. . . . near a roost, from an hour before sunset until nine or ten o'clock at night, there is one continued roar, resembling that of a distant waterfall. . . . A pigeon roost in the west resembles very much a section of country over which has passed a violent hurricane."

Breeding Places.—"The breeding places [were] of greater extent than the roosts. In the western countries they [were] generally in beech-woods, and often [extended] nearly in a straight line across the country, a great way. . . . A few years ago, there was one of these breeding-places [Ky.], which was several miles in breadth, and upwards of forty miles in length. In this tract, almost every tree was furnished with nests, wherever the branches could accommodate them. The pigeons made their first appearance there about the 10th of April, and left it altogether, with their young, before the 25th of May" (Hinton). Of their former numbers in New England, in 1741, Richard Hazen made this record: "For three miles together, the pigeons' nests were so thick that five hundred might have been told on the beech trees

at one time; and, could they have been counted on the hemlocks, as well, I [illegible] but five thousand, at one turn around." Certainly, this assembly of these birds, both in their migrations and during breeding, has no parallel among the feathered tribe.

Means of Capture.—Whenever a roost was located, the Indians frequently [illegible] to such places with their wives and children to the number of two or three hundred in a company. Here they lived a month or more on the [illegible] which they pushed from the nests by means of long poles and sticks. [illegible], in later times, the whites from all parts adjacent to a roost would come with wagons, axes, cooking utensils, and beds, and would encamp at these immense nurseries. Sometimes, just before the young Pigeons could



PASSENGER PIGEON
A highly characteristic attitude. Photographed by J. G. Hubbard

fly, the settlers and Indians would cut down the trees and gather a horseload of young in a few minutes. In one case, two hundred were secured from one tree. At night, it was a universal custom to enter the roosts with fascines of pine splinters, dried canes, straw, wood, or with any torchlike material, and push old and young from the trees by means of poles. Not infrequently they took pots of sulphur, to make the birds drop in showers, as it was claimed. In some of the larger roosts, the crashing limbs made it too dangerous for man or beast to approach. In Canada, they occasionally would make ladders by the side of the tallest pines, on which the Pigeons roosted. Then, when night came, they crept softly under and fired up these ladders. "But the grand mode of taking them [in the roost] was by setting fire to the high dead grass, leaves and shrubs underneath, in a wide blazing circle, fired at different parts at the same time, so as soon to meet. Then down rushed the pigeons in im-

mense numbers and indescribable confusion, to be roasted alive, and gathered up dead next day from heaps two feet deep."

On the migrations also they suffered. Every firearm, club, or implement, was pressed into service when they appeared. Every one took a vacation. The sportsmen shot them for fun; Indians and settlers sought them as fresh food; and the planters killed them to protect his crops. If they fed on the cultivated fields, it meant famine to the early colonists; if they foraged in the wilds, they left no mast nor food for the hogs and resident wild animals. Of course, a favorite weapon of offense was the old fowling-piece, and countless are the old stories of quarries ranging from ten to one hundred and thirty-two secured at one shot. That huntsman who could not take from two hundred to four hundred in a half day was poor indeed. When the Pigeons were flying, it was an easy matter to knock down bagfuls by swinging a long pole or oar to the right and to the left. Neither was it impossible to bring them down by throwing sticks into the flocks. One writer told of a man who was enveloped in a low-flying flock. To save his eyes, he had to fall on his face until they had passed. Another asserted that when two columns, moving in opposite directions, encountered each other, many usually fell to the ground stunned. Along the New England coast, they were caught on the marshes by means of live decoys. In other parts, stuffed birds were used to attract passing flocks. Many a man boasted of ten, twenty-five, or thirty dozens of Pigeons caught in a snare at one time. One writer claimed that cuming seed or its oil was found by experience the best lure to induce the Pigeons to these nets. Particularly favorable for netting were the salt springs, at which the netters took as many as 800 to 1,500 or 1,600 at once in one net. These Pigeon traps were various in form and construction. One was made of nets 20 x 15 feet stretched on a frame. This was propped up by a pole eight feet long. When the birds entered under it, a boy or man concealed by a fence withdrew the prop with a string attached to it, and the falling net enmeshed the birds. To the nets they were also allured "by what we call *tame wild pigeons*, made blind, and fastened to a long string. His short flights and his repeated calls never fail to bring them down. Every farmer has a tame wild pigeon in a cage, at his door, all the year around, in order to be ready whenever the season comes for catching them" (Crèvecœur, 1783).

Enemies and Mishaps.—Their enemies were legion. Wolves, foxes, and many other beasts frequented their roosts; birds of prey sought them alive or feasted on their dead bodies, both at the roosts, and over lakes. Mishaps overtook them on land and sea. On the land, storms rarely overwhelmed them. Over our Great Lakes, sometimes entire flocks were overtaken by severe tempests, forced to alight, and consequently drowned. Many times when they reached the shore safely from a hard flight, they were so fatigued as to fall an easy prey to man. For example, a whole British encampment in the Revolutionary War thus feasted for one day on Pigeons which had just flown across

Lake Champlain. Self-slaughter was another means of their destruction. The continual breaking of overladen limbs took its heavy toll of wounded and killed birds, and it was a common practice, for man and beast, to gather up and devour the dead and dying, which were found in cartloads. Occasionally, animals were said to have gone mad from feeding on their remains.

Their Uses.—All observers seemed generally agreed that they were delicate food. The Europeans preferred them for their flavor to any other Pigeons of their experience. Kalm, the Swedish savant, considered them the most palatable of any bird's flesh he had ever tasted. Throughout the country, they were proclaimed of great benefit in feeding the poor; for many weeks, they furnished an additional dish for the southern planter's table. In Canada, "during the flights . . . the lower sort of Canadians mostly *subsisted* on them." Another held them the exclusive food of the inhabitants of this section. During the shooting season, they were on every table. The hunters sold a part of their bag and kept the remainder. Often they fattened the live Pigeons for the market. These commanded good prices, but the dead birds sometimes sold as low as three pence per dozen, or a bushel for a pittance. In fact, one writer frequently saw them "at the market so cheap that, for a penny, you might have as many as you could carry away; and yet, from the extreme cheapness, you must not conclude that they are but ordinary food; on the contrary,—they are excellent." These birds furnished soups and fricassees, which were usually dressed with cream sauce and small onions. In some parts, they served as luxuries on the tables of the aristocrats. In requital for the damage they did, "The farmers, besides having plenty of them for home use, and giving them to their servants, and even to their dogs and pigs, salted caskfuls of them for the winter." The traveler found little else at the inns when Pigeons were flying. The savages heaped their boards with a royal abundance of them. They could eat them fresh, dried, smoked, or any other

PASSENGER PIGEON, IMMATURE

way. On Lake Michigan, they often gathered the dead Pigeons which floated on shore, usually smoking what were not needed for immediate use. In the South, Lawson (1714) found "several Indian towns of not above seventeen houses, that had more than one hundred gallons of pigeon's oil or fat; they using it with pulse or bread as we do butter, . . ." Not infrequently in the Indian and Revolutionary wars, Pigeons helped the commissary when supplies were low. For the hardy pioneers, their feathers made better beds than did corn husks, and one writer suggested a use for their dung. He held that, with little expense, great quantities of the best saltpetre could be extracted from their ordure. It is difficult to estimate the very important role of the Pigeon in the economy of the early pioneers, yet it is striking enough to arrest the attention of all.

Their Food.—Doubtless much of their excellent flavor and delicacy was due to the nature of their food. In the North and South alike they showed a marked preference for beechnuts and acorns of all kinds. They furnished an animated sight, indeed, when digging in the snow for the latter. In the earliest days, the colonists complained because they beat down and ate up great quantities of all sorts of English grain. They could subsist on wheat, rye, oats, corn, peas, and other farm produce. Neither were they averse to garden fruits. In the summer, when the strawberries, raspberries, mulberries, and currants were ripe, they showed a particular fondness for them. They were quite partial to the seeds of red maple and American elm, wild grapes, wild peas, and pokeberry (*Phytolacca*), which was known in many parts as Pigeon-berry. Another vegetable form bore the same name. Pursh said they found the Pigeon-berries or Pigeon peas attached to roots, and they were "nothing else, than the tuberculis of a species of Glycine, resembling marrowfat peas very much: the Pigeons scrach them up at certain times of the year and feed upon them very greedyly."

Two quotations will give interesting sidelights on their methods of feeding. A Mr. Bradbury, in 1810, "had an opportunity of observing the manner in which they feed; it affords a most singular spectacle, and is also an example of the rigid discipline maintained by gregarious animals. This species of pigeon associates in prodigious flocks: one of these flocks, when on the ground, will cover an area of several acres in extent, and so close to each other that the ground can scarcely be seen. This phalanx moves through the woods with considerable celerity, picking, as it passes along, everything that will serve for food. It is evident that the foremost ranks must be most successful, and nothing will remain for the hindermost. That all may have an equal chance, the instant that any rank becomes last, they arise, and flying over the whole flock, alight exactly ahead of the foremost. They succeed each other with so much rapidity that there is a continued stream of them in the air; and a side view of them exhibits the appearance of the segment of a large circle, moving through the woods. I observed that they cease to look for food

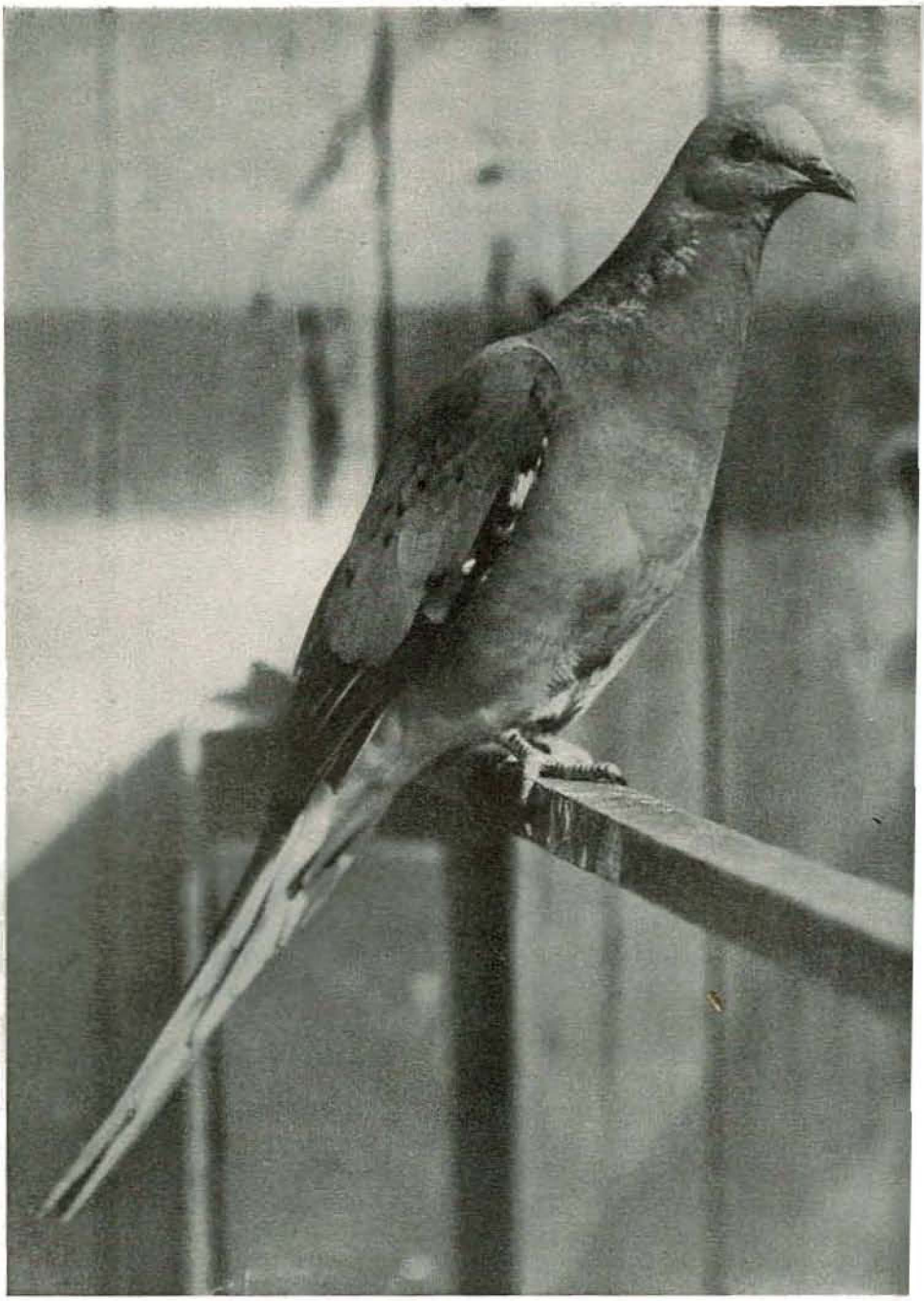
a considerable time before they become the last rank, but strictly adhere to their regulations, and never rise until there are none behind them." In 1758 DuPratz, when on the Mississippi River, "heard a confused noise which seemed to come along the river from a considerable distance below us. . . . how great was my surprise when I . . . observed it to proceed from a short, thick pillar on the bank of the river. When I drew still nearer to it, I perceived that it was formed by a legion of wood-pigeons, who kept continually up and down successively among the branches of an evergreen oak, in order to beat down the acorns with their wings. Every now and then some alighted, to eat the acorns which they themselves or the others had beat down for they all acted in common, and eat in common; no avarice nor private interest appearing among them, but each labouring as much for the rest as for himself."

If only the human species would emulate this communal spirit, act in unison for bird-protection without commercial quibbling, curb its mania for bird-adornment, check excessive "sport for sport's sake," and annihilate potting for market, some of our threatened birds would reëstablish their slender hold and escape their impending extinction. In the early settlements, Pigeons, Turkeys, Paroquets, and Heath Hens were plentiful; civilization and culture came; the hills and valleys were deforested; the lowlands were cultivated; in short, the balance of nature was excessively disturbed; yet where have we collectively provided these original occupants refuge, or how have we restrained ourselves, to promote their greater increase, when they were most rapidly lessening? The conscience balm has always been, "They will be ever common."

Recollections of the Passenger Pigeon in Captivity

By WALLACE CRAIG

THE Passenger Pigeon was easily kept in captivity. All species of Pigeon take more or less well to cage-life, but the Passenger Pigeon throve and bred much more readily than some of the others. My own observations of it at close range were due to the privilege of studying in the pigeonry maintained by the late Prof. C. O. Whitman. In Chicago and in Woods Hole, Professor Whitman kept Passenger Pigeons in pens of modest dimensions, yet they bred, and would probably have maintained their numbers permanently, had it not been for in-breeding, the flock being all descended from one pair. They took readily to the nest-boxes, nesting materials, and all other artificial arrangements of the aviary. They did not become exceedingly tame, did not eat out of one's hand (so far as I saw); but, if effort had been made to tame them to this degree, who knows but it might have been successful? It is a great pity that attempts were not made earlier to breed these birds in



PASSENGER PIGEON, ADULT MALE

confinement, for it is certain that the species could have been thus saved from extinction.

As an aviary bird, it would have been a favorite, on account of its beauty and its marked individuality. Constant close association with a bird in the aviary gives one a kind of intimate acquaintance with it which can seldom, if ever, be gained by observation of wild birds. And for such study at close range the Passenger Pigeon was, and would ever have continued to be, a most interesting subject, for its strongly marked character appeared in every minute detail of its habits, postures, gestures, and voice.

In another place* I have given a somewhat technical and detailed description of certain habits observed in the captive *Ectopistes migratorius*. The great account of this species, that by Professor Whitman, remains still to be published in the monograph on Pigeons now being edited by Doctor Riddle. Here, in BIRD-LORE, I shall try to portray my clearest recollections of this magnificent bird; I shall add a few facts to those mentioned elsewhere; but I shall endeavor chiefly to convey to the minds of others something of the vivid impression made upon the minds of those who observed the Passenger Pigeon in life.

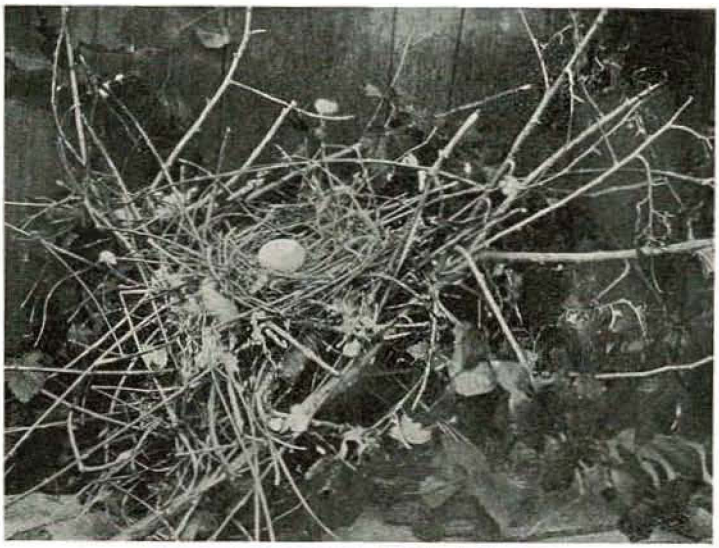
The distinctive character of the species appeared, as has been said before, in every detail of its postures and movements. Such individuality is in great part impossible to describe, though it is felt unmistakably by everyone who has lived with the birds. Better than any mere description are the accompanying photographs. In them one can see that, with its long, pointed tail, its graceful, curved neck and head, and its trim, strong body and wings, the Passenger Pigeon was truly elegant. The Ring-Dove, by contrast, seems chubby in form and gross in movement. The Passenger was quick, active, vigorous, and graceful. The elegance of form and posture which shows in these photographs was matched by an elegance of motion in every act of the birds while on the perch or on the wing.

The Passenger was preëminently a bird of flight. Accordingly, its movements on the ground were a little awkward, in contrast to its grace when on the perch or in the air. It indulged often in a grand wing exercise, standing on a high perch and flapping its wings as if flying, now slowly, now powerfully, now leaving the perch to fly up and down the aviary, returning to the perch and again commencing the wing exercise, looking about for somewhere else to fly to. This species thus loved to fly more than did most of the other Pigeons. And though not afraid of men nor properly to be called "wild," it seemed sometimes to wish to escape from the pen and fly into the very sky.

Extreme powers of flight and extreme gregariousness seem to be the two fundamental traits in the peculiar habits of this species. But as to the latter trait, I did not notice that in the aviary the Passenger Pigeons flocked to-

*The Auk, Vol. XXVIII, pp. 408–427, October, 1911.

gether more than the others, for all Pigeons are gregarious. The number of Passenger Pigeons being small, there was little opportunity for them to show their extreme flocking tendency. The old accounts tell us that in the great roosts some Pigeons alighted on the backs of those who had found perches; but this was probably only temporary and for lack of room, and I am sure the one alighted on must have resented it with angry voice and a struggle to throw the other off his back.



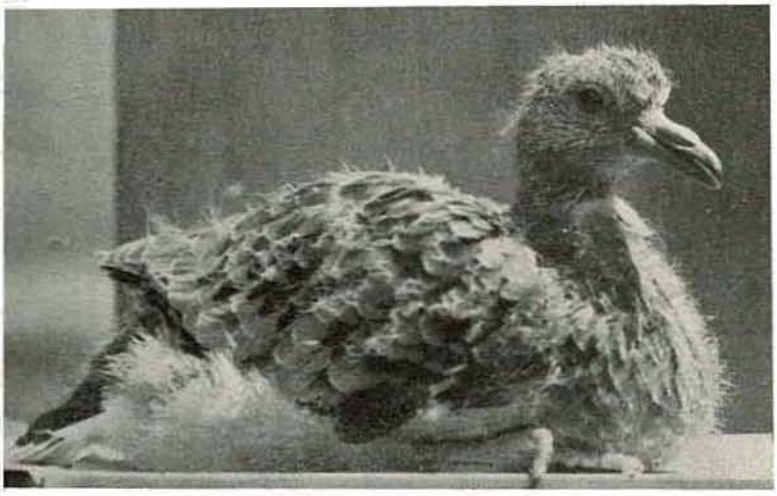
PASSENGER PIGEON'S NEST AND EGG

The noise made by the Pigeons in their great breeding colonies, as we are told by those who witnessed them, was deafening. Now, the Passenger Pigeon's voice was very different from the voice of any other Pigeon. It had little of the soft, cooing notes so familiar in all sorts of Doves, but showed extreme development of the hard, unmusical notes which in most Doves are subordinate to the coo. This peculiarity seems to have been an adaptation to life in such extremely populous and hence noisy communities, where soft notes could scarcely be heard, and a bird had literally to scream in order to gain a hearing.

Let us examine the bird's various notes in more detail, for they are interesting. The most characteristic utterance of the species was a voluble stream of 'talking,' which ever varied with the mood of the bird,—now rising into a loud, shrill scolding, now sinking into a soft, low clucking, and sometimes diminishing into single clucks. In addition to this voluble flow of talk, the male sometimes shouted one or two single, emphatic notes sounding like a loud *keck, keck*. All these sounds were full of meaning and expression. And

their expressiveness was greatly enhanced by the bird's movements. With the loud notes, as used in anger, he stood at full height, in his majestic way, and impressed the enemy by his bold appearance; and sometimes each loud note was accompanied, quick as lightning, by a stroke of both wings, which struck the enemy if he was near enough, and powerfully frightened him if he was at a distance. On the other hand, with the soft, clucking notes, which expressed gentler feelings, even to devotion, the talking bird sidled along the perch to the bird to whom he was talking, and sometimes put his neck over her in a way which clearly showed his tender emotion. The Passenger was very quick and nimble in moving sideways along a perch, and this movement was so characteristic of his courting as to distinguish it from the courting of any other species.

Though all this chattering and kecking was so very expressive, it was never sweetly musical. The loud notes were strident, and even the faint notes were hard. The male, when courting, gave also a coo, which was musical, but so weak and faint that in my early memoranda I put it down simply as "the weak note;" and this little coo, sounding more like *keeho*, was usually given after the clucking or kecking notes, as a subordinate appendage to them. The species gave also a nest-call, as do the other Pigeons; but this,



PASSENGER PIGEON, YOUNG

like the coo, was weak and inconspicuous compared with the strong and expressive notes described above.

The female of this, as of all other Pigeons, was more quiet than the male in both voice and movement, and distinguishable from him even when motionless by a characteristic shyness in her attitude, especially in the pose of her head. So distinct was this difference between the sexes that, in looking at the

accompanying photographs (which came to BIRD-LORE without data as to sex), I have ventured to state that four of the figures are of male birds and one is an excellent illustration of the female. I have not hazarded a guess as to the sex of the other four adult figures, for they are in postures less distinctive of sex. (In the attitude of alarm, especially, the male and female become very much alike.)

The courting behavior of this species, as is evident from what has been said about voice and gestures, was very different from the courting behavior of other Pigeons and Doves. Instead of pirouetting before the female, or bowing to her, or running and jumping after her on the ground, the Passenger Pigeon sidled up to her on the perch, and pressed her very close; and if she moved a little away from him he sidled up to her again and tried to put his neck over her.

The male was very jealous of his mate. And when they had a nest he was a most truculent fellow, attacking any other bird that came into the vicinity. The scenes which resulted were often most amusing. I once saw a male Passenger Pigeon go around the edges of the pen and oust every Pigeon that was sitting alone, mostly Band-tailed Pigeons and Cushats; but he did not attack the dozen or so that were all sitting on one perch. He was not really a good fighter: he made a bold attack, but if the attacked one showed fight, *Ectopistes* generally retreated.

The defence of the nest was accompanied, as may be imagined, by a lively chatter of scolding and kecking. The Passenger was one of the most garrulous of all the Pigeons in the great aviary. This was naturally connected with the fact of his having chattering notes instead of cooing ones. For a coo is more or less formal, and it cannot be uttered in the midst of all sorts of activity. But the chatter of the Passenger Pigeon was heard on all sorts of occasions, and accompanied nearly everything he did. If he picked up a straw and carried it to the nest, he talked about it while he was searching on the ground for straws, clucked a few times as he flew up, and chattered to his mate as he gave the straw to her.

I regret to say that I can give no account of the later stages in the breeding of this bird, the hatching and rearing of young. For in the year 1903, when I began to study this species, the birds had already lost the power to hatch and rear young. This much may be said, however, that the species continued vociferous throughout a long breeding season, and in some degree throughout the year. In August, when beginning to molt, it of course became more quiet, losing especially the feeble coo and the nest-call. The grand wing exercise also became reduced, for this performance seems to have been not merely a muscular exercise but also a display. Now, some species of Pigeon when they lose their coo, become almost silent. Not so *Ectopistes*. For the kecking and scolding and chattering continued, though with not quite the same vehemence as in the breeding season, throughout the autumn and winter. This again

goes to show, as we have said, that the Passenger was one of the most garrulous of Pigeons, and would have made one of the most interesting of aviary pets.

The Last Passenger Pigeon

By E. H. FORBUSH

THE Passenger Pigeon undoubtedly was one of the greatest zoölogical wonders of the world. Formerly the most abundant gregarious species ever known in any land, ranging over the greater part of North America in innumerable hosts, apparently it has disappeared to the last bird. Many people now living have seen its vast and apparently illimitable hordes marshaled in the sky, have viewed great forest roosting-places broken by its clustering millions as by a hurricane, and have seen markets overcrowded to the sidewalks with barrels of dead birds. Those of us who have witnessed the passing of the Pigeons find it hard to believe that all the billions of individuals of this elegant species could have been wiped off the face of the earth. Nevertheless, this is just what seems to have occurred. Even Prof. C. F. Hodge, cheerful optimist that he is, after three years' search of North America, practically gives up the quest, and acknowledges that the investigation has not produced so much as a feather of the bird.

The editor of BIRD-LORE has asked me to write the story of the last Passenger Pigeon; but I cannot allow this opportunity to pass without giving an epitome of the causes which have brought about the extermination of the species. John Josselyn, in his "Two Voyages to New England" published in 1672, describes the vast numbers of the Pigeons and says, "But of late they are much diminished, the English taking them with nets." This seems to indicate that the extirpation of the species began within forty years after the first settlement of New England, and exhibits the net as one of the chief causes of depletion. *From soon after the first occupancy of New Engeland by the whites until about the year 1895, the netting of the Passenger Pigeon in North America never ceased.* Thousands of nets were spread all along the Atlantic seaboard. Nets were set wherever Pigeons appeared, but there were no great markets for them to supply until the nineteenth century. Early in that century, the markets were often so glutted with Pigeons that the birds could not be sold at any price. Schooners were loaded in bulk with them on the Hudson River for the New York market, and later, as cities grew up along the shores of the Great Lakes, vessels were loaded with them there; but all this slaughter had no perceptible effect on the numbers of the Pigeons in the West until railroads were built throughout the western country and great markets were established there. Then the machinery of the markets reached out for the Pigeons, and they were followed everywhere, at all seasons, by hundreds of men who made a business of netting and shooting them for the market.

Wherever the Pigeon nested, the pigeoners soon found them, and destroyed most of the young in the nests and many of the adult birds as well. Every great market from St. Louis to Boston received hundreds or thousands of barrels of Pigeons practically every season. The New York market at times took one hundred barrels a day without a break in price. Often a single western town near the nesting-grounds shipped millions of Pigeons to the markets during the nesting season, as shown by the shipping records. Nesting after nesting was broken up and the young destroyed for many years until, in 1878, the Pigeons, driven by persecution from many states, concentrated largely in a few localities in Michigan, where a tremendous slaughter took place. These were the last great nesting grounds of which we have any record. Smaller nestings were known for ten years afterward, and large numbers of Pigeons were seen and killed; but after 1890 the Pigeons grew less and less in number until 1898, when the last recorded instances of their capture occurred that can now be substantiated by preserved specimens. Since that time, there are two apparently authentic instances of the capture of the Pigeon recorded, one in Ohio and the other in Wisconsin, and my investigations have revealed a few more which have been published in my 'History of the Game Birds, Wild Fowl and Shore Birds.' Mr. Otto Widmann, who kindly undertook to look into the history of the Passenger Pigeon for me in the markets of St. Louis, states that Mr. F. H. Miller of that place, a marketman who has sold and handled large quantities of Pigeons, received twelve dozen from Rogers, Arkansas, in 1902 and, later, a single bird, shipped to him from Black River in 1906. No exact dates can be given. Mr. Glover M. Allen, in his list of the 'Aves, Fauna of New England,' published by the Boston Society of Natural History in 1909, records a specimen killed at Bar Harbor, Maine, in 1904. A careful investigation leads me to believe that this is an authentic record, although I have not yet seen the specimen.

It was mounted by Mr. J. Bert Baxter, of Bangor, and was seen by Mr. Harry Merrill, who was perfectly competent to identify it. The specimen, when mounted, was returned to the man who shot it, but Mr. Baxter lost his record of the name of the owner. Mr. A. Learo, taxidermist, of Montreal, informs me that a specimen was taken by Mr. Pacificque Couture in St. Vincent, Province of Quebec, Canada, September 23, 1907. Mr. Learo states that he has returned the bird to Mr. Couture, but I have been unable to find the gentleman or learn anything more about the specimen. Therefore this may not be authentic. I have investigated other statements which have been published regarding recent alleged occurrences of the Passenger Pigeon in Canada, and find that the birds taken were Mourning Doves.

Now for the last living Passenger Pigeon of which we have any information. David Whittaker, of Milwaukee, Wisconsin, procured a pair of young birds from an Indian in northeastern Wisconsin in 1888. During the eight succeeding years, fifteen birds were bred from this pair, six males and

PASSENGER PIGEON ON NEST
The bird doubtless in some fear of the photographer

nine females. A part of this flock finally went to Professor C. O. Whitman, of Chicago University, and several individuals of it are figured in this number of BIRD-LORE. In 1904 Professor Whitman had ten birds, but his flock, weakened by confinement and inbreeding, gradually decreased in number. The original Whittaker flock decreased also, and in 1908 there were but seven left. All of these died but one female, which was sent to the Cincinnati Zoölogical Society. At that time the society had a male about twenty-four years of age, which has died since. The female in Cincinnati, so far as I know, is living still, and in all probability is the last Passenger Pigeon in existence.

Protected and fostered by the hand of man, she probably has outlived all the wild birds, and remains the last of a doomed race.

Many attempts have been made by gunners, marketmen, and others, to account for the disappearance of the Pigeons by attributing it to some other means than the hand of man. Stories have been published to the effect that the Pigeons migrated to South America or Australia; that they were destroyed by parasites or disease, or that they were all drowned in the Gulf of Mexico, in the Great Lakes, or in the Atlantic Ocean.

There is nothing in substantiation of these tales that would be accepted as evidence by any careful investigator. The species never was recorded from South America or Australia, and the other explanations of its disappearance are either the result of fertile imagination or rest on hearsay evidence or rumors. Undoubtedly many Pigeons periodically were confused by fog and drowned in the Great Lakes, and there are two possibly authentic stories regarding the drowning of large numbers of Pigeons at sea. None of these occurrences, however, had any permanent effect on the numbers of the Pigeons, though the destruction of the forests undoubtedly had some effect. There is evidence that large numbers of these birds went north from Michigan in 1878, and great flocks bred in Manitoba that year. As Pigeons were sometimes overwhelmed by unseasonable snow-storms in the breeding season in the United States, they must have been still more subject to them in northern Canada; and if they were driven by persecution to the far north to breed, they might have been unable to raise young during the succeeding summers. In "Michigan Bird-Life," Professor Walter B. Barrows gives his opinion that some such catastrophe as this was accountable for a large part of the great diminution in their numbers. This opinion is logical, though there is no direct evidence in support of it. Those who study with care the history of the extermination of the Pigeons will see, however, that all the theories that are brought forward to account for the destruction of the birds by other causes than man's agency are absolutely inadequate. There was but one cause for the diminution of the birds, which was widespread, annual, perennial, continuous, and enormously destructive—their persecution by mankind.

Every great nesting-ground known was besieged by a host of people as soon as it was discovered, many of them professional pigeoners, armed with

all the most effective engines of slaughter known. Many times the birds were so persecuted that they finally left their young to the mercies of the pigeoners, and even when they remained most of the young were killed and sent to the market and the adults were decimated. The average life of a Pigeon in nature is possibly not over five years. The destruction of most of the young birds for a series of years would bring about such a diminution of the species as occurred soon after 1878. One egg was the complement for each nest. Before the country was settled, while the birds were unmolested except by Indians and other natural enemies, they bred in large colonies. This, in itself, was a means of protection, and they probably doubled their numbers every year by changing their nesting places two or three times yearly, and rearing two or three young birds to each pair. Later, when all the resources of civilized man were brought to bear against them, their very gregariousness, which formerly protected them, now insured their destruction; and when at last they were driven to the far North to breed, and scattered far and wide, the death rate rapidly outran the birth rate. Wherever they settled to roost or to nest, winter or summer, spring or fall, they were followed and destroyed until, unable to raise young, they scattered over the country pursued everywhere, forming targets for millions of shot-guns, with no hope of safety save in the vast northern wilderness, where the rigors of nature forbade them to procreate. Thus they gradually succumbed to the inevitable and passed into the unknown. Were it possible to obtain an accurate record of the receipts of Pigeon shipments in the markets of the larger cities only from 1870 to 1895, the enormous numbers sold and the gradual decrease in the sales would exhibit, in the most graphic and convincing manner possible, the chief cause of the passing of the Passenger Pigeon.

While we have been wondering why the Pigeons disappeared, the markets have been reaching out for something to take their place, and we have witnessed also the rapid disappearance of the Eskimo Curlew, the Upland Plover, the Buff-breasted Sandpiper, and the Golden Plover, from the same cause. Shall we awake in time to save any of these birds, or the many others that are still menanced with extinction by this great market demand? No hope can be held out for the future of these birds until our markets are closed to the sale of native wild game.

The Migration of North American Sparrows

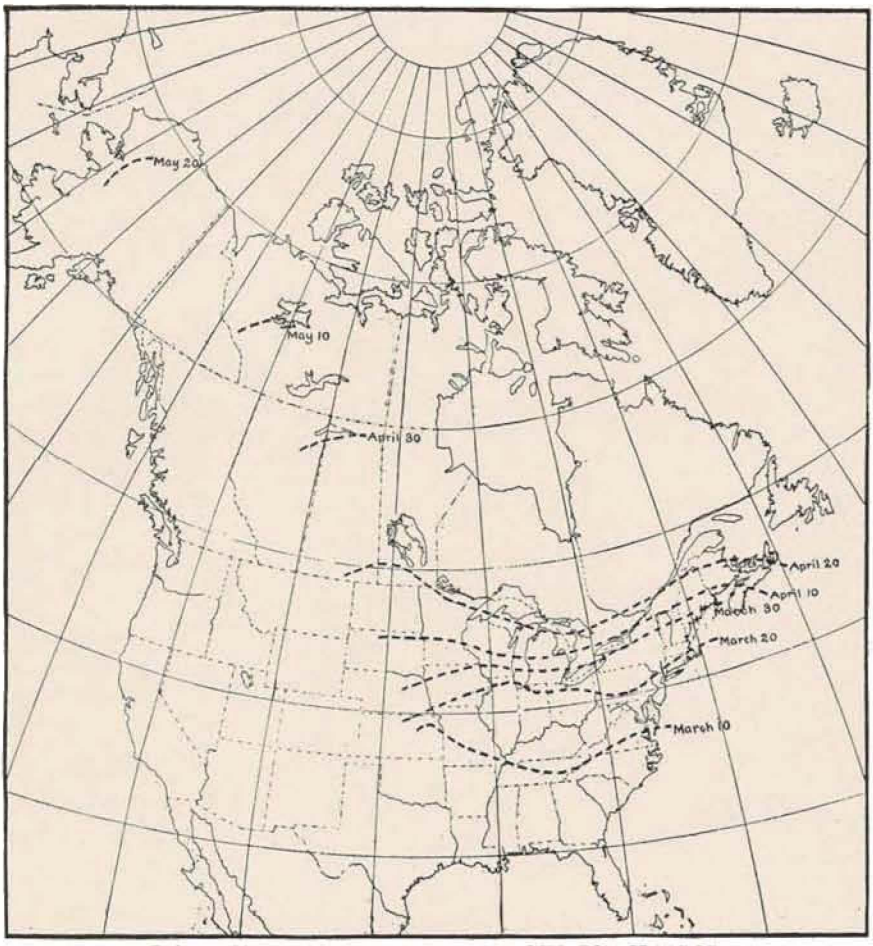
TWENTY-FIRST PAPER

Compiled by Professor W. W. Cooke, Chiefly from Data in the Biological Survey
With drawings by Louis Agassiz Fuertes

(See Frontispiece)

FOX SPARROW

In the eastern United States, the Fox Sparrow winters from the valleys of the Potomac and Ohio Rivers to the Gulf States; it breeds throughout the larger part of Canada. The birds of the region from the Rocky Mountains to the Pacific have been separated into seven subspecies. Some of these forms, breeding from California to Colorado, are almost non-migratory, making short journeys from the mountains where they nest to the warmer valleys



ISOCHRONAL MIGRATION LINES OF THE FOX SPARROW

for the winter. Three forms, breeding in Alaska, come south in winter to California; but not enough data have as yet been secured to formulate their times of migration. Nearly all of the dates given in the following tables refer to the eastern bird, and it is particularly to be noted that this is the case with the Mackenzie records and those for Kotzebue Sound, Alaska. Note also the variations in speed of migration; forty days are occupied in the 1,000 miles from Missouri to Manitoba, and only thirty days for the 2,500 miles thence to northwestern Alaska.

SPRING MIGRATION

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Washington, D. C.	8	March 13	rare, winter.
Englewood, N. J.	14	March 16	January 24, 1907
New Providence, N. J.	11	March 17	March 7, 1884
Morristown, N. J.	5	March 14	February 15, 1890
Jewett City, Conn.	19	March 17	March 6, 1902
Hartford, Conn.	9	March 19	March 14, 1909
Providence, R. I.	9	March 18	January 2, 1906
Beverly, Mass.	10	March 20	March 15, 1908
Taunton, Mass.	5	March 15	March 11, 1891
Durham, N. H.	3	March 22	March 16, 1898
St. Johnsbury, Vt.	3	March 30	March 27, 1903
Portland, Me.	7	March 25	March 19, 1905
St. John, N. B.	11	April 4	March 20, 1898
Scotch Lake, N. B.	4	April 18	April 14, 1905
Halifax, N. S.	5	April 8	April 2, 1894
Pictou, N. S.	8	April 17	April 9, 1889
Chatham, N. B.	5	April 20	April 14, 1899
North River, P. E. I.	4	April 20	April 18, 1889
Ottawa, Ontario	13	April 21	April 13, 1890
Quebec City, Canada			April 19, 1895
Monteer, Mo.	4	March 5	February 29, 1904
Lexington, Ky.	3	March 15	March 11, 1899
Odin, Ill.	3	March 13	February 10, 1891
Chicago, Ill.	17	March 19	March 6, 1908
Tampico, Ill.	6	March 25	March 19, 1886
Brookville, Ind.	5	March 16	March 7, 1890
Bloomington Ind.	5	March 17	February 20, 1892
Waterloo, Ind. (near)	9	March 27	February 28, 1903
Oberlin, O.	8	March 19	March 9, 1894
Southern Michigan	5	March 30	March 7, 1909
Hillsboro, Ia.	5	March 11	March 1, 1896
Keokuk, Ia.	9	March 15	February 17, 1888
Grinnell, Ia.	5	March 23	March 15, 1889
Madison, Wis.	5	March 20	March 15, 1908
Lanesboro, Minn.	11	April 3	March 25, 1889
Minneapolis, Minn.	6	April 5	April 2, 1903
Elk River, Minn.	8	April 8	March 28, 1884
White Earth, Minn.			April 14, 1882
Onaga, Kans.	5	March 7	March 1, 1891
Southeastern Nebraska	7	March 21	March 2, 1906
Northern North Dakota	6	April 20	April 10, 1910
Aweme, Manitoba	13	April 20	April 10, 1903
Antiony, Ore.			April 5, 1906
Chilliwack, B. C. (near)	3	March 23	March 18, 1889

SPRING MIGRATION, continued

PLACE	Number of years' record	Average date of spring arrival	Earliest date of spring arrival
Anaconda, Mont.			April 11, 1910
Edmonton, Alberta (near)	5	May 10	May 4, 1911
Fort Simpson, Mackenzie	3	May 6	May 5, 1861
La Pierre House, Yukon			May 20, 1863
Kotzebue Sound, Alaska			May 21, 1899

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Northern Florida			February 8, 1907
Mount Pleasant, S. C.			February 14, 1899
Raleigh, N. C.	2	March 5	March 21, 1892
Highlands, N. C.			April 15, 1886
Lynchburg, Va.	3	March 16	March 22, 1902
French Creek, W. Va.	4	March 30	April 5, 1891
Washington, D. C.	9	April 6	May 11, 1882
Erie, Pa.	4	April 18	April 25, 1901
Englewood, N. J.	5	April 6	April 23, 1901
Morristown, N. J.	8	April 18	April 22, 1904
Jewett City, Conn.	11	April 14	May 6, 1893
Hartford, Conn.	10	April 18	April 26, 1908
Providence, R. I.	7	April 6	April 21, 1907
Fitchburg, Mass.	11	April 14	April 27, 1897
Beverly, Mass.	8	April 21	April 25, 1907
Halifax, N. S.	3	April 23	April 26, 1894
St. John, N. B.	7	April 29	May 7, 1896
Ottawa, Ont.	4	May 3	May 12, 1900
New Orleans, La.			April 6, 1894
Athens, Tenn.	3	March 13	April 1, 1905
St. Louis, Mo.	7	April 10	April 19, 1888
Chicago, Ill.	13	April 17	April 29, 1907
Rockford, Ill.	5	April 17	April 24, 1887
Bloomington, Ind.	3	April 18	April 20, 1895
Waterloo, Ind. (near)	10	April 15	May 7, 1894
Oberlin, O.	10	April 20	May 2, 1907
Keokuk, Ia.	8	April 13	April 17, 1894
Grinnell, Ia.	5	April 23	May 7, 1885
Madison, Wis.	4	April 20	April 28, 1907
Lanesboro, Minn.	8	April 19	May 2, 1893
San Antonio, Tex.	2	March 20	March 25, 1891
Manhattan, Kans. (near)	8	April 8	April 18, 1900
Southeastern Nebraska	3	April 11	April 14, 1900
Northern North Dakota	2	May 5	May 7, 1908
Aweme, Manitoba	5	May 5	May 19, 1907

FALL MIGRATION

PLACE	Number of years' record	Average date of fall arrival	Earliest date of fall arrival
Aweme, Manitoba	3	September 16	September 12, 1904
Westhope, N. D.			September 24, 1910
Southeastern Nebraska	3	October 19	October 11, 1904

FALL MIGRATION, continued

PLACE	Number of years' record	Average date of fall arrival	Earliest date of fall arrival
Onaga, Kans. (near)	8	October 14	October 7, 1905
Gainesville, Tex. (near)	2	November 17	November 15, 1885
Elk River, Minn.			September 20, 1886
Lanesboro, Minn.	7	October 2	September 24, 1890
Hillsboro, Ia.	4	October 2	September 24, 1899
Keokuk, Ia.	8	October 13	September 29, 1896
Southern Michigan	4	October 9	September 27, 1903
Oberlin, O.	4	October 20	October 2, 1901
Waterloo, Ind. (near)	4	October 9	October 1, 1889
Chicago, Ill.	11	September 28	September 22, 1900
Monteer, Mo.			October 24, 1903
Lexington, Ky.			October 23, 1904
Athens, Tenn.			October 19, 1905
Helena, Ark.			November 4, 1894
St. John, N. B.	7	October 12	September 20, 1896
Scotch Lake, N. B.	6	October 18	October 12, 1903
Hebron, Me.	3	October 13	October 12, 1905
Phillips, Me.	3	October 24	October 8, 1904
Durham, N. H.			October 21, 1900
Taunton, Mass.			October 8, 1889
Providence, R. I.	3	October 21	October 15, 1904
Hartford, Conn.	3	October 23	October 15, 1887
Englewood, N. J.	4	October 19	October 15, 1887
Morristown, N. J.	6	October 22	October 17, 1907
Erie, Pa.			October 5, 1900
Washington, D. C.	8	October 21	October 3, 1906
French Creek, W. Va.			October 8, 1889
Raleigh, N. C.	8	November 14	October 17, 1893
Northern Florida			November 13, 1905

PLACE	Number of years' record	Average date of the last one seen	Latest date of the last one seen
Kotzebue Sound, Alaska			August 23, 1898
Great Slave Lake, Mackenzie			September 11, 1907
Indian Head, Sask.			October 15, 1904
Aweme, Manitoba	8	October 12	October 17, 1905
Onaga, Kans.	4	November 12	December 22, 1894
Lanesboro, Minn.	7	November 3	November 12, 1888
Sabula, Ia.	5	November 5	November 12, 1891
Keokuk, Ia.	6	November 14	November 20, 1894
Chicago, Ill.	6	November 6	November 25, 1906
Odin, Ill.	3	November 16	November 20, 1895
St. Louis, Mo.			December 25, 1904
Waterloo, Ind.	5	November 6	November 21, 1905
Oberlin, O.	3	November 9	November 16, 1896
North River, P. E. I.			October 24, 1890
Scotch Lake, N. B.	3	November 3	November 6, 1901
St. John, N. B.	7	November 12	November 21, 1895
Hebron, Me.	5	November 4	November 18, 1907
Lewiston, Me.			November 24, 1900
Durham, N. H.			November 13, 1897
Providence, R. I.	4	November 19	December 2, 1906
Jewett City, Conn.			November 19, 1886
Englewood, N. J.	3	November 4	November 29, 1885
New Providence, N. J.	6	November 6	November 14, 1888
Morristown, N. J.	4	November 22	December 27, 0000
Erie, Pa.			November 12, 1903
Washington, D. C.	9	November 15	rare, winter.

Notes on the Plumage of North American Sparrows

TWENTIETH PAPER

By FRANK M. CHAPMAN

(See Frontispiece)

Fox Sparrow (*Passerella iliaca iliaca*, Fig. 1). The nestling Fox Sparrow is much like the adult in general appearance, but is more streaked below and the head shows no trace of gray, being of essentially the same color as the back. At the postjuvenal molt, the wing and tail-feathers are retained, the body feathers shed, and the young bird now resembles the adult.

There is apparently no marked spring molt, and the slightly grayer color of the breeding plumage is due to wear.

The Fox Sparrows, although not so widely distributed during the breeding season, are subject to even more pronounced racial variations in color than are the Song Sparrows. Eight geographical varieties have been described, the more pronounced of which are figured in the frontispiece. Their ranges are given as follows in the 1910 edition of the A.O.U. 'Check-List':

Fox Sparrow (*Passerella iliaca iliaca*).

Range.—North America. Breeds in Boreal zones from tree limit in northeastern Alaska, northern Mackenzie, central Keewatin, northern Ontario (Moose Factory), and northern Ungava, south to central Alberta, northern Manitoba, southern Keewatin, Magdalen Islands, and Newfoundland; winters from lower Ohio and Potomac valleys (occasionally farther north) to central Texas and northern Florida; casual on the coast of southern Alaska and in California.

Shumagin Fox Sparrow (*Passerella iliaca unalaschcensis*).

Range.—Unalaska Island, Alaska Peninsula, and Shumagin Islands; winters south to northern California.

Thick-billed Fox Sparrow (*Passerella iliaca megarhyncha*).

Range.—Mountains of California. Breeds in Transition Zone on both slopes of the Sierra Nevada from Mt. Shasta to Mt. Whitney; winters in southwestern California; casual in Marin County.

Slate-colored Fox Sparrow (*Passerella iliaca schistacea*).

Range.—Rocky Mountain region of United States. Breeds in Transition Zone from interior of British Columbia and northwestern Montana south to the mountains of Lassen and Modoc Counties, northeastern California, to the White Mountains of eastern California, and to central Colorado; winters south to southwestern California, Arizona, and New Mexico, and east to Kansas.

Stephens' Fox Sparrow (*Passerella iliaca stephensi*).

Range.—Southern California. Breeds in the Tejon, San Gabriel, San Bernardino, and San Jacinto Mountains.

Sooty Fox Sparrow (*Passerella iliaca fuliginosa*).

Range.—Northwest coast strip. Breeds on the coast of British Columbia, Vancouver Island, and northwestern Washington; winters south along the coast to San Francisco, California.

Kadiak Fox Sparrow (*Passerella iliaca insularis*).

Range.—Alaska coast strip. Breeds on Kadiak Island and on the coast of Prince William Sound south to Cross Sound; winters along the coast to southern California.

Townsend's Fox Sparrow (*Passerella iliaca townsendi*).

Range.—Coast of southeastern Alaska. Breeds on the coast and islands from Cross Sound to Dixon Entrance; winters south to Humboldt County, California.

SCREECH OWL: GRAY CHASE
Photographed by Sheridan F. Wood, at Nottingham, Ohio, Feb., 1912

Bird-Lore's Advisory Council

WITH some slight alterations, we reprint below the names and addresses of the ornithologists forming BIRD-LORE's 'Advisory Council,' which were first published in BIRD-LORE for February, 1900.

To those of our readers who are not familiar with the objects of the Council, we may state that it was formed for the purpose of placing students in direct communication with an authority on the bird-life of the region in which they live, to whom they might appeal for information and advice in the many difficulties which beset the isolated worker.

The success of the plan during the twelve years that it has been in operation fully equals our expectations; and from both students and members of the Council we have had very gratifying assurances of the happy results attending our efforts to bring the specialist in touch with those who appreciate the opportunity to avail themselves of his wider experience.

It is requested that all letters of inquiry to members of the Council be accompanied by a stamped and addressed envelope for use in replying.

NAMES AND ADDRESSES OF MEMBERS OF THE ADVISORY COUNCIL

UNITED STATES AND TERRITORIES

ALASKA.—Dr. C. Hart Merriam, Biological Survey, Dept. of Agr., Washington, D. C.
ARIZONA.—Herbert Brown, Tucson, Ariz.
CALIFORNIA.—Charles A. Keeler, Berkeley, Cal.
CALIFORNIA.—Walter K. Fisher, Palo Alto, Cal.
COLORADO.—Dr. W. H. Bergtold, 1460 Clayton Ave., Denver, Colo.
CONNECTICUT.—J. H. Sage, Portland, Conn.
DELAWARE.—C. J. Pennock, Kennett Square, Pa.
DISTRICT OF COLUMBIA.—Dr. C. W. Richmond, U. S. Nat'l. Mus., Washington, D. C.
FLORIDA.—Frank M. Chapman, American Museum Natural History, New York City.
FLORIDA, Western.—R. W. Williams, Jr., Talahassee, Fla.
GEORGIA.—Dr. Eugene Murphy, Augusta, Ga.
ILLINOIS, Northern.—B. T. Gault, Glen Ellyn, Ill.
ILLINOIS, Southern.—Robert Ridgway, U. S. National Museum, Washington, D. C.
INDIANA.—A. W. Butler, State House, Indianapolis, Ind.
INDIAN TERRITORY.—Prof. W. W. Cooke, Biological Survey, Washington, D. C.
IOWA.—C. R. Keyes, Mt. Vernon, Ia.
KANSAS.—University of Kansas, Lawrence, Kan.
LOUISIANA.—Prof. George E. Beyer, Tulane University, New Orleans, La.
MAINE.—O. W. Knight, Bangor, Me.
MASSACHUSETTS.—William Brewster, Cambridge, Mass.
MICHIGAN.—Prof. W. B. Barrows, Agricultural College, Mich.
MINNESOTA.—Dr. T. S. Roberts, 1603 Fourth Avenue, South Minneapolis, Minn.
MISSISSIPPI.—Andrew Allison, Ellisville, Miss.
MISSOURI.—O. Widmann, 5105 Morgan St., St. Louis, Mo.
MONTANA.—Prof. J. M. Elrod, University of Montana, Missoula, Mont.

NEBRASKA.—Dr. R. H. Walcott, University of Nebraska, Lincoln, Neb.
NEVADA.—Dr. A. K. Fisher, Biological Survey, Dept. of Agr., Washington, D. C.
NEW HAMPSHIRE.—Dr. G. M. Allen, Boston Soc. Nat. Hist., Boston.
NEW JERSEY, Northern.—Frank M. Chapman, Am. Mus. Nat. History, N. Y. City.
NEW JERSEY, Southern.—Witmer Stone, Academy Natural Sciences, Philadelphia, Pa.
NEW MEXICO.—Dr. A. K. Fisher, Biological Survey, Dept. of Agr., Washington, D. C.
NEW YORK, Eastern.—Dr. A. K. Fisher, Biological Survey, Washington, D. C.
NEW YORK, Northern.—Egbert Bagg, 191 Genesee Street, Utica, N. Y.
NEW YORK, Western.—E. H. Eaton, Hobart College, Geneva, N. Y.
NORTH DAKOTA.—Prof. O. G. Libby, University, N. D.
NORTH CAROLINA.—Prof. T. G. Pearson, 1974 Broadway, New York City.
OHIO.—Prof. Lynds Jones, Oberlin College, Oberlin, Ohio.
OKLAHOMA.—Dr. A. K. Fisher, Biological Survey, Dept. of Agr., Washington, D. C.
OREGON.—W. L. Finley, Milwaukee, Ore.
PENNSYLVANIA, Eastern.—Witmer Stone, Acad. Nat. Sciences, Philadelphia, Pa.
PENNSYLVANIA, Western.—W. Clyde Todd, Carnegie Museum, Pittsburgh, Pa.
RHODE ISLAND.—H. S. Hathaway, Box 1466, Providence, R. I.
SOUTH CAROLINA.—Dr. Eugene Murphy, Augusta, Ga.
TEXAS.—H. P. Attwater, Houston, Tex.
UTAH.—Prof. Marcus E. Jones, Salt Lake City, Utah.
VERMONT.—Prof. G. H. Perkins, Burlington, Vt.
VIRGINIA.—Dr. W. C. Rives, 1723 I Street, Washington, D. C.
WASHINGTON.—Samuel F. Rathburn, Seattle, Wash.
WEST VIRGINIA.—Dr. W. C. Rives, 1723 I Street, Washington, D. C.
WISCONSIN.—H. L. Ward, Public Museum, Milwaukee, Wis.

CANADA

ALBERTA.—G. F. Dippie, Calgary, Alta.
BRITISH COLUMBIA, Western.—Francis Kermode, Provincial Museum, Victoria, B. C.
BRITISH COLUMBIA, Eastern.—Allan Brooks, Okanagan Landing, B. C.
MANITOBA.—Ernest Thompson Seton, Cos Cob, Conn.
NOVA SCOTIA.—Harry Piers, Provincial Museum, Halifax, N. S.
ONTARIO, Eastern.—James H. Fleming, 267 Rusholme Road, Toronto, Ont.
ONTARIO, Western.—W. E. Saunders, London, Ont.
QUEBEC.—E. D. Wintle, 189 St. James Street, Montreal, Canada.

MEXICO

E. W. Nelson, Biological Survey, Department of Agriculture, Washington, D. C.

WEST INDIES

C. B. Cory, Field Museum, Chicago, Ill.

GREAT BRITAIN

Clinton G. Abbott, 153 West 73d St., New York City, N. Y.

Notes from Field and Study

Bird-House Tenants

A bird-house has stood for several years on a pole in front of our "Wickiup" in the woods on the outskirts of Washington, D. C. It is a ten-room Martin house built in Jacob's best style, but so far not a Martin has deigned to occupy it, though there is a large colony only half a mile distant. I had supposed that one reason was that the Bluebirds came early and were already in possession when the Martins arrived, but this year the severe winter so sadly reduced the Bluebirds that not one appeared around the house, yet still no Martins visited the premises.

The bird-house has ten rooms, and, though each of these has in turn been occupied, there has been no time in all the years when two families were living there together. In 1911, the Bluebirds came first and dallied in the neighborhood for a month. Just as they finally began building, a pair of House Wrens appeared, which had occupied a room in the house late the previous season. An active warfare ensued that lasted for several days, and had not yet been decided when a pair of Great-crests took a hand in the scrimmage. These latter had nested for years in the woods behind the house, but this season they determined to come out into the open. They routed both Bluebird and House Wren, built in one of the rooms of the Martin, and successfully reared their family. The House Wren then retreated to a knothole in a nearby fence-post, where a Carolina Chickadee had raised a brood the previous year. The hole was so small that the Wren could not bring in even one stick, and laid the eggs on the remains of the Chickadee nest.

The young Wrens left the nest two days before the young Great-crests were ready to launch out into the world. Those two days were days of trouble for the Great-crests. The Wrens wanted the bird-box for their second brood, and were not bashful in proclaiming the fact. Mr. Wren would alight on the bushes under the house and sing his loudest. Accepting the challenge, out would come Mrs. Great-crest and drive him off, only to find him back again as soon as she returned to her household duties. After two days she carried off her family, and within an hour the Wrens began bringing sticks. In due time they departed with their second brood, and in less than a week the Bluebirds appeared and took an apartment for their second venture.—WELLS W. COOKE, *Washington, D. C.*

A Narrow Escape

It is not often that one sees attempted murder in the broad daylight in New York City, at least within the confines of a theological seminary.

As I was crossing the quadrangle of Union Theological Seminary (at Broadway and 120th Street) on the afternoon of Oct. 28, I became aware of something swooping like an arrow toward the ground. The next instant I heard a feeble bird-cry of terror, and the sound of soft bodies striking the stone walls of the building. As I ran forward to discover what had happened, a male Sparrow Hawk, disturbed by my approach, sailed past and, mounting easily to the chapel tower, perched on one of the pinnacles and peered down to await developments.

At the base of the wall lay a Chickadee flat on his back, with bill open, gasping for breath, his black eyes shining and his heart fluttering with mortal fear. Picking him up, I soon ascertained that no bones were broken and that his chief difficulty was shock and loss of breath. Meanwhile the hawk, foiled of his prey, spread wings for other haunts and sailed disdainfully away.

The Chickadee spent the rest of the

afternoon in my room in a large box, with plenty of holes for air and with abundant food and drink. When I returned to him about dusk and opened the box, he hopped out on my finger, ruffled his feathers, and looked about. Thence he hopped to my shoulder, then to my head, and finally spread his wings and fluttered to the picture-moulding.

After seeing him fly easily about the room for several minutes, I directed him toward the open window and saw him disappear in the twilight, apparently none the worse for his narrow escape.—TERTIUS VANDYKE, *New York City.*

Another November Black-Throated Blue Warbler

Reading the note on 'A November Black-throated Blue Warbler,' by Miss Isabel D. Martin, in the March-April 1912 number of BIRD-LORE, prompts me to add that I had a Black-throated Blue Warbler that very same day. It was caught by my brother in the upper hall of our home, about 11 A.M. It was a male bird in fine plumage and apparently in the best of condition. This bird was seen by a family of five, and kept in captivity until the middle of the afternoon, when I liberated it.

We had a severe wet snow-storm the night before, and perhaps it sought shelter. Could there have been a small wave of these birds at that time? It would be interesting to know if any other observations or records were made.—GEORGE P. ELLS, *Norwalk, Conn.*

Additional Notes on Montana Bobolinks

In view of the fact that the range of the Bobolink in the East is believed to be decreasing, bird-lovers generally will be gratified to know that the numbers of this rare song bird in the West are apparently increasing. This is the case in the section where I live, Gallatin Valley, Montana. In 1888–1890 Richmond and Knowlton found but one flock here, while in 1908–1909 Saunders noted them in many places throughout the valley.

The birds were a little later than usual in coming this spring (1912). On the evening of May 28, a favoring breeze brought to my ears the tinkling melody of their song. As they fly at night in migrating, they had probably been in the meadow all day. Taking my field-glass, I went out to take a census of the flock. Walking from one side of the meadow to the other, I counted twelve birds, eleven of which were males. Assuming that every Jack has his Jill, this would mean 11 pairs—the largest flock of arrivals I have ever seen in this vicinity.

The conditions here, both natural and artificial, during the breeding season, are quite favorable for the birds. Severe storms, which might destroy the eggs or young, are not frequent; and their natural enemies—as owls, skunks, minks, weasels, and the stray house-cat—are not numerous. Then the hay harvest comes so late here that the young birds are not in much danger of being caught by the sickle, unless it should be a belated nest. A couple of days before the hay was cut this year, I visited the meadow and found the young birds strong on the wing. By the last of August the flock had started on its long southern journey.—NELSON LUNDWALL, *Bozeman, Montana.*

A Meadowlark's Unusual Nest-Site

During the summer of 1909, while target practice was being conducted by the U.S. Marine Corps at the range of the Bay State Rifle Association at Wakefield, Mass., I had occasion to observe an unusual nest-site, and the action of the parent birds through trying times.

On account of low ground on the range, it was necessary to elevate the firing point at many places. This was done by raising low mounds of earth, about three feet high, and three feet wide and many yards long, so as to accommodate a line of men. The range that these firing mounds were on was used for the skirmish run.

In conducting the skirmish practice, the men are assigned to targets. They are then formed in rear of the 600-yards firing point, each man opposite his target. At commands, the skirmish line advances and fires a prescribed number of shots at 600, 500, 400, 350, 300, and 200 yards.

At the 400-yard firing point was one of these firing mounds, on the far side of which was the nest of a Meadowlark, with the usual number of eggs. This nest was directly in line with one of the targets, so that the muzzle of the rifle of the man lying on the mound was directly over the nest, not more than two feet above it.

At first, when the firing skirmish line was about 100 yards distant, the birds would fly away; but, as the practice continued, they got more and more accustomed to the noise, and would allow the men to approach nearer and nearer before leaving the nest, to return at once when the firing ceased at that point.

As the time came for the eggs to hatch, one of the birds would remain in the nest throughout the firing, even when a gun was being discharged directly over its head and not more than two feet off. The Marines always used great care on their advance not to harm the nest, and the man who drew the target which necessitated his shooting over the nest considered himself in great good luck.

Finally the eggs hatched, and the young birds were brought up, so to speak, under fire. The daily firing of rifles directly over their heads did not disturb them in the least. The birds left when the young were old enough to look after themselves, and their disappearance was regretted by all the Marines, as they were considered the mascots of the range.—Robert L. Denig, *St. Paul, Minn.*

Bluebirds in Dorchester County, Md., During 1912

The Bluebird is a common summer and winter resident of Dorchester County. Small flocks of 8 or 10 are quite common, and were even common everywhere during the winter of 1911-1912 until the cold snap came in the first part of January. On account of this protracted spell of cold weather, I think it is quite probable that thousands of Bluebirds perished.

The season of 1912 brought forth a very meager supply of notes regarding this species. On March 18, about 12.30 P.M., I saw a single bird, and, later in the afternoon, a pair. I had supposed at that time that the Bluebirds had migrated further south at the beginning of the cold snap, and that this was the beginning of their spring migration. As the season advanced without seeing any more and without finding any nests, my alarms increased. However, on July 14, I found a pair nesting in a hollow post quite distant from the house. Thus ended the migration and nesting period for 1912.

Later in the fall, October 30, if I remember right, I saw a pair sitting on a telephone wire. Afterward, on one or two occasions, I saw flocks of 8 or 10 flying high and going south.

The reports for 1913 seem favorable, so far. On January 19 I saw 10 birds, and on February 10 observed seven. On February 13 I saw three different flocks of five, six, and eight, respectively, all going due north. So I think that in time the Bluebirds will reëstablish their former numbers, although they suffered a severe loss in the winter of 1911–12.—Ralph W. Jackson, *Cambridge, Md.*

The Starling in Massachusetts

The first known record of the Starling (*Sturnus vulgaris*) in Bridgewater was obtained on January 16, 1913, when one of these birds was seen perching upon the spire of the Congregational Church. The next day five Starlings were seen flying about the church weather-vane.

Since then these birds have been found several times, but never more than five together. While observing them one day, I heard them give the notes of the Wood Pewee, and also a perfect imitation of the Blue Jay's cry.—Harold W. Copeland, *Bridgewater, Mass.*

Book News and Reviews

THE HOME-LIFE OF THE TERNS OR SEA SWALLOWS. By W. BICKERTON. Witherby & Co., 326 High Holborn, London, W. C., 1912. 4to, 88 pages, 32 plates. Price 6s. net.

This is the fourth volume in 'The Bird-Lover's Home-Life Series.' Like two of its predecessors (the Golden Eagle by Macpherson and Osprey by Abbott), it is of especial interest for American readers, since the species of which it treats, or closely allied species, nest also in this country. They are the Sandwich and the Lesser Terns, Old World representatives respectively of our Cabot's and Least Terns, the Common, Roseate, and Arctic Terns.

In Great Britain, the author states, the Arctic Tern is the most abundant and widely distributed, "the Common Tern is also very numerous, the Lesser Tern less so, while the Sandwich Tern is decidedly rare, and the Roseate extremely so. . ."

The author's observations, without being especially intensive, present a general and comparative review of the nesting-habits of this subject, while his photographs are admirable representations of birds which make particularly attractive marks for the bird student with a camera. —F. M. C.

REPORT ON THE IMMIGRATIONS OF SUMMER RESIDENTS IN THE SPRING OF 1911. Also Notes on the Migratory Movements and Records Received from Lighthouses and Light-vessels during the Autumn of 1910. By the Committee appointed by the British Ornithologists' Club. Edited by W. R. OGILVIE-GRANT. Bull. Brit. Orn. Club, Vol. XXX, November, 1912. London Witherby & Co., 326 High Holborn, 8vo, 332 pages, 19 maps.

This Bulletin, like its predecessors, contains reports on the movements of the commoner migrants of England and Wales by a corps of observers acting in coöperation with a committee of the British Ornithologists' Club. In addition to details of weather conditions and chief movements, and comments on rarer species, the report gives at length the data for some 30 species, the migrations of which, in most instances, are summarized graphically on charts.

Although southern England is ten degrees farther north than New York City, the following paragraph from the Committee's Introduction almost exactly describes the rise and fall of bird migration near that city, except that the maximum appears to have been reached in England about one week earlier:

"The spring migration commenced on the 10th of March, and continued until the 29th of May. During March the influx, though daily increasing, was very slight. The main movement seems to have begun about a month later, and during the latter half of April there were three distinct waves of migration—on the 17th and 18th, on the 23d, and on the 27th and 28th—each of increasing intensity. There was another large influx on the 5th of May, after which, with the exception of two much smaller movements on the 13th and 16th, the migration gradually subsided."—F. M. C.

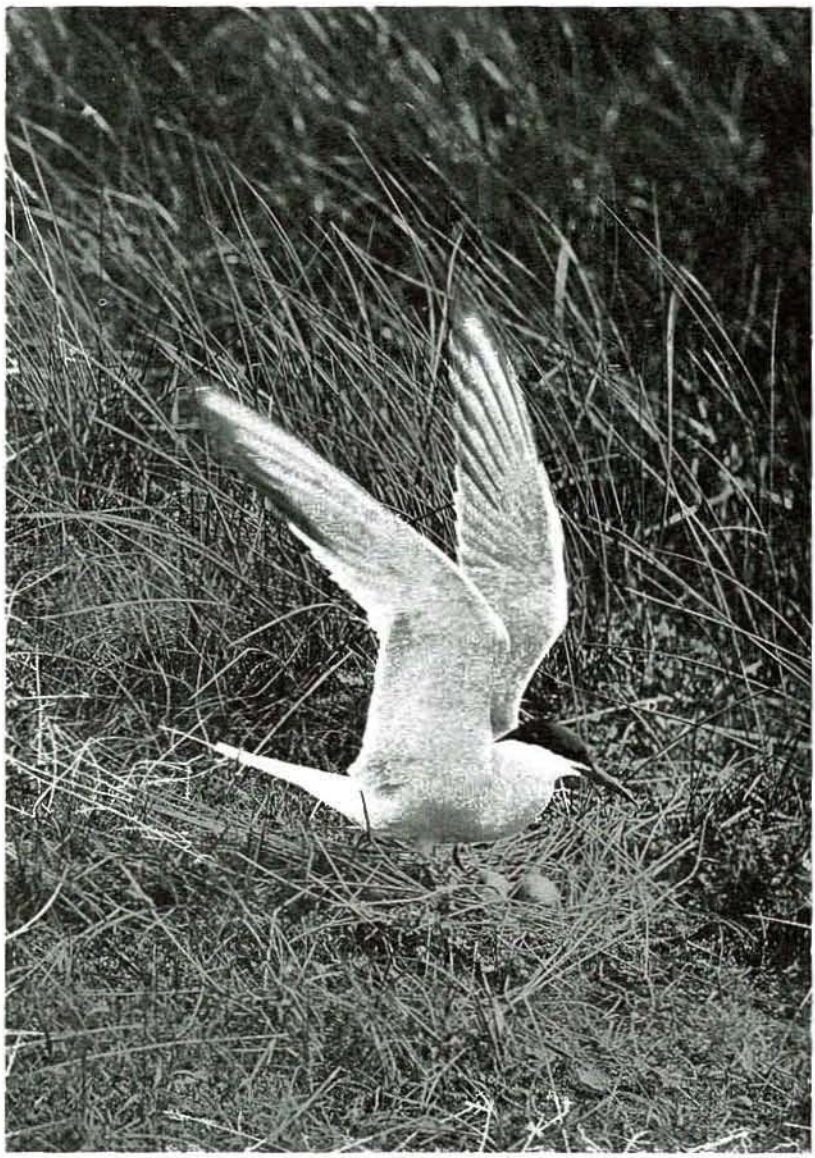
The Ornithological Magazines

THE AUK.—Readers of the January issue will find an unfamiliar group of birds on the front cover, in place of the old design so long familiar to readers of The Auk.

Within the covers are many articles and items of interest to bird students and others. In 'Some More Labrador Notes' Dr. C. W. Townsend tells of a trip up the Natashquan River illustrating it with half-tones of the country. Prof. H. L. Clarke in 'Notes on the Panama Thrush-Warbler' concludes, largely on anatomical grounds, that the bird is a Tanager. Dr. R. W. Shufeldt, in 'Contributions to Avian Palæontology,' discusses the status

of fossil Wild Turkeys with a plate showing bone fragments, and also takes up the fossil birds of the Oregon desert.

As an example of careful observations concentrated on a familiar species, we commend Dr. W. H. Bergtold's 'A study of the House Finch.' Well-directed efforts of this sort contribute much to our general knowledge, and are within the reach of every bird student. One of the striking facts here brought out is that, in spite of great mortality among the



COMMON TERN AND NEST
From Bickerton's 'Home-Life of the Terns.' Courtesy of Witherby & Co.

young from various causes, the species as a whole thrives and increases. Probably its worst enemy is the English Sparrow which, according to our author, is held responsible for sixteen per cent of the mortality.

Among 'Eighteen Species of Birds New to the Pribilof Islands,' recorded by Prof. B. W. Evermann, four are new to the North American list. Mr. W. S. Brooks, at p. 110, also records a species new to the list, viz., the Bahama Duck (*Pœcilonetta bahamensis*).

Under the title 'An Essex County [Mass.] Ornithologist,' Dr. G. M. Allen publishes much of interest from the notebooks of the late Benj. F. Damsell, an ornithologist who for upward of thirty years hid his light under a bushel. Dr. F. Overton and Mr. F. Harper are pioneers in 'Bird Photography by the Direct Color Process,' and praise the autochrome plate and its possibilities. Miss A. R. Sherman contributes notes on the 'Carolinia Avi-fauna in Northeastern Illinois.'

Mr. G. M. Mathews, in writing 'On the Generic names *Ibis* and *Egatheus*,' displaces *Ibis* in part. Another partial dislocation to shock the rank and file of ornithologists! To get to enjoy these nomenclatural niceties is much like cultivating a taste for caviar.

The controversy over concealing and protective coloration is continued by Mr. T. Barbour in 'A Different Aspect of the case of Roosevelt *vs.* Thayer.' Controversies of this sort are often good reading, but they never settle anything. See, also, Mr. F. M. Chapman's letter at p. 147.

Mr. John Sage's annual report as Secretary shows the A. O. U. to be flourishing, and the Reviews show what an immense amount of activity there is in the ornithological world. The Correspondence department covers several pages, including strictures on the 'Check List' by Dr. L. B. Bishop, and various other items of interest may be found here and in other sections.—J. D. Jr.

The Condor.—The November number of 'The Condor' contains four general articles. In a 'Study of the Eggs of the Meleagridæ,' Dr. Shufeldt shows the wide variation in color and markings in the eggs of the common Wild Turkey, and refers briefly to the characters of size and markings in those of other forms. Willard contributes a description of the 'Nesting of the Rocky Mountain Nuthatch' in the Huachuca Mountains, Arizona, illustrated with two fine photographs of the nesting cavity and the eggs. He notes that a cavity with a long, narrow opening in an oak is usually selected, and the nest is composed of skunk and squirrel fur and cow and deer hair. The eggs ordinarily five in number, but sometimes three and occasionally as many as six, are usually deposited during the last week in April or in early May.

In 'A Horseback Trip across Montana,' Saunders gives an interesting running account of the birds observed each day from July 10 to 16, 1911, during a journey from Bozeman to Chouteau. The paper is more readable than it could be if it were presented in the usual form of a list of species, but the valuable notes which it contains may not be cited by some authors because of the omission of scientific names.

Mrs. Myers' description of the 'Nesting Habits of the Western Bluebird' is based on observations of a pair of Bluebirds which bred in April, 1910, in Sycamore Grove, one of the city parks on the outskirts of Los Angeles.

Mention should also be made of the recommendations recently submitted by the Conservation Committee of the Cooper Ornithological Club to the Fish and Game Commission for the amendment of the California game laws. The recommendations include closing the season indefinitely on the Red-head and Wood Duck, protection of the Band-tailed Pigeon, and removal of the Mourning Dove, Rail, Ibis, and all shore-birds, except Wilson's Snipe, from the list of game-birds. The number concludes with a general Index to the volume for 1912, which, with the exception of that for 1908, is the largest volume thus far published in the series.—T. S. P.

Bird-Lore

A Bi-Monthly Magazine
Devoted to the Study and Protection of Birds
OFFICIAL ORGAN OF THE AUDUBON SOCIETIES

Edited by FRANK M. CHAPMAN
Contributing Editor, MABEL OSGOOD WRIGHT
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SUBSCRIPTION RATES

Price in the United States, Canada and Mexico, twenty cents a number, one dollar a year, postage paid.

Bird-Lore's Motto:
A Bird in the Bush Is Worth Two in the Hand

THE American Museum Colombian Expedition of 1913, which sailed from New York on January 8, arrived at Barranquilla on January 20. As a bit of fortune the traveler in tropical America does not often encounter, a steamer for our destination, the Upper Magdalena, was found sailing that day. Furthermore, it was a steamer of the slowest variety, making frequent and long stops and puffing painfully between them.

Our friends in Barranquilla strongly advised us to wait five days for the express steamer, which would arrive at La Dorada, distant some 600 miles, and the head of navigation on the lower half of the Magdalena, several days in advance of the one we proposed to take, and could not be made to understand why we should prefer the heat, mosquitos, and poor fare of a river steamer to the comparative comforts of Barranquilla. The results, however, as we had anticipated, more than justified our decision.

The Captain of the 'Margarita,' to whom we explained the objects of our trip, expressed unbounded interest in our plans, and with characteristic Spanish cordiality assured us that the business of the 'Margarita,' when compared with ours, was of no importance whatever! He would stop the steamer at any and every point we desired and we should stay as long as we pleased, while the study of birds should be the sole object of the voyage!

Making due allowance for that type of politeness which presents to the newly-arrived guest the host's house and all its contents, the Captain of the 'Margarita' nobly lived up to his promises. The voyage to La Dorada required twelve days, and for ten of these we passed through a luxuriant lowland forest, where from the steamer one could see, at satisfactory distances, the blue and yellow and scarlet, green and blue Macaws, several species of Parrots, Sacred Vultures, Horned Screamers, Southern Black Skimmers and Great-billed Terns, both of which range as far up the river as La Dorada, and many other species; while not infrequently groups of Capybaras were passed on the shores, and on one occasion five howling monkeys and a sloth were seen in one tree. On the sand-bars, or 'playas,' exposed by the low water of the dry season, hundreds of crocodiles with wide-open mouths dozed in the sun, while the great Cocoi Herons stalked about near them.

The surprising amount of wood consumed by the steamer necessitated two or three stops daily to replenish the supply. These stops were usually made at wood-cutters' camps on the edge of the primeval forest where, beyond the small clearing made in felling trees for fuel, we were confronted by a forest wall, penetrable only by a few narrow trails which, fortunately for us, usually could be found.

Due notice was given us of these landings, and we were ready to go ashore the moment the steamer touched it, while a warning whistle advised us when, reluctantly, we should return to the boat. Under these most favorable conditions we made excellent use of our opportunities, and on arriving at La Dorada had secured a collection of the more representative species, as well as some by no means common.

It is impossible, at this point, to go into details concerning the birds observed; but at least mention may be made of the "North American migrants," of which we have noted eighteen species in the Magdalena Valley.

The Audubon Societies

SCHOOL DEPARTMENT

Edited by ALICE HALL WALTER

Address all communications relative to the work of this department to the editor, at 53 Arlington Avenue, Providence, R. I.

METHODS AND PRACTICE

Under the heading, "The Opportunity of the Audubon Society" (see Nov.-Dec. 1912 issue of BIRD-LORE), fifteen questions were suggested for the consideration of state societies and other organizations interested in birds and bird protection. The following communication from North Dakota is not only much appreciated by this department, but it is also of interest to those who wish to see practical methods in operation.

METHODS OF WORK IN NORTH DAKOTA

I note the questions in your department of the December issue of "BIRD-LORE," to which you wish replies from various Audubon Societies.

As President of the North Dakota Audubon Society, and one interested in furthering bird- and nature-study in the schools, I am glad to send you the following information:

1. We are pretty well informed in North Dakota regarding the quantity and kind of nature-study, as I have prepared most of the outlines for this work, both for the grades and high schools of the state.

2. There is not a supervisor of nature-study, to my knowledge, within the state, though we have a state high school inspector.

3. Teachers do appear to be glad to receive assistance in this work. We have helped in a number of places through the giving of illustrated lectures. We are just sending out from the College, also, to most of the teachers in this state, copies of our extension bulletin, which we hope may be of value to the teachers in directing their work and pointing them to sources of further information and material.

4. We do know what teachers' conventions are held in the state, and that addresses on Bird-Study have been given in a number of these, and we hope to continue and extend this work.

5. We have not yet arranged a traveling collection, but we do have a traveling pamphlet library which is available for loans to teachers throughout the state.

6. I have personally visited a number of the libraries of the state, and checked up the literature they have on bird- and nature-study, and am plan-

birds are taken up with particular reference to insects, rodents and weeds, followed by a short description of the societies, federal and state reservations, legal protection, methods of home protection, and the biological survey (recently undertaken) in North Dakota for the study and preservation of birds.

A detailed guide to studying birds and teaching others about birds follows, not too long to discourage the beginner, and stated clearly and simply enough for the busiest teacher's convenience, with an enumeration of the birds of the state by orders, and, under the order *Passeres*, by families, and also a list of birds according to seasonal occurrence.

The last six pages of the bulletin are devoted to "topics suggested for investigation and club papers." "literature and other materials helpful in bird-study in North Dakota," such as manuals and guides for identifying birds, books upon special topics for teachers and adults, books for children, books for general reading, magazines devoted to bird-study, bulletins, educational and special leaflets, slides for stereopticon lectures, colored pictures, and a list of lectures. The price of each book mentioned is given, while a bird topography fills the space left on the final page.

Such a bulletin covers a great many practical points, giving in a nutshell exactly the information which busy people need and want. Each state society would do well to consult the general and city superintendents of schools in its state, to find out how best to coöperate along educational lines already in practice. Many of these officials would welcome the opportunity to obtain the services of a trained bird student, through the Audubon Society, to prepare educational bulletins or bird and arbor day programs, and to send the same to every school or teacher in the state.

Where a State Ornithololgist is appointed regularly, such work properly belongs to his office; but wherever such an official does not exist, the Audubon Society may well claim this opportunity and field of work.

One suggestion given in the North Dakota report is being tried elsewhere with success, namely, giving to persons joining the State Audubon Society a book or other printed matter. A short list of material for such a purpose is printed below.

1. A year's subscription to BIRD-LORE by special arrangement, together with a year's membership fee, $1.
2. How to Attract and Protect Wild Birds by the Von Berlepsch Method, 50 cents.
3. Educational leaflets, by the dozen or hundred.
4. Colored pictures, by the dozen or hundred (A. W. Mumford, Chicago, or The Perry Picture Co., Boston, Mass.).
5. The Nature-Study Review (University of Chicago, School of Education, Chicago, Ill.), $1.

Apply to the National Association of Audubon Societies, 1974 Broadway, New York, for the matter mentioned under 1, 2, and 3.

There are also several desirable field note-books and inexpensive handbooks available, besides very helpful local handbooks, the titles and prices of which may be had from this department. Several interesting books have been written about birds found in city parks and small reservations, which suggest in a very practical way the value of bird-study in limited areas.—A. H. W.

JUNIOR AUDUBON WORK

For Teachers and Pupils

NOTE.—In view of the fact that Junior Audubon Societies are increasing so rapidly, it has been suggested that this section of the School Department be especially addressed to Junior Audubon members, although all teachers and pupils are included in the work outlined here. To make these outlines most useful, criticisms, questions, and helpful experiences should be freely sent in to the School Department.

Exercise VIII: A Review in Preparation for Bird and Arbor Day

Correlated Studies: Geography, Reading and Elementary Agriculture

THE PALM AND THE PINE

(From the German of Heine)

In the far North stands a Pine-tree, lone,
  Upon a wintry height;
It sleeps: around it snows have thrown
  A covering of white.

It dreams forever of a Palm
  That, far i' the Morning-land,
Stands silent in a most sad calm
  'Midst of the burning sand.

—Written at Point Lookout Prison in 1864, by SIDNEY LANIER.

Perhaps, the German poet Heinrich Heine and his American interpreter, Sidney Lanier, also a poet, did not think of the birds which fly from the burning tropics to the wintry North, when they penned the words of this poem; but surely, of all Nature's children, only the birds can bridge the distance between the Palm and the Pine, following up and outdistancing Spring on their wonderful migration journey.

During the last year, we have taken up, in a brief and general way, the principal migration routes of birds in North America, and also the orders and passerine families of the birds of this country, together with the life-zones or faunal areas in which they may be found.

It is true that much of this information may seem somewhat hard to grasp, and it may sometimes be questioned whether it is worth while to try to know so many facts about the life-history and environment of birds; but let us stop to

think of the advantages of studying birds carefully and in a somewhat scientific manner. If a famous traveler or travelers should visit our neighborhood once or twice a year, would it not be worth while to learn the real names by which they are known all over the world, as well as the common names and nicknames by which they might happen to be called in certain localities; and would it not also be of rare interest and advantage to find out all we could about the remarkable journeyings of such strangers?

Each one of our bird-neighbors represents a family, whose habits at home and wanderings abroad are as full of charm and instruction as those of any human folk, did we but know how to get at the meaning of them.

Some of our feathered friends spend most of the year with us, and become nearly as familiar to many of us as the trees about our homes or the scenes we know best.

These "permanent" bird-residents seem much easier to become acquainted with than either the nesting species, which are with us only during the summer, or the winter residents and visitors, and far, far easier than transient species, which pass through our neighborhood once or twice a year, and stop, maybe, only for a day or a night while the leaves are budding or falling.

It may help us to remember the birds we have seen, if we make a simple outline and write their names in the proper places, something like this:

Permanent Resident	Summer Resident	Winter Resident	Winter Visitor	Regular Migrant
BLUE JAY Cyanocitta cristata cristata—crested cyano—dark blue citta—a bird that chatters	OVEN-BIRD Seiurus aurocapillus auro—gold capillus—hair seiurus—to shake the tail	JUNCO Junco hyemalis hyemalis hyemalis, or hiemalis—wintry, or belonging to winter junco—the origin of this word is unknown	SNOW BUNTING Plectrophenax nivalis nivalis nivalis—snowy, or growing in the snow plectro—a cock's spur phenax—a cheat	BLACKPOLL WARBLER Dendroica striata striata—striped, or streaked dendroica—a house and a tree, or a tree-dweller

Can you arrange the birds in your vicinity under these headings, learning the common name of each species, and, at least, looking at the scientific name, which is in two and sometimes three parts, describing the genus, species and subspecies to which the bird belongs?

The scientific names of birds are not half so difficult as they look; besides, most of them, when translated into English, contain interesting bits of description or history, which help one remember the birds. Thus, the Blue Jay, according to its scientific name, is a crested, dark-blue, chattering bird; the Oven-bird is a golden-haired bird that shakes its tail; the Junco is a bird belonging to winter; the Snow Bunting, on account of its long hind claw and conspicuous changes in plumage, probably, becomes a snowy cheat with a cock's spur; while the Black-poll Warbler is described as a striped or streaked bird whose home is in a tree.

All of the categories of birds mentioned in the outline attract us, but, at

this season, the migrants, or "spring travelers" and "summer neighbors," are especially interesting. Looking over the birds' map of North America, mountains, lakes, rivers, gulfs, plains and forests take on a new meaning, for over and through and across them run unseen highways, frequented by thousands of these feathered travelers. Strange dangers lurk along these mysterious paths, where areas of plenty are broken by inhospitable and foodless expanses.

Birds can fly long distances, it is true, but, in order to accomplish such journeys, they must be well supplied with food. As we have found, migrating birds fly along certain favored routes. It is well to keep these routes in mind, since it helps us to remember whence these birds come and where they go, and what species may be expected in any given locality.

Let us next make an outline of the different routes used by spring and fall transients, marking each route with a figure, and placing the same after the name of each species following that route.

PRINCIPAL MIGRATION ROUTES OF BIRDS IN NORTH AMERICA

1 Atlantic Coast Route	2 "Island" or "Bobolink" Route	3 Mississippi Valley Route	4 Route of the Plains or Interior	5 Pacific Coast Route

The birds traveling by route 1 are water-birds of powerful wing, which fly long distances without stopping to feed, coming up from South America to the far North.

Route 2 is used by species wintering in the West Indies or the northeastern part of South America. These birds enter the United States through Florida, keeping their course along the coast, or through the Middle States to and beyond New England, southern Canada, and the distant Northwest.

Route 3 is the great central highway for birds in America. It runs diagonally across the Gulf of Mexico from Central and South America, up through the broad Mississippi Valley, which is near the dividing line between the humid and arid parts of the country, on north, spreading out over central and northwestern British America, even into Alaska.

The route marked 4, through the Great Plains or interior of the western United States, is not so much traveled as either 2 or 3, and the same is true of route 5, since fewer species follow the all-land paths from Mexico and Central America northward.

When we stop to think of the enormous distances between the winter and the summer homes of many of our migratory species, the wonder of these mysterious spring and fall journeys grows upon us. Although we are learning something about *how* birds migrate, no one as yet knows *why* they migrate.

The birds' map of America spreads itself out before our eyes, not divided into states and territories, each marked by a capital city, with many or few notable places, as geographies show—no, not at all like this! For the birds,

there are no such arbitrary divisions made by man. Birds know only the dividing lines set by Nature's own hand—lines of temperature, of altitude, of humidity or aridity, which mark out areas suitable for the existence of species of certain habits and vigor. Man, indeed, has some power to interfere with Nature's bounds, for he can, at will, drain marshes, cut down forests, burn over vast tracts, or plant extensive fields with grains, crops, or orchards of fruit. He can even bring water into the desert and change the very face of Nature; and so, as we study the birds' map of America, we must all the time keep in mind what man is doing.

Let us now make a third outline, to help us remember what the map of the birds is like, and then try to answer a few questions as to what man is doing in his conquest of nature.

OUTLINE OF FAUNAL AREAS OF DISTRIBUTION IN NORTH AMERICA, ACCORDING TO DR. J. A. ALLEN AND DR. C. HART MERRIAM

Realm	Region	Sub-region	Province	Sub-province	District	Fauna
Arctic						Barren ground; Alaskan-Arctic
Isotherm of 32°. Tree-limit						
North Temperate	North American	Cold Temperate				Hudsonian; Canadian; Aleutian; Sitkan
		Warm Temperate	Humid	Appalachian		Alleghanian
				Austro-riparian		Carolinian; Louisianian
			Arid	Upper Sonoran	Great plains; Great basin; Pacific coast	Faunas not yet worked out
				Lower Sonoran		
	Euro-asiatic					
Isotherm of 70°						
American Tropical	Central American					Tamaulipan; St. Lucas
	Antillean					Floridian

1. Notice that there is little variation throughout the arctic realm, either in climate or topography, and that the majority of forms found there are *circumpolar* in distribution.

2. Notice that the cold temperate subregion is also an east to west division, being made up of *transcontinental* coniferous forests, except on the Pacific coast. Compare the temperature of Newfoundland with that of Lake Superior, Athabasca and Alaska.

3. Notice that the warm temperate subregion is more greatly diversified than the cold temperate.

4. Notice that the humid and arid provinces which make up the warm temperate subregion, form a north to south division along the 100th meridian, the dividing factor being the amount of annual rainfall.

5. Notice that the lower Sonoran subprovince comprises mostly open plains and deserts in the western United States.

6. Notice that there are two main highways from the American tropical realm into the North American and arctic regions. These are through Central America and The Antilles.

7. See Exercises, V, VI, VII, BIRD-LORE.

After studying these faunal areas which birds occupy for a part or the whole of the year, let us compare them first from north to south and then from east to west, and try to discover where the greatest abundance of food is found at different seasons, and where the best nesting-sites seem likely to be,—for these are the two great necessities of the birds' existence.

In our next exercise, we shall take up *The Bird at Home*. All that we can learn about the food, nests and nesting-sites and materials used by birds will help us to understand better why birds find congenial homes in so many and such diverse places.

1. Where has man cut down forests?
2. Where has man drained marshes?
3. Where has man brought water into arid lands?
4. Where has man planted extensive tracts of grain or single crops?
5. Where has man made large orchards?
6. How has man changed prairie and grazing lands?
7. What do you know about the Colorado desert and Salt Lake?
8. What do you know about the rice-fields of the East as compared with the rice-fields of Louisiana and Texas, in connection with the Bobolink?
9. What have you observed in your own locality with reference to bird-life, when timber-land was cut off, marshes drained, or houses were built up near together?
10. What can you find out about the pollution of water by naphtha launches, or other harmful matter, and its effect upon water-birds?
11. How is the Robin regarded in the East as compared with the West, and what is the cause of this difference of opinion?
12. What do you know about the increase or decrease of insect pests in relation to the number of birds in any locality?

The answers to these questions show how quickly birds are affected by noticeable changes in their environment, whether with respect to their food or nesting-habits. It might be well to take not only birds but all other forms of life into consideration in seeing whether man is improving nature or not. It has been said that man is always at war with nature; but at this season, when the trees and shrubs are budding and plants are everywhere springing into bloom, who can fail to feel the joy of being at one with the beautiful outdoor world, which is our home and the home of birds and all living things.

Small wonder is it that the poet, as he sat hugging the fire in winter, wrote:

> The sky is gray as gray may be.
> There is no bird upon the bough,
> There is no leaf on vine or tree.
>
> . . . . . .
>
> Slow creep the hours, slow creep the days,—

and then finished this winter song by exclaiming,

> Just wait till bluebirds, wrens, and jays,
> And golden orioles come again!

The same pen set down the thought of our kinship to nature in these rare lines:

> When first the crocus thrusts its point of gold
> Up through the still snow-drifted garden mold,
> And folded green things in dim woods unclose
> Their crinkled spears, a sudden tremor goes
> Into my veins, and makes me kith and kin
> To every wild-born thing that thrills and blows.
>
> —THOMAS BAILEY ALDRICH.

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BIRD-LORE and National Geographic Magazine (see back numbers).—A. H. W.

FROM YOUNG OBSERVERS

Observations on the Habits of Birds

While walking along the street one day, I heard a queer sound, but did not know what it was, although it sounded somewhat like a bird. As I could not see, I made up my mind to hunt until I could find out what it was. After about fifteen minutes' hunt, I saw two birds that were about as large as blackbirds, and were like blackbirds in every respect; but, as I got closer to them, I saw that they were of an iridescent olive-green, which made me think they were Purple Grackles. These birds were hopping around from tree to tree, as if looking for a good location to build a nest; but suddenly the birds stopped hopping and lighted on a branch where, after a while, they started to bring straw and other material to build the nest. The location which they found was a splendid one, because it was pretty well hidden from sight. I should have liked to stay longer with the birds; but, as I was to hurry home, I went. I did not go to see the birds again until one Sunday morning. On that morning I did not see the nest, but the birds were still there, and were hopping about and chirping as if something had happened. I do not know if some bird had robbed the nest and then torn it down, or if the wind had blown it down. Although I looked around, I could not see the nest; so, if the wind had blown it down, some one had found it before I got there.—ZYLPHA O'ROURKE (age 13), 7th Grade, *Chelsea, Mich.*

On April, 7, 1912, in front of our house there were two Robins. The female was watching for something. She was hopping around anxiously. In about

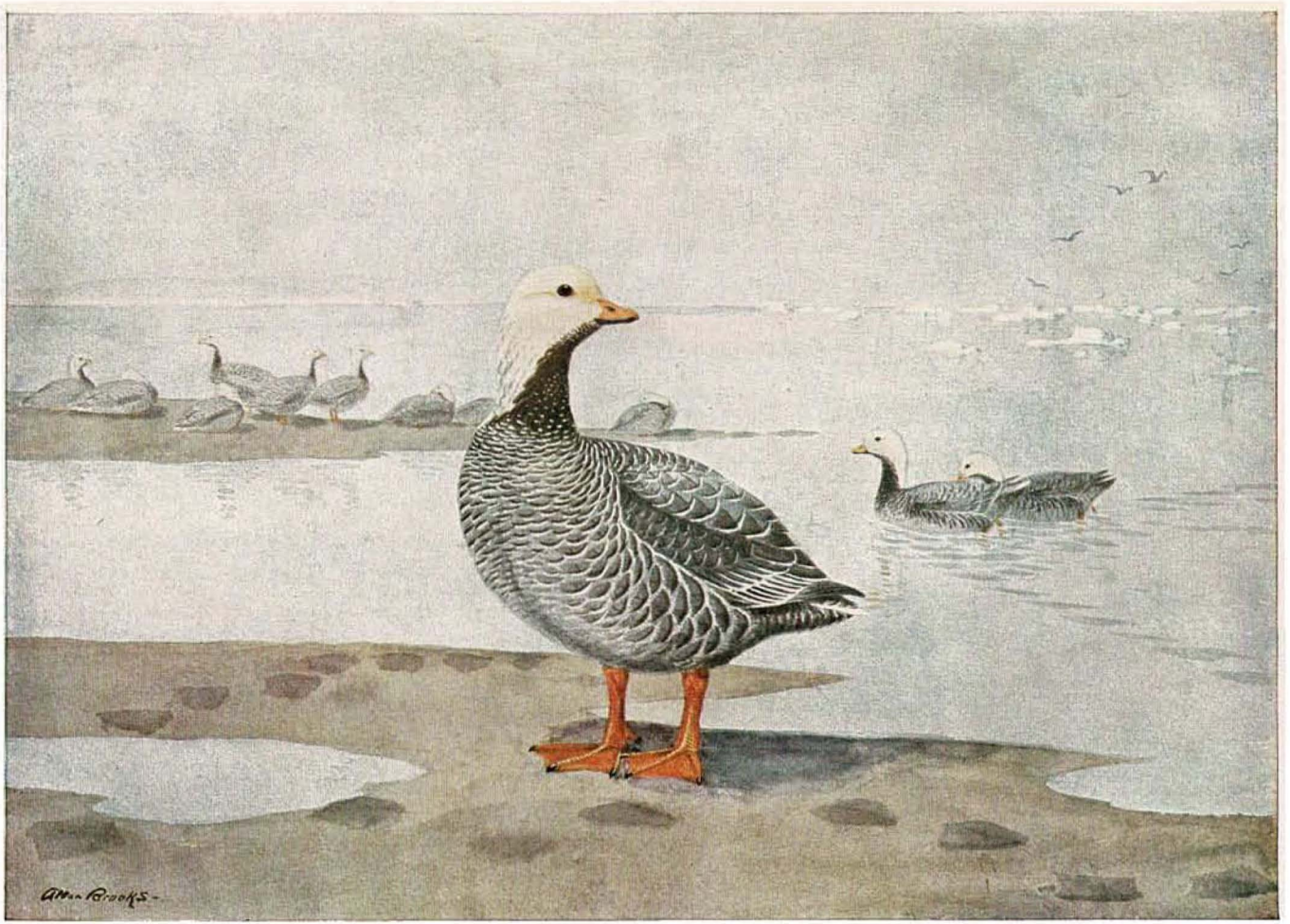
ten minutes after the female's restlessness, the male came. Then they flew into a tree near by and began to chat with each other, and in about two minutes they flew away again. On April 8, they were in the same place as they were on the day before. I saw the female fly into the tree where they were the day before. The male flew away. In a little while he came back with some string in his beak. The female began to call anxiously when she saw him coming. They began to build their nest right away, and before night it was finished. On April 10, two days later, the female was sitting, and the rest of that week the male was busily engaged bringing the female food. On April 22, the female was with the male getting food. I watched them, and I saw five little mouths open to the two older birds. They fed them faithfully until May 11, then the two old birds flew to the ground with all of their little brood, and on May 12, we found three of the little birds dead. I think the storm that we had on the night of May 12 killed them.—ELEANOR NEAKEL (age 12), 7th Grade, *Chelsea, Mich.*

Once upon a time, about the 27th of April, we boys were out in the woods, and we were out all day. We saw some Robins and Orioles. The Robins had their nest in the tree we were under. We climbed up the tree, and the nest had four eggs in it. On the way home we stumbled over a bog,* and a little Meadowlark flew out of it. It had four eggs in its nest. When we were coming across the marsh, we saw two Kingfishers and an Oriole. When we were nearly home, we saw a Wild Canary or Goldfinch. This winter I made a birdhouse and put food in it, and put it up high enough so no dogs or cats could get into it, but no birds came there. A few days ago I saw a flock of Geese go over towards a marsh. Out in the woods we saw a lot of Orioles and lots of Robins. Last night I saw a Barn Swallow and some bats. As I was coming home from school I saw three English Sparrows fighting over a nest. It was a Robin's nest.—GLEN TROTEN (age 13), 7th Grade, *Chelsea, Mich.*

[The observations given above show how much one may see of outdoor life, when ear and eye are on the alert. It would interest these young people to read *The Home-Life of Wild Birds*, by Herrick, now that they are aware of some of the interesting things birds are doing about them. A college professor once complained that the class of young ladies he took out to observe the birds during the spring saw and heard little unless he pointed out just what to look at, or called attention to the various sounds one might hear who really listened for Nature's voices. The trouble with these students was that they had never been taught to look and listen. They had always studied books and learned to remember what they read, but they knew nothing about studying without a book.

The great value of bird- and nature-study is that it helps people to find out things by themselves, making their eyes keen to see, their ears to hear, and their minds *to grasp facts which are not set down in print.* Training of this kind makes education a pleasure and not a task.—A. H. W.]

*Used locally in the United States, according to Webster, for "a little elevated piece of earth in a marsh or swamp, filled with roots and grass."—ED.



EMPEROR GOOSE

Order—ANSERES Family—ANATIDÆ

THE EMPEROR GOOSE

By E. W. NELSON

The National Association of Audubon Societies
EDUCATIONAL LEAFLET No. 64

Among all the Wild Geese which make their summer home in the far north—both in the Old and the New World—the Emperor Goose is the least known and most beautiful. Its snowy white head, dusky throat, satiny gray body, on which each feather is marked by a black crescent and white margin, and the brilliant orange feet, make a strikingly handsome combination of colors. When the males first arrive on their breeding-grounds in spring, the beauty of their plumage is remarkable, but much of its satiny luster goes with the advancing season.

Although the breeding-range of the Emperor Goose covers parts of two continents, yet it is perhaps more restricted in its territory than any other species of northern Goose. Its summer home lies along the coasts on both sides of Bering Straits, but so far as we know, the vast majority of them breed in Alaska, mainly on the islands of the lower part of the Yukon delta, and thence southward on the low marshy tundras to Cape Vancouver and nearly to the mouth of the Kuskoquim River. A few stragglers nest north of the mouth of the Yukon. Considerable numbers also breed on St. Lawrence Island, where I have seen many flocks in June. They also rear their young on the shores of Chukchi Land, in extreme northeastern Asia. We saw them coasting along the beach near East Cape on the Siberian side of Bering Strait the first of July, and they must have been breeding in that district. When Nordenskiöld wintered at Tapkan, on the Arctic Coast of Siberia northwest of Bering Straits, he noted the arrival of these birds near his winter-quarters as soon as the snow left the tundra in spring. This is the most western record we have of them in Siberia, but they no doubt range still farther. Their main wintering place appears to be on the Pacific, or southern, side of the Peninsula of Alaska and the Aleutian Islands. The Aleuts know them as "Beach Geese," owing to their persistent occupation of the seashore. Stray individuals wander far down the American coast in winter, even to northern California, where several, mostly immature birds, have been captured. They also go as far as the Hawaiian Island, and Mr. Henry W. Henshaw records the capture of four on Hawaii, where they arrived, with other stray visitors, after a severe October gale, in 1902. On the coast of eastern Asia, we have records of them as far south as Bering Island, the mouth of the Anadyr River, and the coast of Kamtschatka. On this coast, however, we do not know of their presence in any large numbers.

While I was preparing to go to Alaska, more years ago than I like to contemplate, the Emperor Goose, Steller's and Fischer's Eiders, and the Aleu-

tian Tern were names to conjure with, and the anticipation of studying these birds in their remote northern homes filled me with joy. In the North, my headquarters were at St. Michael, on the coast of Bering Sea, about sixty miles north of the Yukon delta. Here Emperor Geese rarely occurred except stray parties—visitors to the marshy coast-plain in fall. I made a sledge journey one winter through the Yukon delta and across the tundras southward to the Kuskoquim, and found the Esquimos in that area wearing "parkies," or outer garments, made of the skins of Emperor Geese sewed together, and learned that great numbers of these birds nested there each spring. From what I learned, it appeared evident that they rarely nested above the upper limit of the tide in the sluggish streams of this low plain. All available observations of the habits of this bird show it to be a strictly salt-water, coastal species both in summer and winter. Its food is sought between tide lines either on oozy flats, as at the Yukon mouth, or along the rocky beaches of the wild Aleutian shores.

One spring, during my residence at St. Michael, it became possible to fulfil my long-cherished desire to visit the breeding-grounds of these Geese and many other waterfowl in the Yukon delta. To reach there in time to welcome the coming feathered host, I left St. Michael early in May with an Esquimo and a dog-sledge. The tundra was still clothed in winter white, except here and there a bare spot on the sunny side of a knoll, and the sea was covered with unbroken ice to the far horizon. The hoarse, crowing notes of the Willow Ptarmigan were beginning to be heard on the tundra, and occasional scouts from the coming army of White-fronted and Cackling Geese passed high overhead, spying out the land; yet the day I started the temperature was well below zero.

At the border of the Yukon delta, Esquimos familiar with the country were employed to lead us to the desired nesting-ground of the Emperor Goose. Nearly half a day's journey among the maze of ice-covered channels of the delta brought us to a low, flat island, where our guide assured me many *na-chau-thluk* would soon arrive, to rear their young. It was a bare, desolate spot, with only a few scattered alders on the upper side of the islands, and an unbroken view out over the frozen sea to the west. A tent was put up on a slight rise and, after a stock of drift-wood had been gathered, the guides took the sledge and left me with my Esquimo companion to await the arrival of the birds. Later, when the ice went out, they returned for me with kyaks.

A few White-fronted and Cackling Geese gave noisy evidence of their presence, but it was not until May 22 that the Esquimo brought in the first Emperor Goose—a male in beautiful spring plumage. After this, small flocks came in rapidly until they were plentiful all about us. They arrived quietly, skimming along near the ground, quite unlike the other Geese, which appeared high overhead with wild outbursts of clanging cries, which were answered

by those already on the ground. The river channels and the sea were still covered with ice, and the tundra halt covered with snow, at the time of the first arrivals.

At first, the Emperor Geese were difficult to approach, but as their numbers increased they became less shy. When on the wing, they were easily distinguished from the other Geese, even at considerable distances, by their proportionately shorter necks and heavier bodies, as well as by their short, rapid wing-strokes, resembling those of the Black Brant. Like the latter, they usually flew near the ground, rarely more than thirty yards high, and commonly so close to the ground that their wing-tips almost touched the surface on the down stroke. While flying from place to place, they give at short intervals a harsh, strident call of two syllables, like *kla-ha, kla-ha, kla-ha*, entirely different from the note of any other Goose I have ever heard. A group of them on a sand-bar or mud-flat often utter lower, more cackling notes in a conversational tone, which may be raised to welcome new arrivals. They are much less noisy than either the White-fronted or Cackling Geese, which often make the tundra resound with their excited cries. Occasionally I could cause a passing flock to leave its course and swing in close to my place of concealment by imitating their flight notes.

Almost at once after their arrival on the islands, the Emperor Geese appeared to be mated, the males walking around the females, swinging their heads and uttering low love notes, and incoming flocks quickly disintegrated into pairs which moved about together, though often congregating with many others on flats and sand-bars. The male was extremely jealous and pugnacious, however, and immediately resented the slightest approach of another toward his choice; and this spirit was shown equally when an individual of another species chanced to come near. When a pair was feeding, the male moved restlessly about, constantly on the alert, and at the first alarm the pair drew near one another, and just before taking wing uttered a deep, ringing *u-lugh, u-lugh;* these, like the flight notes, having a peculiar deep tone impossible to describe.

At low tide, as soon as the shore ice disappeared, the broad mud-flats along shore were thronged with them in pairs and groups numbering up to thirty or forty individuals. They were industriously dabbling in the mud for food until satisfied, and then congregated on bars, where they sat dozing in the sun or lazily arranging their feathers. By lying flat on the ground and creeping cautiously forward, I repeatedly approached within thirty or forty yards of parties near shore without their showing any uneasiness.

The first of June, they began depositing eggs on the flat marshy islands bordering the sea all along the middle and southern part of the delta. The nests were most numerous in the marshes, a short distance back from the muddy feeding-grounds, but stray pairs were found nesting here and there farther inland on the same tundra with the other species of Geese and numerous other water-

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fowl. Near the seashore, the eggs were frequently laid among the bleached and wave-torn scraps of driftwood lying along the highest tide marks. On June 5, a female was found on her eggs on a slight rise in the general level. A small gray-bleached fragment of driftwood lay close by. The Goose must have lain with neck outstretched on the ground, as I afterward found was their custom when approached, for the Esquimo and I passed within a few feet on each side of her; but, in scanning the ground for nesting birds, the general similarity in tint of the bird and the obvious stick of driftwood had completely misled our sweeping glances. We had gone some twenty steps beyond when the sitting bird uttered a loud alarm note and flew swiftly away. The ground was so absolutely bare of any cover that the three eggs on which she had been sitting were plainly visible from where we stood. They were lying in a slight depression without a trace of lining. The same ruse misled us a number of times; but on each occasion the parent betrayed her presence by a startled outcry and hasty departure soon after we had passed her and our backs were presented. They usually flew to a considerable distance, and showed little anxiety over our visit to the nests. The nests I examined usually contained from three to five eggs, but the full complement ranged up to eight. When first laid, the eggs are pure white, but soon become soiled. They vary in shape from elongated oval to slightly pyriform, and are indistinguishable in size and shape from those of the White-fronted Goose. As the complement approaches completion, the parent lines the depression in the ground with a soft, warm bed of fine grass, leaves, and feathers from her own breast. The males were rarely seen near the nests, but usually gathered about the feeding-grounds with others of their kind, where they were joined now and then by their mates.

The young are hatched the last of June or early July, and are led about the tundras by both parents until, the last of July and the first of August, the old birds moult their quill feathers and with the still unfledged young become extremely helpless. At this time, myriads of other Geese are in the same condition, and the Esquimos made a practice of setting up long lines of strong fish-nets on the tundras to form pound-traps, or enclosures with wide wings leading to them, into which thousands were driven and killed for food. The slaughter in this way was very great, for the young were killed at the same time and thrown away in order to get them out of the way of the next drive. The Esquimos of this region also gather large numbers of eggs of the breeding waterfowl for food and, with the demand for them at the mining camps of the North, a serious menance to the existence of these and other waterfowl might ensue.

Fortunately, in 1909, President Roosevelt made a bird-reservation covering the delta of the Yukon and the tundra to the southward, which includes the main breeding-ground of the Emperor Goose, and thus took a long step toward perpetuating this fine bird.

CRESTED AUKLET

Order—PYGOPODES
Genus—AETHIA
Family—ALCIDÆ
Species—CRISTATELLA

National Association of Audubon Societies

THE CRESTED AUKLET

By CHAS. HASKINS TOWNSEND

The National Association of Audubon Societies
EDUCATIONAL LEAFLET NO. 65

This is a bird of the far North, frequenting the coasts and islands of Bering Sea and the North Pacific Ocean. We first got acquainted with the Crested Auklets at the Pribilof Islands, where they abound, and afterward saw them in Bering Strait, and above the Arctic Circle at Kotzebue Sound. Later on, in the fishery surveys by the steamship 'Albatross,' we saw them from Kadiak Island and the Alaska Peninsula through the whole Aleutian Archipelago, and beyond to the Commander Islands off Kamtschatka.

The bird is also found along the Kuril Islands, down as far as Japan on the western side of the Pacific. Rich as our experiences with the Auklets were in many of these places, they did not prepare us for what we were to see in the Shumagin Islands south of the Alaska Peninsula.

On the evening of August 1, the 'Albatross' came to anchor in Yukon Harbor at Big Koniushi Island of the Shumagin group. While the ship was working her way into this wild and uninhabited bay, everyone noticed the increasing numbers of Crested Auklets. The farther in we went the more numerous they became, until the Captain called me to the bridge to tell him what I could about them.

The birds were nearly all of the crested species, and were present in myriads. The surface of the water was covered with them, and the air was filled with them. Large, compact flocks launched themselves into the air from the lofty cliffs, and careened toward the vessel with great speed and whirring of wings. The Crested Auklets were here more numerous than were the 'Choochkies' (Least Auklets) at St. George, in the Pribilofs, celebrated as the center of abundance for that species.

Twilight did not come until after nine o'clock, and during the long evening the birds were amazingly active. Flocks of them continued to come in rapid succession from the cliffs, many passing close to the ship at high speed and swinging about the harbor. After the anchor was dropped near the cliffs, a loud blast of the whistle made the Auklets still more abundant. The bird legions started from the cliffs, until the misty air and the water about the ship was alive with them. It was a memorable ornithological display, and when darkness came the birds were still moving actively.

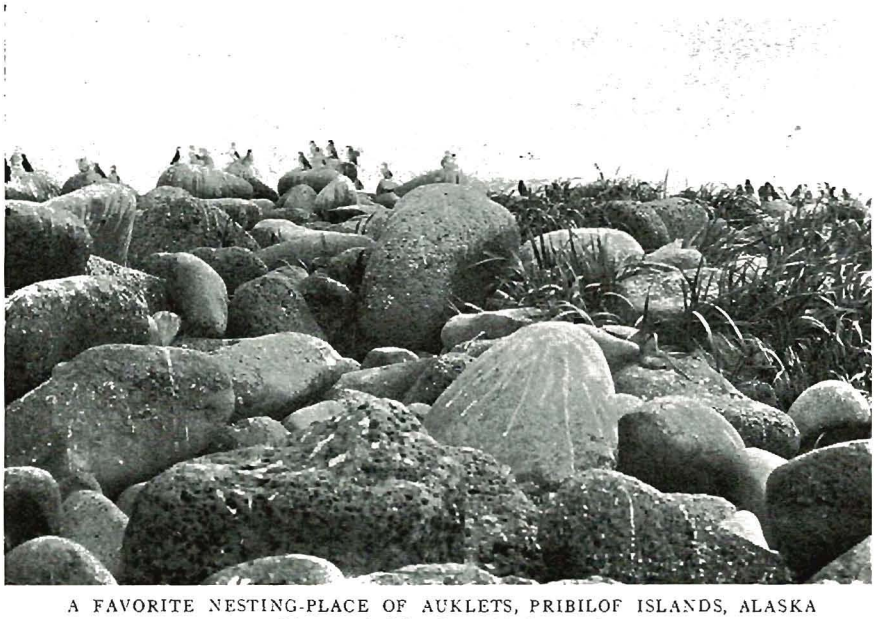
These birds appeared to be nesting chiefly in crevices in the cliffs, although they could be heard under the boulders near the beaches. We did not stay long at Yukon Harbor, and I have always wanted to revisit the place and get better acquainted with the metropolis of the Auklets. At the Pribilofs, we

found the birds apparently more abundant under boulders near the beaches than in the high cliffs. In seeking the nests of the Crested Auklets, and in fact the nests of any of the Auklets, one needs a tool not often used by the bird student—*a crowbar*.

To locate the nesting localities is easy. One has but to walk along the great ridges of volcanic stones thrown up by the sea. The stones are rounded and sea-worn like pebbles, but they are giant pebbles and cannot be readily removed. The Auklets go far down among them, perhaps three or four feet, and can be heard chattering there during any part of the nesting season.

The natives attempted to show us the nests. They lifted or rolled the heavy rounded stones for half an hour, until there was a circle of them around us waist high and 15 feet in diameter. They worked in the central depression, carrying or rolling stones until the task became hopeless, and still the Auklets were chattering underneath the stones all about. Mr. E. W. Nelson writes that on the northern islands of Bering Sea, St. Matthew, St. Lawrence, and the Diomedes, the eggs are sometimes deposited in exposed places, with little attempt at concealment. A set consists of a single egg, white, with sometimes a few dark blotches, and measuring on the average 2.10 by 1.40 inches.

We found that a considerable part of the food of this and other kinds of Auklets consisted of amphipod crustaceans, or 'beach-fleas,' as they are called, when found under bits of seaweed along shore. These small crustaceans, less



A FAVORITE NESTING-PLACE OF AUKLETS, PRIBILOF ISLANDS, ALASKA
Photographed by Dr. C. H. Townsend

than a quarter of an inch in length, are amazingly abundant in Alaskan waters and, as a never-failing food-supply, account for the surprising abundance of Auklets of all kinds.

The native Aleuts eat Auklets, just as they do most other kinds of sea-birds, and capture them with nets, which are like a large dip-net with a long handle. The native hunter conceals himself at some point near the beach or bluffs over which the birds are accustomed to fly close. When a flock approaches, the net is swung upward, and a skilful native has little difficulty in catching two or three birds out of each flock that passes. The Aleut people are true children of Nature, and the greater part of their food consists of the fishes, seals, and sea-birds found along their shores. The misty and often stormy shores would be desolate indeed without the lively presence of Auklets; and we cannot help wishing that they abounded in more southern latitudes, where their charming ways could be better known. Some of Nature's finest exhibitions of bird-life, however, are arranged without reference to civilized spectators.

The Crested Auklets arrive at the Pribilofs in May, and remain until the winter ice begins to invest the islands, when they go farther south. They are noisy in the breeding season when about their nests, but are rather silent at other times.

While they take alarm and leave the cliffs when closely approached, they have more confidence when on the water, and do not readily dive or take flight except to make way for the boat. About islands where they are not specially abundant they may yet be as thick as bees about some particular cliff, long rows of them lined up on the rock ledges, while others are coming and going. Sometimes we saw them far off shore in large flocks hundreds of yards in extent. They are a plump, well-fed race, and appear to have plenty of time for play, both in the air and on the water.

The Auklets, or Pygmy Auks, a group of six species (referred to four genera) are confined to the North Pacific.

The Crested Auklet is a very distinct species, distinguished by its much larger size from its nearest relatives, the Whiskered and Least Auklets, and by the differently shaped bill and the presence of a recurved crest from the Paroquet Auklet. Moreover, the underparts are entirely dark in the Crested Auklet, but largely white in the three allied species.

Males and females are alike in plumage, which is sooty black above, and brownish beneath; but this obscure coloring is relieved by the lively crest, the bright red of the beak, and the white, plume-like feathers which extend downward and backward from the eye. The white iris also contributes to the alert appearance of the bird's head. The feet are bluish, with dark webs. That portion of the red beak around the corner of the mouth is soft and flexible.

The forward-curved crest of the Auklet, resembling that of the California

Quail, suggests the name of 'sea-quail,' by which it is known to English-speaking persons. The native name 'Kanooska' is of Russian origin, and means 'Little Captain.'

In length individual birds vary from eight and one-half to nine inches.

The plumage in winter is the same as in summer, but the bill is markedly different. The Crested Auklet not only molts its feathers like other birds, but sheds the red, horny plates about the base of its beak after the breeding season.

The very young bird, whose appearance has not long been known, is a ball of smoky down, in no way resembling its parents. In the immature bird the frontal crest and white feathers beneath the eye are wanting or but slightly developed, while the bill is much smaller and dusky brownish.

At the Pribilofs, it is no uncommon sight to see fur seals, sea-lions, and many kind of sea-birds, including Crested Auklets, in great abundance within a radius of fifty yards.

We need not concern ourselves, I think, about the preservation of the Auklets. They dwell among the high cliffs and boulder-strewn beaches of a thousand uninhabited islands, and know how to stow away their eggs so safely that neither natives nor blue foxes can get them easily.

The Audubon Societies

EXECUTIVE DEPARTMENT

Edited by T. GILBERT PEARSON, Secretary

Address all correspondence, and send all remittances for dues and contributions, to the National Association of Audubon Societies, 1974 Broadway, New York City

President Dutcher

Upon the occasion of a recent visit to President Dutcher, the writer was most delightfully surprised to find him apparently much improved in physical vigor. Although he has been confined to his bed almost entirely for the past two and a half years as a result of a paralytic stroke, he has seemed of late to gain strength and courage more rapidly than during any previous period. Just now he is with Mrs. Dutcher enjoying the diversion of a visit to Atlantic City. He is very glad to see or hear from any of his friends, and letters addressed to him at Plainfield, New Jersey, will always reach their destination.—T. G. P.

Weeks-McLean Law

The so-called 'McLean Bill' is now a law. After a stormy passage in the House of Representatives, it was finally passed by Congress as an amendment to the Agricultural Bill, and President Taft officially signed the measure only a few hours before he retired from office on March 4.

Since 1904, bills of this character have been constantly pending in Congress. From the beginning they made a strong appeal to the imagination of people throughout the country who were interested in the conservation of our natural wild life. This interest increased each year, as a result of the wide publicity given to the measure by this Association and other organizations having to do with bird and game protection. The daily press has always lent its assistance and has helped tremendously in arousing the public. Within the past twelve months, the expressions of approval from the constituents of the Senators and Representatives have increased from a comparatively few isolated shouts to a mighty roar, which meant that the people of the country were demanding the passage of the act. For the past twelve months, the American Game Protective and Propagation Association has been very active in working this bill through Congress. Mr. John B. Burnham, the President of that Association, and Mr. W. S. Haskell, the counsel, have devoted a large share of their time to the subject. But for the efforts of these gentlemen, the bill would undoubtedly have failed to pass at this session of Congress. Among other organizations whose officers and members have contributed to the success of this undertaking, there may be mentioned the Camp-Fire Club of America, the New York Zoölogical Society, the Boone and Crockett Club, the National Federation of Women's Clubs, the Long Island Sportsmen's Association, the thirty-five State Audubon Societies, and numerous sportsmen's clubs scattered throughout

the country. The game commissioners of practically all the states in the Union, as well as thousands of individual workers, have earnestly worked for the success of the Weeks-McLean Bill.

Never before in the history of our country has there been such a widespread general interest in a bird-protective measure, and never before has so much pressure been brought to bear on Congress from such a wide variety of sources in the interest of a bill which made for the conservation of our wild life. The writer could name some of the members of this Association who have individually sent out or caused to be sent from one hundred to two hundred letters imploring Congressmen to vote for the bill. One of our members, Mr. Henry Ford, of Detroit, became so stirred that he instructed one of his most able and resourceful employees, Mr. Glenn Buck, of Chicago, to spare no expense in an effort to arouse the people to the importance of securing the necessary congressional support. Mr. Buck sent out thousands of telegrams and letters and, in fact, for several weeks employed a large force of stenographers in the enterprise.

The struggle for the passage of this bill will go down in the history of American bird protection as being the most gigantic single campaign ever waged for a bird-protective bill. The full text of this new Federal law is given below:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all wild geese, wild swans, brant, wild ducks, snipe, plover, woodcocks, rail, wild pigeons and all other migratory game and insectivorous birds, which in their northern and southern migrations pass through, or do not remain permanently the entire year within the borders of any State or Territory, shall hereafter be deemed to be within the custody and protection of the Government of the United States, and shall not be destroyed or taken contrary to regulations hereinafter provided therefore.

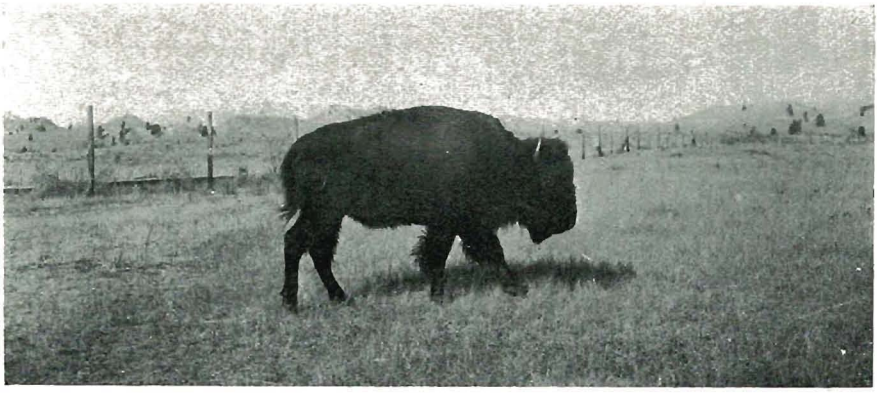
Sec. 2. That the Department of Agriculture is hereby authorized to adopt suitable regulations to give effect to the previous section by prescribing and fixing closed seasons, having due regard to the zones of temperature, breeding habits, and times and line of migratory flight, thereby enabling the department to select and designate suitable districts for different portions of the country within which said closed seasons it shall not be lawful to shoot, or by any device kill or seize and capture migratory birds within the protection of this law, and by declaring penalties by fine of not more than one hundred dollars or imprisonment for ninety days, or both, for violation of such regulations.

Sec. 3. That the Department of Agriculture, after the preparation of said regulations, shall cause the same to be made public, and shall allow a period of three months in which said regulations may be examined and considered before final adoption, permitting, when deemed proper, public hearings thereon, and after final adoption to cause same to be engrossed and submitted to the President of the United States for approval; Provided, however, That nothing herein contained shall be deemed to affect or interfere with the local laws of the States and Territories for the protection of non-migratory game or other birds resident and breeding within their borders, nor to prevent the States and Territories from enacting laws and regulations to promote and render efficient the regulations of the Department of Agriculture provided under this statute.

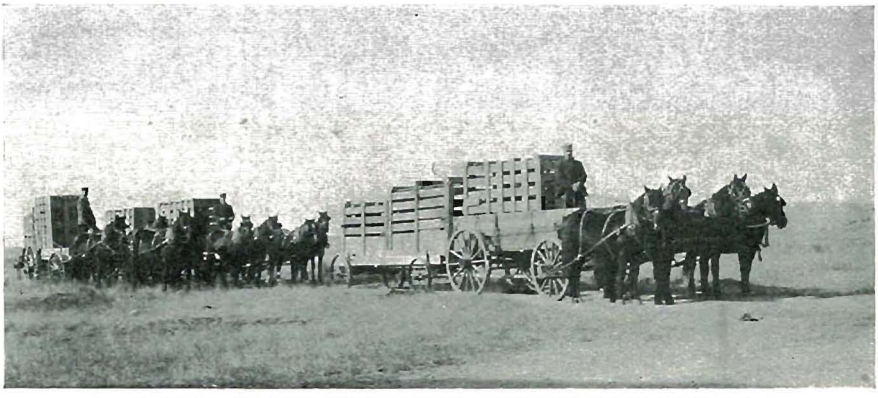
Sec. 4. That there is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, for the purpose of carrying out the provisions of this Act, the sum of ten thousand dollars. T. G. P.

Niobrara Bird Reservation

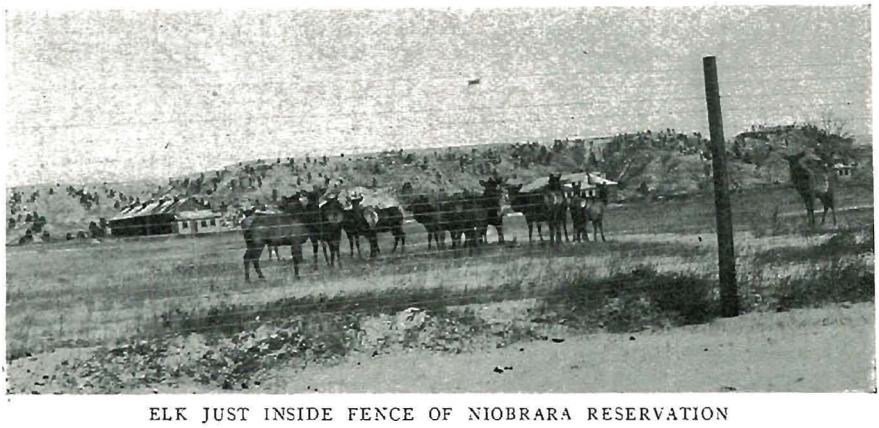
In an effort to assist in further preserving the American bison and elk, this Association has recently coöperated with the Federal Government in the matter



BUFFALO JUST LIBERATED IN NIOBRARA BIRD RESERVATION



ARRIVAL AT NIOBRARA RESERVATION WITH SIX BUFFALO



ELK JUST INSIDE FENCE OF NIOBRARA RESERVATION

of inclosing with a high wire fence a pasture of two hundred acres on the National Niobrara Bird Reservation in Northern Nebraska.

Mr. J. W. Gilbert, of Friend, Nebraska, presented the Government with a collection of buffalo, elk, and Virginia deer which he had been maintaining for some years on his estate. These animals were given with the understanding that they should be enclosed on a good range provided for by the Government at some point in the State of Nebraska.

The work of constructing the fence, as well as capturing, transporting, and liberating the animals, was conducted by Mr. Fred M. Dille, Special Agent of the United States Bureau of Biological Survey. The first post-hole was dug on November 22, 1912, and in less than ninety days the work was completed and the herd removed to its new quarters.

To carry this enterprise into execution, the Directors of the National Association of Audubon Societies voted an appropriation of fifteen hundred dollars—about five hundred dollars was subscribed by the citizens of the town of Valentine, near which the reservation is located, and one hundred dollars was contributed by the Chicago and Northwestern Railroad Company.

The accompanying photographs taken by Mr. Dille show the height and general character of the wire fence, the method used in transporting the animals to and from the railroad, as well as some of the individuals of this herd of big game, the future of which we trust is now assured.

Just before Hon. James Wilson retired as Secretary of the United States Department of Agriculture, he wrote this office expressing his appreciation of our assistance in this matter, and also took occasion to speak of the coöperation which has long existed between his department and the National Association. Under date of February 27, he wrote:

"I beg to advise you that the herd of big game contributed by Hon. John W. Gilbert, of Friend, Neb., has been successfully installed on the Niobrara Reservation near Valentine, Neb., in the enclosure erected through the cordial coöperation of the National Association of Audubon Societies and the citizens of Valentine. A committee appointed to examine the work has reported that the fence, constructed of Page woven wire, is well and substantially built and satisfactory in every way. This fence, 766 rods in length, encloses some 200 acres adjoining the headquarters of old Fort Niobrara, and affords an ideal pasture for big game, with abundant feed and shelter. The present herd consists of 6 buffalo, 17 elk, and 2 deer, which I hope will be largely increased in the near future, and the present enclosure can be enlarged from time to time whenever necessary.

"I take this opportunity of extending the thanks of the Department for the timely coöperation of your Association which has made possible the acceptance of this herd and the establishment of a National herd of buffalo similar to the herds previously provided in Oklahoma and Montana through the coöperation of the New York Zoölogical Society and the American Bison Society.

"I also take this opportunity of expressing my appreciation of the cordial cooperation of the National Association of Audubon Societies in the work of inspecting foreign birds and in the establishment and maintenance of National bird refuges. March 14, 1913, will mark the tenth anniversary of the creation of the first National Bird Reservation (that on Pelican Island, Florida) which was set aside on the recommendation of your Association. Since 1903 these reservations have increased from one to sixty, and are now distributed in nineteen States and Territories, from Porto Rico and Michigan in the east to Hawaii and Arctic Alaska in the west. In guarding the birds on these reservations, the Department has received substantial assistance from the Association, particularly in the maintenance of the reservations at Pelican Island, Mosquito Inlet, and Key West, Florida; Breton Island, Louisiana; Siskiwit and Huron Islands, Michigan; Klamath Lake

and Three Arch Rocks, Oregon; and Saint Lazaria, Alaska.

"The establishment of these reservations has aroused wide interest both among our own people and in foreign countries, and has placed the United States at the head of the nations of the world in the work of National bird protection. May the next decade show even greater progress in the development of those refuges, and in the various lines of conservation work which the National Association of Audubon Societies has so successfully undertaken."

Notes on the Elk Situation

The difficult question of how to care for the herds of Elk which pass the summer in the Yellowstone National Park and the adjoining Teton Game Preserve of Wyoming as yet remains unsolved.

It is estimated that about forty-seven thousand Elk inhabit this territory in summer. When the heavy snows fall in in early winter, the Elk are driven out of these mountains in quest of food, some of them moving northward from the Park into Montana, and others seeking lower levels south of the Park. The ancestors of these Elk for untold generations have probably been making migrations of this character. In days gone by, it was not difficult for them to find an abundant food supply—the grass of the natural meadows and the twigs from trees and bushes growing along the stream being sufficient for their need. In latter years, however, the ranchers have come, and not only have innumerable wire fences been strung across the country, preventing in some directions the progress of the Elk, but almost all available food has been removed.

This now results in a heavy annual drain to the herds, occasioned by the death from starvation of the young and more helpless Elk. From a reliable source it is learned that two years ago the bodies of over 1,000 young Elk were found strewn along Yellowstone River, north of the Park. Apparently little has been done to alleviate the suffering of the herd that each winter travels into this territory.

The herd which moves southward from the Teton Game Preserve passes chiefly into Jackson's Hole, a large irregular valley about ten by forty miles in extent. The ranchmen in this neighborhood early in the season gather the hay with which to feed their domestic stock during the winter, and the Elk are prevented from reaching it by high fences built for the purpose.

Mr. S. N. Leek of Jackson, Wyoming, in a recent letter to this office, says: "In the winter of 1910–11 snow fell to an unusual depth in Jackson's Hole, then, turning warmer, it rained, then colder, froze up, completely cutting the Elk off from their food supply and the entire herd was threatened with starvation. Congress was appealed to, and nobly responded by appropriating $20,000 for the relief of the Elk. In the meantime, the Wyoming Legislature appropriated $5,000. An agent was appointed and sent in; all available hay was purchased (about two hundred and sixty tons) and with this greatly insufficient amount the attempt was made to save 10,000 starving Elk."

Mr. D. F. Hudson, State Game Warden of Wyoming, estimates that in 1911–12 about 5,000 Elk were congested in the lower end of the valley, and here a serious attempt was made to feed them. Despite this fact, when the spring came and the snows melted, the bodies of 726 Elk, chiefly calves, were found in the neighborhood. This does not take into account the loss sustained in the upper reaches of the valley, where at least 8,000 Elk were known to winter.

According to the opinion of some observers, the large mortality among calves must, in a measure, be accounted for because of the heavy killing of the large males, for which there is growing demand. An old bull Elk not only provides more meat than a young bull or cow, but the splendid antlers are an alluring trophy to the big-game hunters. In addition to this, the large males produce

teeth for which there is a large demand on the market today. When an Elk is about six months old, there appears, on either side of the upper jaw, a tooth which continues to grow in size and beauty until it reaches perfection, when the Elk is about three or four years old. These teeth get to be about the size of the end of one's finger and are in the neighborhood of three-quarters of an inch in length. Not only are they composed of beautiful white, polished ivory, but the cutting end assumes a brown or chestnut hue. Many of the members of the Order of Elks wear these as watch-charms. A beautiful pair will sometimes sell as high as $75.00, although the usual price ranges from ten to twenty dollars.

The killing of large numbers of the old Elk therefore reduces the efficiency of the herd as breeding stock, and young males being thus privileged to mate before coming to their full strength, a condition exists which does not normally obtain to any great extent if the strong, fighting bulls are still present in the herd. The offspring from these undeveloped males are regarded as not having the strength and endurance which under natural conditions they would enjoy.

The United States Biological Survey, together with the Game Protective authorities of the States of Wyoming and Montana, are giving this entire subject serious consideration and, in addition to providing larger quantities of hay for the Elk during the period of heavy snows, have proposed to provide as far as possible for a permanent natural range in winter. As a still further safeguard, the state authorities should employ a larger game-warden force and see that the Elk are not killed out of season and, in Wyoming particularly, enforce absolutely the statute which prohibits the killing of the Elk for their teeth.

The policy now adopted by the Government to remove annually from the Yellowstone Park the surplus increase, and place them in game preserves elsewhere, will doubtless result in very materially helping to preserve the species.

The Boone and Crockett Club, organized especially for the protection of large-game animals, states in its Annual Report for 1912 that during the past year 480 Elk were transferred, 64 of which were shipped by the Biological Survey to other localities as follows:

Twenty-three were sent to the Sundance National Forest of South Dakota and Wyoming; 15 to the Billy Meadows, Wallowa National Forest, Oregon, where they were placed in an inclosure; 10 to Fish Lake National Forest, Utah; 8 to Wichita National Forest, Oklahoma; 5 to the Bison Range, Montana; and 3 to the City Park, Boulder, Colorado."

Continuing its report on Elk, the Game Preserve Committee of the Club says: "The state of Wyoming transferred 125 Elk calves to points in the East Central part of the state, but this number was considerably reduced by losses en route.

"The state of Montana moved about 200 to four different points in the state.

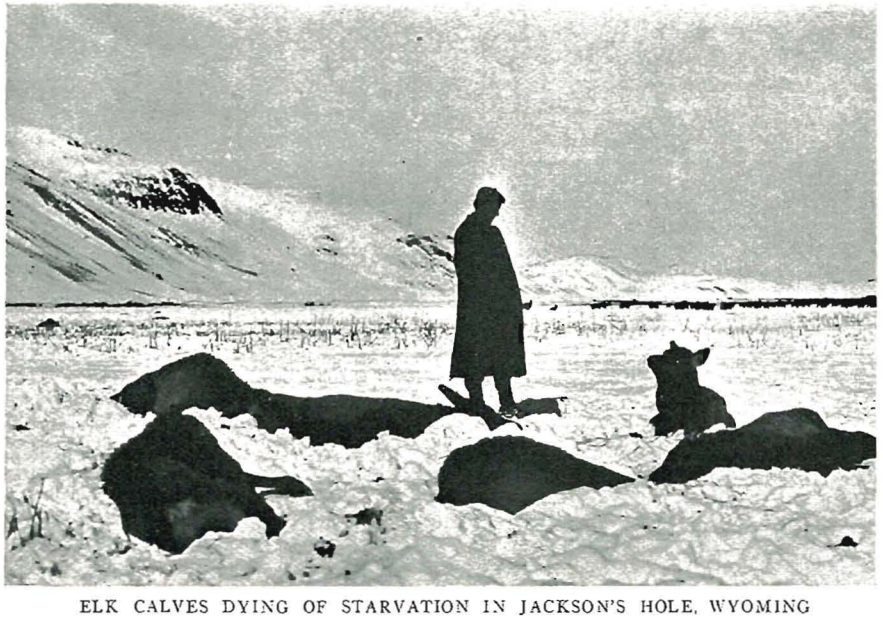
"The Yellowstone Park authorities sent about 60 to the Cascade Mountains of Washington and about 30 to the Glacier National Park.

"Efforts have been made by the Biological Survey to induce the states of Wyoming, Montana, and the authorities of the Yellowstone Park, to arrange for the transferring of 500 Elk annually from each of the great herds for restocking other suitable areas in the United States. As yet, however, no agreement has been reached. On December 18, 1912, the Interior Department approved regulations limiting the number of Elk to be distributed from the Yellowstone Park herd to fifty for any one State.

"Although the Game Committee favors the introduction of Elk in permanently fenced areas where the surrounding country is not vast enough to receive an overflow from the increasing herd, nevertheless its efforts will be directed toward the establishment of wild herds in Game Refuges where such herds can incresae and restock the adjacent region.

"The Elk on the Pacific Coast, in both Washington and California, are of differ-

BULL ELK SHOT FOR ITS TEETH AND FLESH, WYOMING
Photographed by S. N. Leek



ELK CALVES DYING OF STARVATION IN JACKSON'S HOLE, WYOMING
Photographed by S. N. Leek

ELK WINTERING IN JACKSON'S HOLE, WYOMING
Photographed by S. N. Leek

ent species from the Yellowstone Park Elk. The Game Committee will discourage any plan for the distribution of Elk from the Yellowstone to regions where they will mix with, and by interbreeding destroy other species of Elk.

"No more Elk should be shipped to the Glacier National Park, which already possesses an adequate breeding reserve." —T. G. P.

Prohibit Feather Importations

The Ways and Means Committee of our National Congress has recently been engaged in revising the Tariff Schedule.

On January 30, the writer appeared before this Committee on behalf of the National Association of Audubon Societies and presented a proposition to the effect that Congress should absolutely prohibit the importation of "aigrettes" and the feathers of other wild birds native to the United States as well as those taken from birds whose feathers resemble those native to this country.

Dr. William T. Hornaday, of the New York Zoölogical Society, was also present and told the Committee much about the destruction of bird life throughout the world for millinery purposes. He asked the committee to stop the importation of the feathers of all wild birds,

Shortly after this the Committee went into executive session, and we shall probably not learn what action they may take in reference to the matter until they make their report to Congress in April.

Hundreds of our members have been writing to the members of the Ways and Means Committee, asking them to adopt the recommendations presented at that time. In this matter we also have the most active coöperation on the part of the National Federation of Women's Clubs and many of the bird and game protective organizations throughout the country. Mr. Henry Oldys, one of the energetic Audubon workers in Washington, D. C., has been particularly active in this work.

The following is the Brief submitted by the Association for the Consideration of the Ways and Means Committee:

The National Association of Audubon Societies urgently recommends the amendments of paragraph 438 of the Tariff Act, relating to feathers and downs, so as to prohibit the importation of plumage of our native birds of the United States, including aigrettes. We ask for this change:

Amend Schedule N, Section 438, to read as follows:

Feathers and downs of all kinds, including bird skins or parts thereof with the feathers on, crude or not dressed, colored, or otherwise advanced or manufactured in any manner, not specially provided for in this section, twenty per centum ad valorem; when dressed, colored or otherwise advanced or manufactured in any manner, including quilts of down and other manufacturers of down, and also dressed and finished birds suitable for millinery, ornaments, and artificial or ornamental feathers, fruits, grains, leaves, flowers and stems or parts thereof, of whatever material composed, not specially provided for in this section, sixty per centum ad valorem; provided, that the importation of plumage of native birds of the United States or of plumage indistinguishable from that of our native wild birds, including aigrettes, crude or manufactured, is hereby prohibited except for scientific purposes.

We ask this on the following grounds:

1. That a number of the species are now approaching extinction.
2. That the birds are of great economic value.
3. That the traffic in such plumage is illegal in many states.
4. That the plumage trade is destructive, barbarous, and unnecessary.
5. That the loss of revenue can readily be made up from other sources.

1. The demand for plumage for wild birds for millinery purposes during the past twenty years has grown to enormous proportions. In the effort to supply the market, the woods, fields, and sea-

coasts of the United States have been combed systematically by plume-hunters Breeding colonies and rookeries in the tropics, from Australia to Venezuela, and the most distant islands in the Pacific Ocean, have been devastated by the emissaries of the plume trade. The traffic in the United States has caused the practical extinction of some of the most beautiful birds, including egrets, the least tern, and locally of several other species. Breeding colonies of certain sea birds have been practically annihilated along the coasts of New Jersey and Virginia. The egrets, formerly found in every state in the Union, with half a dozen exceptions, are now restricted to a comparatively few isolated colonies in the southern states and a few wandering individuals which occasionally stray northward to visit the haunts where they were formerly abundant.

2. The value of insectivorous and seed-eating native birds is too well known to need detailed exposition in this connection. The economic value of the egrets and other species of plume birds is not generally appreciated. Recent investigations in Florida by a representative of the National Association of Audubon Societies has shown that herons of several species, during the breeding seasons are not only important scavengers, but destroy immense numbers of crayfish, cutworms and grasshoppers. Without going into detail, the following table shows at a glance the character of the food of four species of young herons in Florida. The results are based on examination of the components of fifty meals of each species. The table shows that fifty snowy egrets consumed no less than 762 grasshoppers and 91 cutworms; that fifty little blue herons destroyed 1,900 grasshoppers, 149 cutworms, and 142 crayfish, and 50 Louisiana herons consumed no less than 2,876 grasshoppers. The stomach of one Louisiana heron was found to contain 200 grasshoppers.

Based on the examination by O. E. Baynard, Orange Lake, Florida, of fifty meals of each of the following species:

	Grass-hoppers	Cut-worms	Cray-fish	Suck-ers	Misc.
Snowy Egret	762	91	29	..	9
Little Blue Heron	1,900	149	142	..	45
Louisiana Heron	2,876	17	67	..	14
Egrets	. . .	.	.	176	61 297

Under the heading, 'Misc.' are included a large number of water moccasins and other snakes well known as very destructive to fish.

Both the egret and the snowy egret are destructive to field mice, and are therefore of pronounced economic value to the agricultural interests of the country, as shown in Bulletin No. 33 of the Biological Survey of the United States Department of Agriculture.

3. Illegal traffic.—The trade in plumage of native birds is now illegal in a number of the states, including Massachusetts, New York, New Jersey, Ohio, Louisiana, Missouri, Colorado, California, Oregon, Washington, and other states. The trade in plumage of native birds is thus prohibited in such important millinery centers as Boston, New York, New Orleans Cleveland, Cincinnati, St. Louis, Kansas City, Denver, Los Angeles, San Francisco, Portland, and Seattle. The Federal Law (25 Stat. 1137) already prohibits interstate commerce in plumage shipped in violation of local laws. The United States should not permit the importation of goods which are contraband in some states. Their importation should be prohibited, as has already been done in the case of lottery tickets, opium, sealskins illegally captured, etc.

4. The death knell of any species of wild life is sounded when mankind begins to commercialize it. A number of species of North American birds are today on the verge of extinction because of the activities of the collectors working in the interests of the world's great millinery establishments. In collecting heron aigrettes the most barbarous cruelties are practised. The long airy feathers are the nuptial adornments of the birds and are found only in the breeding-season. To procure these feathers it is absolutely necessary to take the life of the birds which produce them. This means that the young are

left in the nests to die of starvation. Egrets once bred as far north as New Jersey and perhaps Long Island, but today they do not occur during the nesting season north of North Carolina. The agents of the National Association of Audubon Societies have been able to locate in recent years about thirty colonies of these birds in our southern swamps. In the summer of 1912 these few remaining rookeries contained in the aggregate a population of about 5,000 egrets. Thirty years ago there were millions of these birds in the United States. Because of the disappearance of egrets over large sections of the country in which they formerly occurred, it is now necessary for the trade to secure these feathers from abroad, and the same heartless war of extermination is today being carried on in South America and southern Asia. As long as we permit the importation of aigrettes, we have but little assurance for saving the remnant of the egrets still found in this country, as it is impossible to distinguish in the manufactured product the feathers of these birds taken in different countries.

5. Revenue.—The actual revenue derived from the importation of plumage (including aigrettes for millinery purposes) is unknown, for the reason that no separate record is kept of the importation of plumage for millinery purposes and feathers and downs used for pillows, quilts and other purposes. In the case of aigrettes, probably 90 per cent of the goods are imported in the crude state at the low rate of duty based on appraisal at port of shipment. If figures were available, it is doubtful whether the appraised value of most aigrettes would exceed $15 or $20 per ounce, allowing a revenue of $3 or $4 per ounce. Assuming that the importations for any one year amounted to half a ton, or 1,000 pounds, the duty at $3 an ounce would be $48,000, and at $4 per ounce, $64,000. If this revenue is regarded as indispensable or so important as to necessitate the continuance of a traffic at once barbarous, useless, and destructive to the interests of our farmers, an equal source of revenue may be found in paragraph 289 in Schedule G by imposing the same duty on game birds as on poultry.

To accomplish this, amend paragraph 289 to read: "Poultry, live, 3 cents per pound; poultry and game birds, dead, 5 cents per pound."

If this amendment be adopted, paragraph 510 of the free list should be amended to read: "Birds and land and water fowls, alive, for exhibition or propagation."

The present provision which imposes a duty of 5 cents a pound on poultry and allows game birds to be imported free is class legislation. It is the height of injustice in these days of high prices to require the poor man to pay a duty of 5 cents a pound on his poultry, while the wealthy patron of the high-class restaurant and hotel can obtain his game birds free of duty. Under the present tariff exemptions, the importation of game birds from Europe has increased enormously. As many as 25,000 birds are known to have been imported on a single vessel at New York. The records of the Conservation Commission of New York show that since the new law went into effect, in 1911, prohibiting the sale of native game and requiring foreign game to be tagged, game birds to the number of 492,400 have been tagged. Most of these birds are pheasants, grouse and ptarmigan weighing from a pound to a pound and half or two pounds. If the average is taken at a pound and a half, the importations of New York alone would net about $37,000. As these figures represent the importations of New York alone for a period of two years, it would be safe to say that the importations of all ports in the United States may be safely placed at not less than $50,000.—T. G. P.

Egret Protection

As we go to press, the Association, in coöperation with the Pennsylvania State Audubon Society, is engaged in an extensive campaign to arouse public interest in Pennsylvania with a view of securing support of Senate Bill No. 46, introduced

into the Legislature at our request by Senator Enos M. Jones, of Altoona.

In its provisions this bill follows closely the Audubon Plumage Law now in force in the states of New York, New Jersey and elsewhere. When, two years ago, the New York law made it illegal for the wholesale milliners of New York City to continue their traffic in the feathers of Egrets and other native wild birds, certain enterprising concerns transferred this branch of their business to Philadelphia. From this point they have distributed attractive booklets broadcast throughout New York and elsewhere, and have since been engaged in building up a mail-order business. Should the Jones Bill become a law, this diabolical business will be driven from another one of its strongholds.

On February 18th a hearing was given on this bill in the Capitol building at Harrisburg. The opposition was represented by its usual list of attorneys and millinery feather dealers. Appearing in support of the bill were Mr. Witmer Stone, President of the Pennsylvania Audubon Society; Dr. T. S. Palmer, Assistant Chief of the United States Biological Survey; Dr. William T. Hornaday, of the New York Zoölogical Society; Mr. H. H. Surface, State Economic Zoölogist of Pennsylvania; and the Secretary of the National Association.

B. S. Bowdish, Chief Clerk in our New York office, is now in charge of a branch office which we have opened in Philadelphia from which, in coöperation with Mr. Witmer Stone, he is directing the work of a considerable office force in circularizing the people of the state to acquaint them with the character of this bill and the necessity for its passage.

The Association has also secured the services of the Rev. Edward Frear, of State College, Pa., who has been traveling all over the state in the interest of the measure.

The great point to be immediately gained by the passage of this bill will, of course, be the stopping of the sale of the Heron Aigrettes in Pennsylvania.

A bill to make it a misdemeanor to kill an American Egret or a Snowy Egret, and prohibiting "the purchase and sale of the plumes or feathers of said birds," has been introduced in the Michigan Legislature by Mr. Jefferson Butler, President of the Michigan Audubon Society. The bill has already passed the Senate and we have strong hopes that it will become a law.

A measure of the same character was introduced in the Legislature of Indiana but, after passing the House, was killed in the Senate on the third reading. The Secretary visited the State Capitol in February and had interviews with many of the Senators and Representatives with reference to this proposed law. The bill was lost because Illinois, an adjoining state, did not have such a law. This could have been successfully met had we been financially able to conduct the necessary wide campaign of publicity in the state in order to overcome the activities of the millinery interests.

In the matter of guarding the Egret colonies in the southern states, it may be mentioned that two wardens in South Florida went on duty the 15th of March, and at least a dozen additional agents in Florida, Georgia, South Carolina and North Carolina will take up their lonely and dangerous vigils at Egret colonies on the 1st of April, and others will perhaps be employed later. The number of these wardens which the Association will be able to support will, of course, be entirely dependent upon the financial assistance which the Association will be able to secure.

As previously mentioned, the Board of Directors is very anxious to have a fund of $10,000 to expend in the general cause of Egret protection for the year 1913. The splendid results of the Association's efforts in this direction, the past two years, will surely justify the continued hearty public support which the work has thus far received.

Below is given a list of the contributors to the Egret Fund since the last issue of BIRD-LORE.

Balance Unexpended from 1912, as per Annual Report.....$1,595 26
Acknowledged in Jan.-Feb. Issue of
BIRD-LORE.....448 00
A Friend..... 2 00
Abbott, Mr. Holker..... 1 00
Adams, Mr. C. Q..... 2 00
Adams, Mr. William C..... 1 00
Agar, Mrs. John G..... 5 00
Ames, Mrs. J. B..... 5 00
Arnin, Albertina von..... 5 00
Asten, Mrs. Thomas R..... 5 00
"Atlanta"..... 5 00
Auchincloss, Mrs. H. D..... 5 00
Averill, Miss F. M..... 1 00
Babcock, Mr. Courtlandt..... 1 00
Babson, Mrs. Caroline W..... 1 00
Baker, Miss Charlotte S..... 5 00
Baldwin, Mr. William H..... 1 00
Barclay, Miss Emily..... 2 00
Barnes, Mr. R. M..... 5 00
Barri, Mrs. J. H..... 5 00
Barron, Mr. Geo. D..... 1 00
Bartol, Mr. E. F..... 5 00
Bartol, Mrs. J. W..... 25 00
Baruch, Mr. Bernard M..... 10 00
Baxter, Miss Lucy W..... 3 00
"M. L. B."..... 100 00
Beale, Mr. Phelan..... 1 00
Beebe, Mr. C. K..... 1 00
Beebe, Mrs. Wm. H. H..... 2 00
Beech, Mrs. Herbert..... 18 00
Behr, Mr. Herman..... 2 00
Bell, Mrs. D. M..... 5 00
Benet, Miss Lillian..... 25 00
Bergfels, Mrs. Harry..... 1 00
Bickmore, Prof. Albert S..... 5 00
Birch, Mr. Hugh T..... 3 00
Bird-Lover..... 5 00
Blackwelder, Mr. Eliot..... 1 00
Bliss, Miss Catherine A..... 25 00
Bliss, Mrs. Wm. H..... 25 00
Bole, Mr. Ben P..... 5 00
Bolling, Mrs. Raynal C..... 10 00
Bond, Miss Mary Louise..... 1 00
Bowdoin, Mrs. George S..... 10 00
Braman, Mr. & Mrs. Dwight..... 2 00
Brent, Mrs. Duncan Kenner..... 2 00
Brewer, Mr. Edward M..... 10 00
Bridge, Mr. Edmund..... 5 00
Bridge, Mrs. Lidian E..... 5 00
Brooks, Mrs. Shepherd..... 20 00
Brown, Mrs. C. S..... 2 00
Brown, Mrs. E. J..... 5 00
Bruen, Frank..... 1 00
Burt, Miss Edith..... 2 00
Butler, Wm. Allen, Jr..... 1 00
Carter, Mrs. W. T..... 2 00
Cameron, E. S..... 1 00
Carroll, Mr. Elbert H..... 100 00
Chapman, Mrs. John W..... 2 00
Chapman, Miss M..... 5 00

Amount carried forward.....$2,554 26

Amount brought forward....$2,554 26
Chase, Miss Alice P..... 5 00
Chase, Miss Annie E..... 1 00
Chase, Mr. Percy..... 1 00
Christian, Miss Elizabeth..... 1 00
Christian, Miss Susan..... 1 00
Chubbuck, Mr. Isaac Y..... 5 00
Cimmins, Mrs. Thomas..... 2 00
Clarke, Mrs. Charles D..... 1 00
Clarke, Mrs. E. A. S..... 2 00
Clarke, Lilian F. & Cora H..... 10 00
Clerk, Mr. A. G..... 1 00
Cleveland, Dr. & Mrs..... 1 00
Cobb, Miss Annie W..... 2 00
Cogswell, Mr. Francis J..... 1 00
Collord, Mr. George W..... 5 00
Colton, Miss Caroline West..... 2 00
Coney, Miss Kate E..... 2 00
Coolidge, Mr. Archibald Cary 5 00
Coolidge, Mr. J. Randolph..... 5 00
Crafts, Mr. John W..... 2 00
Craft, Miss Laura F..... 2 00
Cummins, Miss Anne M..... 5 00
Curtis, Mrs. Louise..... 2 00
Cushing, Miss Margaret W..... 1 00
Cutter, Dr. George W..... 1 00
Cutter, Mr. Ralph Ladd..... 10 00
Dame, Mr. Alfred M..... 1 00
Dana, Mr. Charles E..... 5 00
Dana, Mrs. C. S..... 2 00
Dane, Mrs. Francis..... 1 00
Davidson, Mrs. Francis S..... 2 50
Davis, Miss E. F..... 2 00
Davis, Miss Lucy B..... 2 00
Davis, Mrs. M. W..... 1 00
Daws, Miss E. B..... 10 00
de Beaufort, W. H..... 5 00
Delafield, Mrs. John Ross..... 2 00
Dennis, Miss M. H..... 2 00
Dexter, S. W..... 5 00
Dix, Mrs. John M..... 1 00
Dodd, Miss Jean Margaret..... 1 00
Doughty, Mrs. Alla..... 10 00
Douglass, Miss Elizabeth P. and Adelaine A..... 5 00
Draper, Mrs. Henry..... 5 00
Dryden, Mrs. John F..... 25 00
Dudley, Miss Fannie G..... 2 00
Duer, Mrs. Denning..... 10 00
Dwight, Mrs. M. E..... 2 00
Early, Mr. Charles H..... 2 00
Eastman, Mr. George..... 50 00
Eastman, Miss Mary..... 1 00
Emerson, Mr. Elliot S..... 1 00
Emery, Miss Georgia Hill..... 25 00
Enders, Mr. John O..... 5 00
Essick, Mr. William S..... 2 00
Estabrook, Mr. A. F..... 25 00
Evans, Mr. William B..... 4 00
Evarts, Miss Mary..... 5 00
Faulkner, Miss Fannie M..... 15 00
Ferry, Mr. H. C..... 2 00

Amount carried forward.....$2,868 76

Amount brought forward	$2,868 76
Ferry, Miss Mary B.	5 00
Field, Mr. E. B.	5 00
Flagg, Dr. Elisha	3 00
Ford, Mr. Henry	50 00
Frazee, Mrs. W. Y.	3 00
Freeman, Miss H. E.	5 00
Freeman, Dr. Water J.	1 00
Friedman, Mrs. M.	2 00
Friers, Miss Emilie	1 00
Frothingham, Mrs. S.	2 00
Gaby, Mr. Arthur D.	2 50
Gannett, Mr. W. C.	4 00
Garst, Mr. Julius	2 00
Gibbs, Mr. H. E. A.	50 00
Gibson, Mr. John T	2 00
Gilbert, Mrs. Frederick M.	5 00
Gilman, Miss C. and friends	5 00
Glazier, Mr. Henry S.	10 00
Gladding, Mr. John R.	10 00
Godeffroy, Mrs. E. H.	5 00
Goodrich, Mr. C. C.	5 00
Goodwin, Miss Amelia	2 00
Goodwin, Mrs. H. B.	2 00
Goss, Mrs. A. V.	2 00
Grant, Mr. H. T.	5 00
Greenwold, J. William	2 00
Gwalther, Mrs. H. L.	3 00
Hackettstown Bird Lovers	40 00
Hallett, Mr. Wm. Russell	5 00
Hallowell, Miss Charlotte	1 00
Hamilton, Mrs. J. S.	1 00
Harkness, Mr. David W.	5 00
Harris, Miss Frances K.	2 00
Haskell, Miss H. P.	2 00
Hathaway, Mr. Harry S.	2 00
Hay, Mrs. John	10 00
Haynes, Miss Louise deF	10 00
Hazen, Miss Emily H.	1 00
Hills, Mrs. James M.	2 00
Hittinger, Mr. Jacob	5 00
Hoe, Mrs. Richard Marsh	50 00
Hoe, Mr. Richard M.	10 00
Hodenpyl, Mr. Anotn G.	10 00
Hollenback, Miss Amelia B.	5 00
Holt, Mrs. R. S.	20 00
Hooker, Miss Sarah H	2 00
Hooper, Miss Mary G.	1 00
Howe, Mrs. J. S.	5 00
Howe, Dr. James S.	5 00
Hubbard, Miss Anna Weir	5 00
Hunter, Mrs. W. H.	1 00
Hurd, Miss Elizabeth	5 00
Hutchinson, Mrs. Charles L.	5 00
Ireland, Miss Catherine I	5 00
Jenks, Miss Caroline E.	3 00
Jones, Mr. B. B.	1 00
Jones, Mrs. Cadwalder	5 00
Jones, Mr. Charles H.	5 00
Jopson, Dr. John H. & Mrs.	1 00
Jordan, Mr. A. H. B.	10 00
Joslin, Miss Ada L	2 00
Amount carried forward	$3,304 26

Amount brought forward	$3,304 26
Jube, Mr. Albert J	1 00
Keim, Mr. Thomas D.	1 00
Keeler, Mrs. Charles Bradley	5 00
Keen, Miss Florence	5 00
Keep, Mrs. Albert	2 00
Kempton, Miss May M.	1 00
Kendig, Mrs. Daniel	1 00
Kennedy, Mrs. John S.	100 00
Kerr, Mrs. T. B.	1 00
Kuser, Mrs. A. R.	10 00
Kuser, Mr. Anthony R.	10 00
Kuser, Miss Cynthia Genevieve	5 00
Kuser, Mr. John Dryden	20 00
Laughlin, Mrs. H. M.	2 00
Lawrence, Mr. Roswell B.	4 00
Lee, Mr. Frederic S.	5 00
Lewis, Miss E. L.	2 00
Lewis, Mr. J. B.	2 00
Lippett, Mrs. C.	5 00
Little, Walter S.	1 00
Livermore, Mr. A. E.	1 00
Livingston, Miss A. P.	5 00
Loring, Mrs. Charles G.	3 00
Loring, Mrs. W. Caleb	5 00
Luttgen, Mr. Walther	5 00
Lydecker, Mr. R. D.	2 00
Mann, Miss J. Ardelle	1 00
Mansfield, Miss Helen	1 00
Markoe, Mrs. John	5 00
Marloe, Mr. Henry S.	5 00
Marsh, Mr. Spencer S.	1 00
May, Miss Eleanora C.	2 00
Mellen, Mr. George M.	1 00
Merriman, Mrs. Daniel	5 00
Milford, Mrs. V. S.	5 00
Mitchell, Mr. James T.	5 00
Montell, Mr. & Mrs. F. M.	2 00
Moore, Henry D.	100 00
Moore, Robert Thomas	50 00
Morgan, Jr., Mrs. J. P.	5 00
Morgenthal, Mrs. M. L.	1 00
Morrill, Miss A. W.	3 00
Morris, Miss Anna	3 00
Mott, Miss Marian	2 00
Mundy, Mrs. Floyd W.	5 00
McAlpin, Jr., Mr. D. H.	1 00
MacGregor, Miss Elizabeth T.	1 00
From a "Bird-Lover"	1 00
MacVeagh, Mrs. Charles	3 00
O'Connor, Mr. Thomas H.	5 00
Oliver, Dr. Henry K.	10 00
Olmsted, Jr., Mr. F. L.	1 00
Opdycke, Mrs. Emerson	2 00
Osborne, Arthur A.	2 00
Osterholt, Mr. E	5 00
Parker, E. L.	100 00
Parsons, Miss Kathrine	1 00
Peck, Dr. Elizabeth L.	1 00
Peckham, Mrs. W. H.	10 00
Pegran, Mrs. Edward S.	5 00
Pepper, Mrs. William	5 00
Amount carried forward	$3,863 26

Amount brought forward	$3,863 26
Petty, Mr. E. R.	2 00
Phelps, Miss Frances	2 00
Phillips, Mrs. John C.	25 00
Phinney, Mr. C. G.	1 00
Piel, Mrs. Michael	5 00
Porter, Miss Elizabeth B.	2 00
Porter, Miss Juliet	5 00
Prall, Mr. J. H.	1 00
Puffer, Mr. L. W.	1 00
Putnam, Mr. George P.	2 00
Randolph, Mr. Coleman	10 00
Randolph, Miss Fanny F.	10 00
Raymond, Mr. Charles H.	25 00
Richardson, Mr. H. H.	5 00
Rocketson, Mr. Walton	1 00
Robbins, Miss N. P. H.	3 00
Robbins, Mr. R. E.	10 00
Robbins, Mr. Samuel D.	1 00
Rogers, Miss Frances S.	1 00
Ross, Dr. Lucretius H.	2 00
Sabine, Dr. George K.	1 00
Sampson, Miss Lucy S.	1 00
Saul, Charles R.	5 00
Savage, Mr. A. L.	5 00
Sawtelle, Mrs. E. M.	1 00
Sawyer, Mrs. C. R.	1 00
Schurz, Miss Marianne	5 00
Scofield, Miss Helen	10 00
Scofield, Miss Marion	10 00
See, Alonzo B.	10 00
Shannon, Mr. Wm. Purdy	10 00
Seligman, Edwin R. A.	1 00
Shepard, Miss Emily B.	5 00
Simpkins, Mrs. M. W.	5 00
Simpson, Mr. John Boulton	1 00
Slade, Mrs. M. P.	5 00
Small, Miss A. M.	1 00
Small, Miss Cora	1 00
Smith, Mr. C. E.	2 00
Smith, Mrs. Marshall	1 00
Smith, Mr. Marshall E.	1 00
Smith, Mrs. Mary P. W.	1 00
Snow, Mr. Elbridge G.	5 00
Snyder, Mr. Warren	2 00
Spachman, Miss Emily S.	1 00
Spong, Mrs. J. J. R.	10 00
Squires, Mrs. Grace B.	12 00
Sprague, Dr. Francis P.	10 00
Spring, Miss Anna Riker	5 00
Stanley, Mrs. Mary A.	1 00
Steese, Mrs. Edward	2 00
Stern, Mr. Benjamin	10 00
Stevens, Mr. E. F.	1 00
Stevenson, Miss Anna P.	3 00
Stevenson, Mrs. Robert H.	5 00
Stick, Mr. H. Louis	3 00
Stimson, William B.	1 00
Strond, Mr. H. M.	1 00
Talcott, Mrs. James	1 00
Taylor, Mr. Samuel Law	2 00
Thorndike, Mrs. Augustus	1 00
Amount carried forward	$4,136 26

Amount brought forward	$4,136 26
Timmerman, Miss Edith E.	1 50
Titus, Jr., Mr. E.	2 00
Troup, Mr. Chas. A. S.	1 00
Tucker, Mr. William F.	1 00
Tuckerman, Mr. Frederick	2 00
Tyler, Mr. & Mrs. W. G.	2 00
Ulman, Mrs. Carl J.	2 00
Underwood, Mrs. C. J.	2 00
Van Name, Mr. Willard G.	10 00
Varick, Miss Marguerite M.	1 00
Wadsworth, Mr. Clarence S.	10 00
Walker, Miss Mary A.	1 90
Warren, Mrs. Samuel D.	5 00
Washburn, Miss Annie M	3 00
Wasson, Mr. E. A.	1 00
Weld, Rev. Geo. F.	3 00
Wheeler, Mr. Frank P.	1 00
Wheeler, Mr. Wilfrid	1 00
Wilbour, Mrs. Charlotte B.	25 00
Wilbour, Miss Theodora	50 00
Wilcox, Mrs. William W.	3 00
Williams, Mr. George F.	2 00
Williams, Mr. Robert W.	2 00
Williams, Mrs. Sydney M	2 00
Williard, Miss	5 00
Winkley, Mr. Henry W.	1 00
Wilson, Jr., Mr. Orme	5 00
Woman's Study Club	3 00
Wright, Miss Mary A.	1 00
Wyman, Miss Helen R.	5 00
Young, Mr. William H.	2 00
Zabriskie, Mr. Andrew C.	5 00
	$4,296 76

New Members

From January 1 to March 1, 1913, the Association enrolled the following new members.

Life Members.

Mrs. Charles G. Ash
Mrs. R. T. Auchmuty
Mrs. Clendeny Craydon
Mrs. Jessie S. P. Flint
Mrs. F. B. Hornbrook
Mrs. L. M. Kettle
Mrs. M. G. Ropes
Mrs. Edith A. Stewart

Sustaining Members.

Abbott, Miss Marion S.
Abbott, Mrs. T. J.
Adams, Miss Pamelia S.
Baldwin, Charles Lansing
Balkan, Mrs. W. F.
Barney, Mrs. Charles T.
Biggs, Dr. Hermann M.
Blake, Mrs. S. P.
Boardman, Mrs. Lansdale
Boyd, A. R.
Brenchand, Mrs. J.
Brewster, Jane E.
Brookes, Mrs. Frank

Sustaining Members, continued

Brown, Miss Augusta M.
Brown, Miss M. E.
Bruen, Alexander J.
Buckley, Henry H.
Bullard, Francis
Bunk, K.
Butler, Willard Parker
Carter, Mrs. John W.
Chandler, Mrs. G. W.
Church, Mrs. Morton L.
Cole, Mr. & Mrs. F. A.
Cooper, Theodore
Cowperthwait, J. Howard
Crowell, Miss Mary S.
Dennen, Mr. E. J.
Dennen, Mrs. E. J.
Edmands, Horton
Emerson, Mrs. G. D.
Emery, Mrs. Mary M.
Fenno, Mrs. John A.
Foote, Mrs. E. B.
Frissell, Master Montgomery
Frissell, Master Varick
Gatter, Miss Georgia Almy
Gray, Charles H.
Gulick, Miss Charlotte V.
Hall, Miss Clarissa M.
Hall, George A.
Hall, Miss Sarah C.
Hills, Wm. S.
Hodges, Miss Mary Osgood
Holbrook, Mrs. Frederick
Hooper, Mrs. James R.
Howe, Henry M.
Howell, E. R.
Hoyt, Miss Sue H.
Hoyt, Theodore R.
Jack, Dr. Frederick L.
Jackson, Martin F.
Jenkins, Robert H.
Jones, Mrs. Charles W.
Jones, Dr. Joseph W. L.
Keep, Charles M.
Littlefield, Miss Maude H.
Lusk, Mrs. Graham
McLanahan, Duer
Miller, Dr. Sidney R.
Mitchell, Mrs. J. G.
Moore, Alfred
Murray, Mrs. W. J.
Noyes, Mr. Carleton
Noyes, Mr. Carleton E.
O'Brien, Miss Mary E.
Packard, Horace
Palmer, Mrs. E. Carlton
Palmer, Miss Mary F.
Patterson, Miss Eleanor C.
Peabody, Mrs. Harold
Pope, G. D.
Phelps, Frank M.
Pratt, A. H.
Prime, Mrs. Mary D.
Remick, Mrs. Ella W.
Richards, Henry

Sustaining Members, continued

Robinson, J.
Sayles, Mrs. R. W.
Sinclair, H. R.
Spencer, Mrs. A. W.
Stinchfield, Mrs. Charles
Stone, Miss Lucy B.
Talbot, Fritz B.
Thorndike, Mrs. Alden A.
Wadsworth, Mrs. A. F.
Warner, F. H.
Webb, A. L.
Welch, Charles H.
Whitney, David C.
Whitney, Frank
Wilson, William K.
Woodhull, J. C.
Wynn, Hon. Frederico

New Contributors

Archer, George A.
Baird, Charles
Barrere, Masters Claude & Gabriel
Bevier, Miss Katherine
Brooks, M. W.
Brunswick, Mrs. E.
Burrows, W. H.
Carne, Mrs. C. E.
Chapin, Robert S.
Foster, Miss A. W.
Fries, Misses L. H. & A. M.
Garret, James R.
Hapekirk, Mme. Helen
Johnson, Miss Harriet E.
King, Miss Gertrude L.
Lombard, The Misses
Park, Miss E. L.
Richardson, Charles F.
Robertson, Miss Margaret
Savin, William M.
Seeley, Mrs. William G.
Simpson, Mrs. David F.
Smith College Audubon Society
Sympathizer, A.
Till, Miss Elizabeth
Unknown
Welton, Miss Nellie L.

General Notes

On the coast of Norfolk, England, there is a place known as Blakeney Point, about midway between Wells and Sheringham. It has long been famous as a breeding-place for Terns, Plovers, Oystercatchers, several species of Gulls, and other birds. Announcement was recently made that the Fishmonger's Company, with the coöperation of a few private individuals, has secured the title to over

ONE HUNDRED AND SIXTY-FIVE QUAIL SHOT BY A GEORGIA "SPORTSMAN" IN A TWO-DAYS HUNT

Photographed in the streets of Atlanta

a thousand acres of this coast front and has turned it over to the Government as a "nature reserve." Bird protectionists will welcome this as one of the evidences of the increasing interest in bird sanctuaries on the part of the English people.

IN A recent conversation with Dr. Joseph Kalbfus, Secretary of the State Game Commission of Pennsylvania, that gentleman stated that during the hunting season which recently closed, twenty-eight men were killed and a hundred and twenty-six wounded in the state as the result of hunting accidents, "and there are fifteen counties yet to be heard from," he added. Reports show that seven hundred and fifty-one deer were killed. Thirty does were known to have been illegally taken. Reports of other kinds of game killed show records of one hundred and thirty-eight black bears, seven hundred and thirty-three Wild Turkeys, five thousand, seven hundred and twenty Woodcock, eighteen thousand, four hundred and thirty-five Quail, ninety thousand one hundred and sixty Ruffed Grouse, seventy-six thousand two hundred and eighty-five squirrels, and three hundred and forty thousand rabbits.

WITHIN the past few years there have come to public attention several instances of the wholesale killing of ducks by the pouring of oil into water which they frequent. The present winter such a case was reported in Providence, Rhode Island, where thousands of birds perished in this way. A section of San Francisco Bay was a few weeks ago polluted by the same means as the result of the dumping of great quantities of oil into the bay from the wharves of the Northwestern Pacific Railroad Company—at least the California Game Commission so charges in the warrant they recently served on the officers of that road. This crude oil, besides killing hundreds of ducks outright, clogged the feathers of thousands of water-fowl, which rendered them an easy prey to many men and boys who went hunting for them with clubs.

IT MAY not be generally known that, in addition to the English Sparrow, the English Starling, the English Ring-necked Pheasants, and the Hungarian Partridge, many other species of foreign birds have been introduced into America from time to time, with the hope that they might find this country a land in which they could successfully propagate and enrich our bird fauna. Skylarks have been brought over on several occasions, and, for a time at least, these birds were known to mate and nest on Long Island. Various experiments have been made in an effort to introduce the little Migratory Quail on game preserves in North Carolina and elsewhere. With the exception of the Sparrow and Starling, and to a limited extent, the Ring-necked Pheasant, all efforts to establish foreign birds successfully in this country have resulted in failure. With the memory of these facts fresh in mind, ornithologists will view with concern the attempt now being made to introduce various species of English song birds into the woods and fields of Vancouver Island, British Columbia. A recent dispatch from England stated that a cargo of several hundred Goldfinches, Linnets, Robins, Larks, and Blue-tits, have been exported for this purpose.

THE fine collection of birds gathered during thirty-three years' effort by Manly Hardy, of Brewer, Rhode Island, has been purchased from his heirs by the Rhode Island Audubon Society as a memorial to their beloved founder, Mrs. Henry Grant. The Society has presented the same to the Roger Williams Park Museum of Providence. The collection is one of unique interest and value and contains about seventeen hundred specimens. The City has accepted the gift, and a resolution was recently passed that this collection be properly housed, cared for, and exhibited to the public in the Museum within three years from the date of the passage of the resolution. The Park Commissioners have been authorized to secure plans for the needed fireproof addition to the Museum.

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