

The passenger pigeon. Volume VI, Number 2

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The PASSENGER PIGEON

VOLUME VI

April, 1944

NUMBER 2



NEST AND EGGS OF THE SANDHILL CRANE

PHOTO BY STABER REESE, WISCONSIN CONSERVATION DEPARTMENT

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NEWS . . .

Hats off to Walter Mueller, our first patron member. Not only has Walter become a patron member, but he has also endowed the society. He has provided also continuous subscriptions to our paper for several young members who have been forced to drop out when drafted for service. What the editors like equally well is Walter's steady flow of bird field notes which keep us up to date.

The two pen and ink drawings included in this issue were executed by Phil Sander. You will recall that Phil also designed the bronze plaque depicting the extermination of the passenger pigeon in Wisconsin.

Members have long awaited a synopsis of ornithology as it progressed in our state from the very beginning. How can this picture be drawn more naturally than by means of the brilliantly written biographies of Wisconsin's early naturalists now being prepared for our publication by Dr. Schorger? All ornithologists who contributed something of interest will be included in this series. It is our expectation to carry one of these articles in each issue and to illustrate it as well as possible.

We are pleased to welcome Carl Richter back again in our field-note department. Illness of long duration has prevented Richter from reporting regularly as was his former custom.

Earl Wright recently contributed a nicely executed pen and ink drawing of a passenger pigeon, suitable for framing, to the library of the society.

A glance at the first article in this paper will convince anyone that the writer, Dr. Morgan, is an authority.

The cover picture of the sandhill crane's nest and eggs was taken in Adams County.

The May-day census results will appear in the next issue. All participants who have not as yet sent in their list should do so by return mail.

The society is now in possession of two war bonds.

Thure Kumlien, Koshkonong Naturalist, by Angie Kumlien Main, is the title of a new book now available at cost from the author. Mrs. Main, granddaughter of Thure Kumlien, wrote the biography as a "labor of love" in conjunction with the centennial celebration of Kumlien's coming to this country from Sweden in 1843. Thure Kumlien did not allow his farm work to interfere with his hobbies of ornithology and botany. The reader will

enjoy the romantic style of the author and the array of personal correspondence and diary entries reproduced in the manuscript. The Naturalist carried on copious correspondence with his colleagues both in this country and abroad. The book is well illustrated and bound in stiff covers. Price \$1.25 from Mrs. Angie Kumlien Main, Fort Atkinson, Wisconsin.

Attorney A. S. Bradford of Appleton, member of the society, volunteered his professional services to the organization when needed. This has been in effect since our incorporation.

It has recently come to light that some passenger pigeons have been observed since the proverbial date of 1914. Honorary Director C. W. G. Eifrig of the Illinois Audubon Society, and professor of biology (now retired), asserts that he saw one in 1911, and a pair in 1923. The first specimen was accompanied by a mourning dove giving ample opportunity for comparison. The pair of 1923 was observed on four different days from May until July. Eifrig concludes with the remark that in 1941 mention was made in "American Forests" of an instance when the species was seen in the Alleghanies. The article by Eifrig may be read in the Illinois Audubon Bulletin.

A passenger pigeon mounted specimen was donated to the Department of Zoology, University of Wisconsin, reports Dr. Wolfe, professor of zoology. It was a gift of Mrs. Leona Jeffery who was formerly from Lodi, Wis. The specimen was collected and mounted by Leonard G. Van Ness, who graduated from the Engineering School in 1896, and was regarded as part of his estate. When he collected it he lived with his folks on a farm on the south side of Gibraltar Rock and it is supposed that he obtained it there between the years 1890 and 1896. The mount is now on display in the lobby of the Biology Building.

The Canvasback on a Prairie Marsh, by H. A. Hochbaum, is another new book by an ornithologist who has spent considerable time in Wisconsin. It is an ecological approach to the study of breeding ducks of a Manitoba marsh, and is the first comprehensive study of territorial behavior in ducks. Illustrated by the author, who incidentally is an artist. Published by the American Wildlife Institute, Washington, D. C.

At a recent meeting of the Milwaukee Bird Club, Mark Doll was elected president and Donald Bierman, Secretary-Treasurer.

(Continued on page 51)

MEMBERSHIP FEE OF \$1 INCLUDES 75 CENTS FOR SUBSCRIPTION TO THE PASSENGER PIGEON, QUARTERLY PUBLICATION OF THE WISCONSIN SOCIETY FOR ORNITHOLOGY, INC. SPECIAL MEMBERSHIPS: SUSTAINING \$5; LIFE \$25; PATRON \$50 OR MORE. SEND MEMBERSHIP APPLICATIONS AND DUES TO THE TREASURER, J. HARWOOD EVANS, 517 JACKSON DRIVE, OSHKOSH, WIS. SEND MANUSCRIPTS TO THE EDITOR, N. R. BARGER, 4333 HILLCREST DRIVE, MADISON 5, WISCONSIN.

ENTERED AS SECOND-CLASS MATTER SEPT. 4, 1940, AT THE POST OFFICE OF MADISON, WISCONSIN, UNDER THE ACT OF MAR. 3, 1879.

Bird Mortality

By BANNER BILL MORGAN, Parasitologist

Department of Veterinary Science, University of Wisconsin, Madison

Illustrated by the Author

Introduction

Birds have maladies of their own with which man should become familiar—mainly to prevent the extinction of native species, though also to gather information which may be utilized in the control of related parasites and diseases of humans.

Many birds die every year. What causes them to die? Does a mortality cycle occur in birds? Do birds tend to slink away and hide when they are not feeling well? Why aren't more bird carcasses found? Do birds have heart attacks, nervous disorders, indigestion? What percentage of our wild birds die of natural causes, accidents, old age, the hunter's gun, predators, diseases and parasites? Obviously, what information is available is too meager to answer these questions satisfactorily.

If you have the opportunity to peruse Joe Hickey's book entitled "A Guide to Bird Watching" (incidentally an ornithological gem) devote especial study to page 168 where you will be challenged by a chart with the laconic title, "Handbook information still wanted on North American birds." In scanning the data you will observe the material is divided into three categories, namely: complete, fairly complete, and incomplete. The section dealing with parasites and diseases of birds about which we should be most vitally concerned is labeled incomplete—a very explicit though incredible statement of the *status quo*.

The writer wishes to impress ornithologists with the invaluable assistance they can offer the parasitologist and disease expert in obtaining pertinent data on the causes of death in our wild birds. Their observations, supplemented and amplified, will prove a priceless contribution to the profession if the findings are directed to qualified persons.

Well, what are some of the diseases and parasites which may bring death to our bird population? One hears a lot about parasites and parasitisms but always with a derogatory inflection. Let us not forget that parasites, although conceded obnoxious, are somewhat intelligent creatures and therefore need not be regarded in utter disdain. They are smart enough, in general, to propagate at a rate which will not kill the host but which will establish a fairly stable equilibrium between themselves and their hosts. Only in rare instances will animal parasites kill the host; and, if they do, they have predicted the situation and have taken the precautions to sow many, many eggs or larvae into the proper biological environment which will insure their survival for all time to come. We must credit them with the wisdom to get along with their hosts. Hence, when deaths of birds is due to parasites, its origin can probably be traced to overcrowding of birds reaching epizootic proportions in a certain area and ultimately terminating in a depreciable drain of the original bird population.

It is surprising how many parasites a bird may harbor and still show no ill effects, but under certain conditions some animal parasites will kill the host. Infrequent reports have shown an occasional robin which probably died of tracheal worms and a duck whose death was caused by gizzard worms. More rarely epizootics such as gizzard worms in grouse have been reported which precipitated the death of birds in large numbers. This, however, is of minor consequence to the death rate of birds. Something else must be responsible. Actually, very little is known about the endoparasites of our passerine birds.

Bacterial Diseases

Possibly the most important reason for mortality in birds would be the diseases initiated by bacteria and viruses. If birds are examined soon after death, many etiological agents could be determined; however, this may not be very practicable. By the time the expert examines a bird carcass—in the remote case when one is obtained—practically all evidence of the disease has been destroyed by putrifying bacteria and other decay-producing organisms. Thus, our knowledge is drastically meager concerning the diseases of our wild birds. Sick or dead birds are quite difficult to find because their adaptive coloration offers little contrast to their surroundings and camouflages them skillfully from ornithologists as well as from amateur sympathizers. Moreover, dead birds are rapidly disposed of by scavenger mammals, birds, insects, and other forms so that in a very short time no trace of the bird remains.

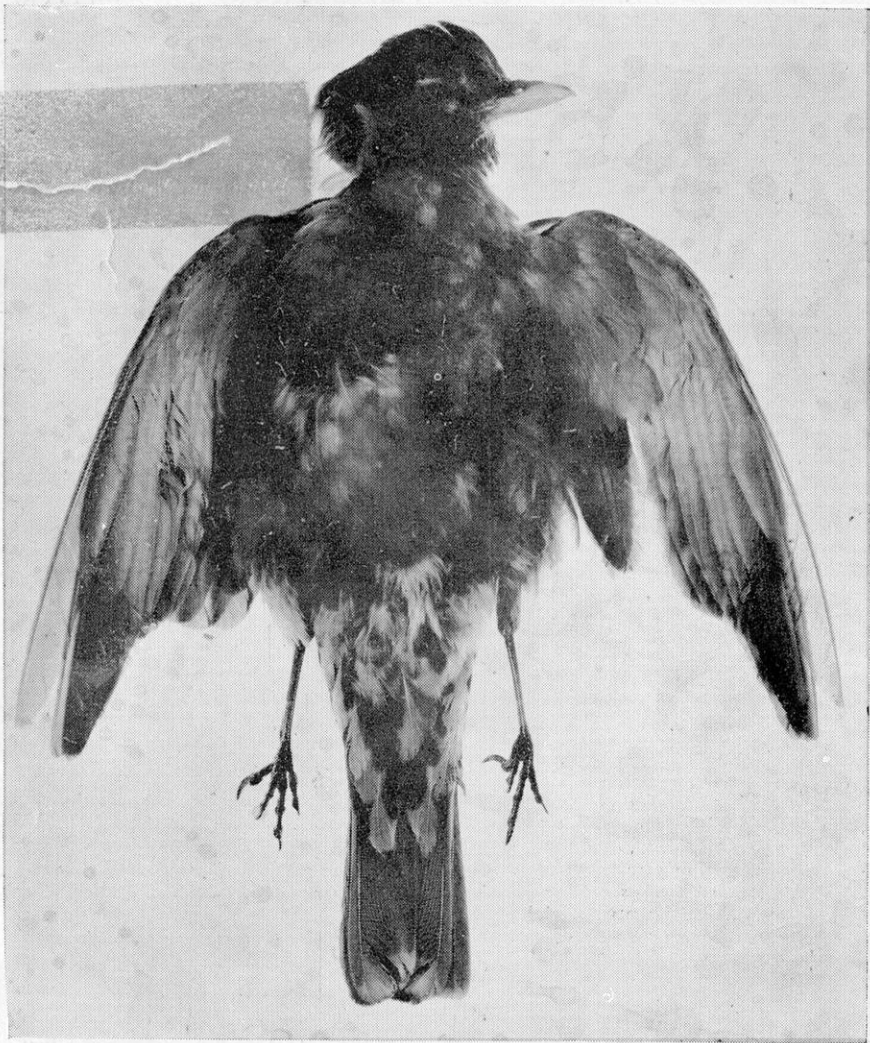


FIG. 1. VENTRAL VIEW OF A ROBIN FOUND DYING NEAR AN OAK TREE. EXAMINATION OF BIRD REVEALED HEAVY PARASITISM OF MITES, WORMS AND MALARIA.

Losses, therefore, have never been adequately studied in connection with wildlife population cycles. Generally the cycle is not recognized until some time after the losses occur.

Some strides have been made to increase our knowledge of avian diseases. A new virus disease highly fatal to the great horned owl has been recently isolated. Other bacterial infections of our wild birds have been recorded; just how many of them have proved fatal to birds is not known. There are, no doubt, many other diseases to be disclosed before a complete catalogue can be assembled.

Staphylococcus infections have been reported from geese, ducks, pigeons, canaries, and pheasants. These pyogenic organisms produce the various abscesses or pus pockets seen in birds. The causative organism, which creates streptococcus infections has been diagnosed in sparrows, blackbirds, ducks, parrots, and pheasants; a tetanus-like disease of birds has been located in geese. Type A botulism has infected the goldfinch and common finch—presumably from feeding on spoiled canned vegetables thrown in the garbage. Type C Alpha botulism has been recognized in the following 69 birds:

cared grebe, Western grebe, white pelican, Farallon cormorant, Treganza's heron, snowy egret, black-crowned night heron, white-faced glossy ibis, Canada goose, white-fronted goose, common mallard, common black duck, gadwall, baldpate, American pintail, green-winged teal, cinnamon teal, shoveller, redhead, ring-necked duck, canvas-back, lesser scaup, American golden-eye, buffle-head, ruddy duck, red-breasted merganser, marsh hawk, prairie falcon, duck hawk, ringed-necked pheasant, American coot, killdeer, American golden plover, black-bellied plover, ruddy turnstone, Eastern solitary sandpiper, Western willet, lesser yellow-legs, American knot, Baird's sandpiper, pectoral sandpiper, least sandpiper, red-backed sandpiper, long-billed dowitcher, stilt sandpiper, Western sandpiper, marbled godwit, sanderling, avocet, black-necked stilt, Wilson's phalarope, Northern phalarope, parasitic jaeger, California gull, red-billed gull, Franklin's gull, Bonaparte's gull, Forster's tern, black tern, horned lark, Northern cliff swallow, American magpie, American pipit, Western meadowlark, yellow-headed blackbird, Nevada red-winged blackbird, rusty blackbird and Brewer's blackbird. Type C, D, and unknown types of botulism have invaded the Nile goose, gray-backed duck, ostrich, pigeon, swan, brown-headed gull, Trudeau's tern, coot, Southern pintail and lapwing.

The golden eagle, crowned hawk and other falconiformes have been attacked by diphtheroid infections. Brucellosis (undulant fever) has been induced experimentally in the pigeon, pheasant, duck and goose though chances of the organism being found in nature is remote. Pseudotuberculosis has affected ducks, pheasants, tiger-finch, butterfly finch, Japanese titmouse, swan, and blackbird.

Tuberculosis has a wide horizon of infection and has been recognized in many birds as follows: cowbird, avocet, blackbird, honey buzzard, white-crested bittern, oystercatcher, crane, crossbill, crow, dove, turtle dove, ring dove, golden-eye duck, wood duck, booted eagle, lesser spotted eagle, fish eagle, mallard duck, duck hawk, falcon, red-legged falcon, flamingo, goshawk, goose, black-headed gull, gyrfalcon, marsh harrier, hen harrier, Eastern sparrow hawk, rough-legged hawk, little blue heron, sacred ibis, jay, kite, barn owl, ostrich, parrakeet, parrot, partridge, pheasant, pigeon, and thrush.

Tularemia has infected quail, ruffed grouse, sage hen, sharp-tailed grouse, and has been produced experimentally in blue grouse, pheasant, pigeon, Hungarian partridge, Eastern red-tailed hawk, and red-shouldered hawk; fowl cholera occurs in ducks, geese and pigeons.

Wild birds such as ostrich and duck may sometimes act as mechanical carriers of anthrax, a disease which has been experimentally produced in the pigeon, canary, jay, hawk, sparrow, robin, crow, finch and goldfinch. Swine erysipelas, a disease which can be transmitted to man, has been diagnosed in the duck, pigeon, pheasant, coot, peacock, quail, thrush, parrot, ostrich, owl, crane, flicker, and various zoological garden birds. Pullorum disease—a common malady of poultry—is most likely to attack pheasants, quail, ducks, sparrows and finches.

Paratyphoid infections have been recorded from the duck, pigeon, goldfinch, parrot, parrakeet, siskin, finch, quail, pheasant, goose, swan, pelican and brown creeper. The etiologic agent of ulcerative enteritis of quail, partridge, pheasants, and grouse has not been determined, but this is thought to be bacterial. The above descriptions should precipitate the conclusion that much work needs to be done on the bacterial disease of birds. Of those listed, several—such as swine erysipelas, tularemia, anthrax, brucellosis and tuberculosis—may be transmitted to man.

Virus Diseases

Very little is known about the virus diseases of wild birds; therefore, little material has been available for study although some information has circulated about the affliction previously mentioned in the great horned owl.

Equine encephalomyelitis, a highly fatal virus diseases of horses and a secondary disease in man, occurs in nature in ring-necked pheasants, prairie chickens, and sparrows. The disease has been experimentally produced in various hawks, geese, blackbirds, white storks, vultures, and mallard ducks. Two outbreaks in wild ducks previously diagnosed as botulism were found to have epizootic encephalitis. In 1941, 2,000 birds died, and in 1942, 1,500 were victims. These epizootics, thought to have been part of an epidemic of equine encephalomyelitis, are credited with the large toll in bird lives. Rabies have been produced in owls and hawks but as yet have not been found in nature. The starlings in England have been accused of spreading foot and mouth disease. Psittacosis is an avian disease caused by a filterable virus to which man is highly susceptible. Visibly healthy-looking birds may harbor the virus and spread the disease. Psittacosis tends to be endemic in many pet shops and bird-breeding establishments. Certain tropical birds living in South America, Australia, Cuba, Mexico, and Africa are the main carriers of psittacosis. Some of these are as follows: blue-fronted Amazon parrot, macaw, short-tailed parrot, shell parrakeet, sulphur-

crested cockatoo, smoker parrot, lorikeet, grass parrot, cockateel, ring-necked parrakeet, spectacled parrotlet, and others.

A comprehensive review published on psittacosis estimates the mortality rate between 30 and 40 per cent in man. (Outbreaks of human psittacosis in the United States have been recorded in 1917, 1930, and 1934.) The disease apparently is spread by inhalation of dust which has been contaminated with infective particles of fecal droppings, urine, feathers, or nasal secretions and is capable of producing a high degree of fatality in our wild birds. Spontaneous outbreaks of psittacosis in finches have been reported on several occasions. Others infected include: canary, goldfinch, bullfinch, blackbird, crossbill, titmouse, siskin, yellow-crowned sparrow, pekin robin, ricebird and firefinch.

On very rare occasions man may "bite the bird" and spread contagion in that manner. Proof of this lies in several records from Europe and one or two cases in the United States which have shown that tuberculosis patients have transmitted tuberculosis to their pet parrots, parrakeets or cockatoos.

Protozoa

Birds are also afflicted with their share of protozoan diseases. These small, one-celled animals may at times become as devastating as some of our most virulent bacteria. Twenty-five species of trichomonads—a small, pear-shaped flagellate—have been reported from the alimentary canal of birds. The majority of species are merely saprophytes—"just along for the ride"—though a few produce fatal results.

Trichomonads have been recorded from the following birds: ducks, geese, cayenne wood rail, ani, Guira cuckoo, yellow-billed cuckoo, ruffed grouse, nighthawk, crow, California Valley quail, bobwhite quail, European partridge, American coot, Cooper's hawk, red-tailed hawk, red-shouldered hawk, golden eagle, sparrow hawk, duck hawk, pigeon, ring dove, mourning dove, white-bellied dove, Indian dove, Tovi parrakeet, Java sparrow, English sparrow, various forms of poultry, cormorant, nacunda nightjar, knot, screech owl, ringed-necked pheasant, least sandpiper, pectoral sandpiper, semipalmated sandpiper, sora rail, and Alpine stint.

Of 412 birds representing 44 species, 22 families and 11 orders examined for trichomonads the total of those infected numbered 168 (40.8 per cent); twelve were raptors and 156 were pigeons. The 244 (59.2 per cent) negative birds consisted of 29 hawks and owls, 89 pigeons and 129 other types such as the heron, duck, woodcock, flicker, downy woodpecker, barn swallow, blue jay, crow, robin, thrush, starling, purple grackle, cowbird and sparrow.

Coccidiosis is a serious and widespread disease of birds about which more should be learned. It originates from coccidia, one-celled animals which develop and multiply in the epithelial cells (cellular tissue which cover the free surfaces of the intestinal tract) and cause destruction of the host tissue. To what extent the coccidia cause death and infect birds in nature is not well known. There is no doubt that under certain circumstances coccidiosis takes a heavy toll of our wild birds. After multiplication the parasite passes from the host in the fecal material. Under correct biological environment the spores develop which is infectious to other birds. Hemorrhage often accompanies this disease.

The coccidia of birds are divided into two large groups, *Isospora* and *Eimeria*. One hundred and seventy-six species and subspecies of birds have been reported as hosts of *Isospora*. One hundred and forty-seven of these are in the order Passeriformes while the remaining 26 are scattered through eight orders. The list includes Cooper's hawk, Swainson's hawk, sparrow hawk, grouse, lapwing, killdeer, cuckoo, horned owl, short-eared owl, swift, kingfisher, red-shafted flicker, green woodpecker, phoebe, skylark, crested lark, horned lark, swallow, martin, oriole, blue jay, crow, magpie, titmouse, nuthatch, thrush, house wren, mockingbird, catbird, brown thrasher, robin, blackbird, redwing, hermit thrush, red-winged thrush, song thrush, bluebird, wheatear, nightingale, warbler, kinglet, gnatcatcher, flycatcher, wagtail, pipit, shrike, starling, red-eyed vireo, honey-creeper, English sparrow, meadowlark, red-winged blackbird, bronzed grackle, cowbird, tanager, cardinal, grosbeak, goldfinch, housefinch, red-eyed towhee, song sparrow, junco and white-crowned sparrow.

Many birds are infected with the genus *Eimeria*. Complete lists of avian hosts assembled show that they may harbor more than 47 different species. Some of the birds attacked include the cormorant, duck, goose, swan, grouse, partridge, quail, pheasant, crane, rail, coot, moor-hen, plover, snipe, sandpiper, woodcock, gull, tern, pigeon, dove, woodpecker, wagtail, pipit, sage hen, poultry, shag, owl, starling, heath cock, and redshank. Because of its wide distribution among birds and in the light of its known pathogenicity, coccidiosis must be considered a potential cause for the death rate in wild birds.

Another little known disease is hexamitiasis caused by a flagellate protozoan which may produce a fatal catarrhal enteritis of turkeys, ducks, quail, pigeons, partridge

and other birds. Avian malaria, trypanosomes, toxoplasma, and microfilaria are classified as blood parasites.

A great deal of work has been done with bird malaria for the obvious reason that it correlates with the human malarial types. A fatal case of spontaneous malaria has been reported in a canary. A few summary citations from various works will indicate the scope in which avian malaria is being studied though the unknown factor—that little is known concerning the mortality rate of birds in nature—provides a strong obstacle.

Blood parasites were found in 30 per cent of 618 birds examined. The birds were distributed among seven orders. Of 275 birds (14 families and 23 species) 20 per cent were diagnosed as infected with blood parasites. Twenty-three and four-tenths (23.4) per cent of 1,525 birds representing 112 species and subspecies harbored blood parasites. They were also located in a ratio of one out of seven birds in a total of 1,103.

A very rare and unfamiliar disease of birds which has been found in the English sparrow and bronzed grackle is toxoplasmosis by a small protozoan which also lives in the red blood cells. Since little study has been made on trypanosomes and microfilaria which occur in birds (microfilaria have been reported from several of our passerine birds but in most cases the adults have not been found or described), here are very fertile fields for scientists to pursue.

Fungi

In wild birds aspergillosis, a disease caused by a common mold, has been given very limited studies. We know this fungus invades the lungs and air sacs and occasionally forms nodules which resemble tuberculosis. We also know that an infected bird breathes with great difficulty, sneezes, coughs, gasps for air and later succumbs. This disease is most prevalent in zoological gardens where birds are kept in captivity and has been reported from the mallard duck, snowy owl, Thayer gull, glaucous-winged gull, herring gull, song sparrow, pintail, shoveller, green-winged teal, cinnamon teal, widgeon, and whistling swan. Scientists have attributed to aspergillosis the death of 350 mallard ducks in a brief epizootic of mycotic pneumonia in California. Favrus, a rare fungus disease of birds found in crows and blackbirds lives on or in the skin and produces sloughing of the feathers.

Ectoparasites

Parasitologists have some knowledge concerning bird lice, mites, flies, and ticks. One of the best papers on the subject consists of a list of the external parasites from birds of the eastern part of the United States. One hundred and ninety-eight different species of external parasites are reported from 255 species and subspecies of wild birds whose residence is in the various states east of the Mississippi River.

It is possible for every bird to have several types of lice, hippoboscids, flies, mites and ticks. More field collecting as a result of stimulated interest on the part of ornithologists is needed to increase our knowledge of this provocative group of parasites. Just how instrumental they are in contributing to the mortality rate of wild birds has not been determined.

Some of the birds which have been found heavily infected with lice, flies, ticks, and mites include the following: loon, grebe, shearwater, fulmar, pelican, cormorant, heron, egret, bittern, wood ibis, whistling swan, goose, ducks of all types, hawks, grouse, quail, pheasant, rail, coot, plover, killdeer, woodcock, snipe, sandpiper, knot, phalarope, gull, tern, dove, owl, nighthawk, kingfisher, woodpecker, kingbird, flycatcher, swallow, martin, jay, crow, chickadee, wren, mockingbird, catbird, brown thrasher, robin, thrush, meadowlark, red-wing, oriole, blackbird, grackle, cowbird, tanager, cardinal, grosbeak, goldfinch, sparrows of all types, junco, and bunting.

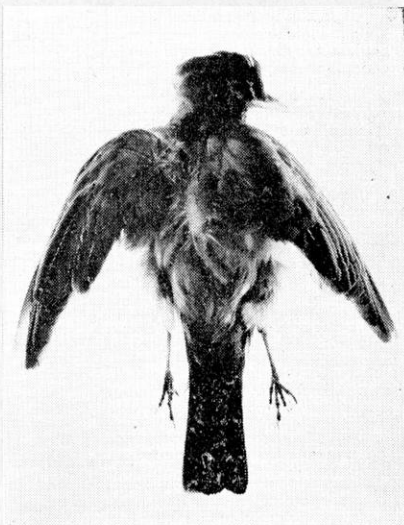


FIG. 2. DORSAL VIEW OF THE SAME ROBIN SHOWING DENUDED AREAS CAUSED BY MITES.

Many ectoparasites transmit diseases from one bird to another, but avian malaria is spread by mosquitoes. This latter means of contagion was recognized in birds long before the parallel was discovered in human malaria. The infection to man is carried by the anopheline mosquitoes, to birds by the culicine. Other types of bird malaria are transmitted by hippoboscids flies and black flies.

Ticks from tularemia-infected cottontail rabbits have fed on game birds and thus transmitted the disease. Lice usually eat feathers as do certain groups of mites; other mites are vampires. A rusty blackbird was infected with mites so badly that the bird was denuded of feathers except for the outer primaries (tips) of the wings and tail. Death, no doubt, was produced by the parasitic mites involved. In many cases the nests of various passerine birds—especially the tree swallow, blue bird, chickadee, sparrow, and robin—swarm with bird mites.

Careful studies should be made concerning the life cycle of a group of ectoparasites, the blood sucking flies, which is known to kill young nestling birds. This type is a larva or fly maggot which, when present in a sufficient quantity in a bird's nest, may suck enough blood to cause the death of its young victims. The bluebird, starling, robin, tree swallow, chickadee, house wren, sparrow, purple finch, goldfinch, towhee, hawk, and owl are among those reported in the literature to have died from the ravishes of this blood-sucking maggot.

Helminths

To list all of the helminths would constitute two prolonged an assignment for this paper so only a general reference can be made to this complicated group of parasites which includes the tapeworms, flatworms, and roundworms. Very rarely are they instrumental in motivating the death of the hosts though tapeworms have blocked the intestinal tract of some mallards and Canada geese so severely that death was the consequence. Certain roundworms in the stomach of the pelican have also been responsible for fatalities, and on rare occasions filariasis has been determined to cause the death of a whistling swan.

Within the past five to ten years the first notable progress concerning helminths of our wild birds has been recognized. However, until the ornithologist and parasitologist work together to obtain adequate information we cannot anticipate correct evaluations of what produces death in our wild birds.

The writer has published papers in which complete host lists are incorporated on the parasites of the Eastern crow, pinnated and sharp-tailed grouse, and a monograph of the nematode subfamily *Physalopterinae* which occurs in birds.

When herring gulls were reported to be dying near the coast of Maine, examinations were made which revealed birds heavily infected with helminths of which the majority were flukes. A paper is now in the press concerning an anal fluke which produces tumor-like growths around the vent of many passerine birds. The loss of wild ducks due to an infection of a small intestinal fluke has also been reported. Certain nematodes have caused the death of partridge, grouse, and other upland game birds. In some parts of the Orient the pelican may act as a reservoir host for an intestinal fluke of man.

Miscellaneous

There has been an incredible mortality rate in wild birds on the Washington coast—all probably victims of secondary poisoning due to the toxic marine organisms—which presents a concrete example of the role protozoa play in producing death in birds. Death of young ducks has also originated from eating poisonous algae.

Lead poisoning from which many thousands of birds die annually causes its highest mortality among ducks, geese, and other waterfowl. The lead shot ingested by the birds becomes trapped in the gizzard with gravel and is slowly ground to a powder by the grit. Absorption of this finely pulverized metal by the intestine produces a severe lead poisoning which is usually fatal. Waterfowl develop a typical greenish diarrhea from lead poisoning. Later paralysis of the pectoral muscles prevents flight; finally complete paralysis disables them and the red blood cell nuclei disintegrate.

Very little is known about the effects of malnutrition, poisoning, exposure, toxemia, gout, suffocation, enteritis and other pathological conditions or the extent to which they contribute to the mortality of our wild birds. Infrequent reports have been made on avian cancer in grouse, blackbird, and hawk in which the parts infected included the head, eye, lower mandible, and internal organs.

A common cause for the loss of birds results from collision with telephone wires, monuments, fences and other objects of which the most numerous cases occur during the spring and fall migrations.

A small percentage of birds die from the ingestion of foreign bodies which penetrate the digestive system and produce severe pathological conditions. Such accidental fatalities often terminate after birds have eaten phonograph needles, thumb tacks, nails, fish hooks, glass, pieces of wire, screws, and other materials. Impaction of the intestine may occur if birds feed or swallow coarse excelsior fibers, long pieces of string, or flexible wire. Some birds die of phosphorus poisoning by feeding on the remains of fireworks after the Fourth of July.

Certain investigators after examining 3,000 birds—mostly waterfowl—in the West over a period of four years, found the following: botulism, 1,647 cases (48.76 per cent); mechanical injury, 556 cases (18.5 per cent); lead poisoning, 259 cases (8.6 per cent); pneumonia, 113 cases (3.77 per cent) and parasitism, 101 cases (3.3 per cent). Fatalities of many young herring gulls have been reported for which unknown causes—possibly parasites—were responsible.

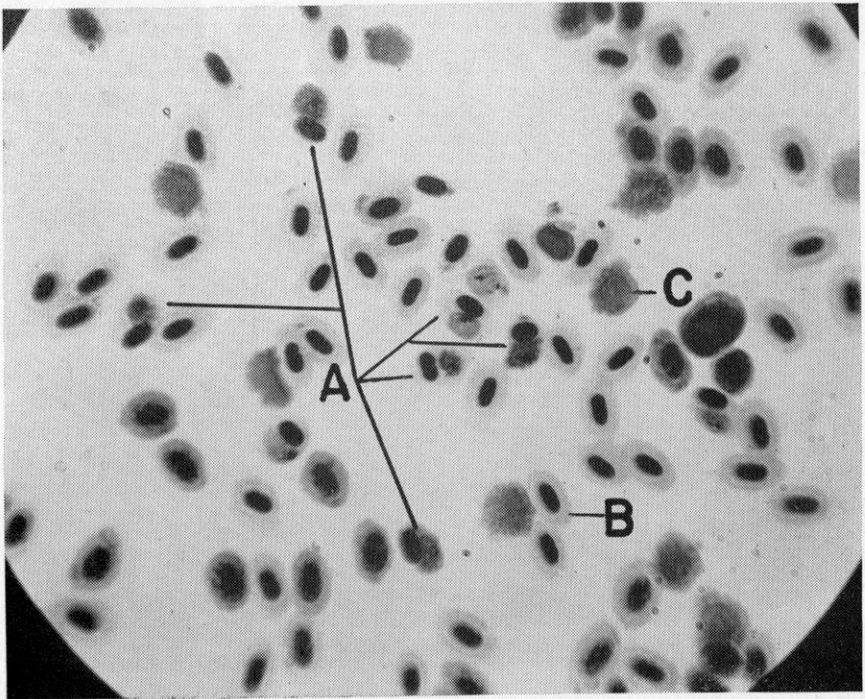
Use of Birds in Research

In several ways our birds aid man in the struggle against diseases and parasites. Many of our laboratory experiments in biological research depend upon certain birds. Practically all medical research with malaria is based on birds since avian malaria is closely allied to the human form.

The canary is used in medical research for therapeutic and curative studies on malaria. The experiment embodies the injection of various drugs into canaries infected with malaria and the comparison of the drugs in relation to their malaria-destroying properties. The most promising materials are then tested on humans in strictly regulated experiments under capable medical supervision.

Some of the common Wisconsin birds infected with avian malaria include the following: house wren, catbird, robin, Northern yellow throat, English sparrow, and white-throated sparrow. Just what proportion of birds die in nature with avian malaria has not been determined.

Much could be learned about human filariasis (elephantiasis)—quite prevalent in the Pacific theater of war—if more research were applied to a similar filarial nematode



BIRD MALARIA FROM THE ROBIN SHOWN ON FIGURES 1 AND 2. A SHOWS RED CELLS PARASITIZED BY MALARIA. B SHOWS A NORMAL RED CELL. C SHOWS A NORMAL WHITE CELL.

worm which lives in the body cavity of our common crow. The writer has found approximately six to eight per cent of Wisconsin crows infected with this parasite. The life cycle has not been established, but in all probability a mosquito is the intermediate host. If this is the case, the gap responsible for an incomplete cycle in human filariasis could be bridged by studying these similar forms which are accessible in the common crow.

Perhaps more could also be learned about a human parasite which lives in the muscle fibers if bird forms were more extensively studied. The writer has found this parasite in Wisconsin in a red-winged blackbird and in a bronzed grackle in Dane County. The following American birds have been infected with Sarcosporidia: mallard, black duck, gadwall, pintail, teal, shoveller, turkey vulture, Wilson's snipe, American redstart, and rose-breasted grosbeak.

Pigeons are employed for the propagation of pigeon pox virus to make vaccine for the prevention of fowl or chicken pox. Fowls, though immune to natural or artificial infection with the pigeon strain of pox virus, respond to the pigeon virus by vaccination. Thus a modern use of pigeons which benefits mankind has been developed for the cultivation of pox virus to protect poultry against fowl or chicken pox.

Pigeons are also used in the U. S. D. A. potency test of anti-swine erysipelas serum prior to its release for commercial distribution. Several pigeons are injected with erysipelas serum; and several, not injected, are used as controls. Then all birds are inoculated with a 24-hour broth culture of the swine erysipelas bacterium. Before the serum can be placed on the market all controls must have died within eight days, and all those protected with the preliminary injection must have withstood the infection. This development of the swine erysipelas vaccine has saved the swine industry many millions of dollars.

The feathers or downs of the goose, duck and chicken are primarily the cause of allergic reactions in human beings from which detrimental effects have been produced. Women have also suffered allergic reactions by wearing hats adorned with canary, parrot or other exotic bird feathers. Pigeon, turkey or swan feathers, however, very rarely produce allergy.

In reviewing his aims the writer believes that he has summarized the information available on the diseases of birds, that he has made logical speculations in ascertaining what might cause their mortality, and that he has emphasized the gaps in our knowledge of the maladies that afflict birds. He has also appealed to the need for ornithologists and disease experts to collaborate in gathering, constructing and publishing data which will contribute to the why's of the losses of our wild birds.



SANDHILL CRANE HABITAT. THE NEST AND EGGS OF THE SANDHILL CRANE APPEARING ON THE COVER PAGE WAS TAKEN IN ADAMS COUNTY. BELOW IS PICTURED THE ENVIRONMENT OF THE NEST. THE NEST WAS BUILT ON THE GROUND DIRECTLY BELOW THE CRANE WHICH MAY BE SEEN FLYING IN THE CENTER OF THE PICTURE.



Henry Rowe Schoolcraft

By A. W. SCHORGER
Madison, Wisconsin

The Schoolcrafts were descended from an English family, Calcraft. The reason for the conversion of the name to Schoolcraft on American soil remains unknown. Henry Rowe Schoolcraft was born in Albany County, New York, March 28, 1793. He had a natural bent towards geology and the other sciences, but in them he was largely self-taught. A commercial venture, glass making, resulting in failure, he went to Missouri in 1818 and made personal geological explorations in the region until the summer of 1819. The results appeared in a book, **A View of the Lead Mines of Missouri.**

Lewis Cass, Governor of Michigan Territory, suggested in 1819, a government expedition to search for the source of the Mississippi River. Late in the fall of that year, Schoolcraft went to Washington armed with copies of his book. He succeeded in arousing the interest of President Monroe, and especially that of the Secretary of War, Calhoun. The outcome was his appointment to the expedition.

The expedition left Detroit May 24, 1820. Trained zoologists were rare at that time and none was included in the party. Aside from being the official mineralogist and geologist, Schoolcraft was instructed to attend to "as much of its zoology and botany as water transport would permit." We owe to him the first pretentious notes on Wisconsin birds, limited as they are in the light of modern knowledge.

It is difficult frequently to determine to what species he refers. The use of the unqualified word "plover" is far from enlightening. The ornithological notes are scattered widely, principally in the volumes listed below. Clarity is achieved only by piecing together the scraps of information.

Wisconsin was successively a part of other territories in the early days of the republic. In 1818, along with eastern Minnesota, and the Upper Peninsula, it belonged to the territory of Michigan. Independent territorial status was not acquired until 1836. It is desirable therefore to include the ornithological data obtained in what are now contiguous states.

The expedition of 1820 went from Detroit through the St. Mary's River into Lake Superior, and then westward along its southern shore. On June 30, at the mouth of the Ontonagon River, "vast numbers" of wild pigeons were killed, some with sticks and stones as they were flying very low. Where Superior now stands, they entered the St. Louis River. The "prairie hen" shot in the swamps along the river was probably a sharp-tailed grouse or a spruce grouse. After a gruelling trip, Sandy Lake in Minnesota, was reached. Here the blue jay, brown thrasher, pigeon, and "turtle dove" were seen occasionally. On July 18 he records: "Ducks and plover have been continually in sight.—The robin (*turdus migratorius*), brown thrush, [red-winged] blackbird, crow, and water loon, have also been noticed." The next species mentioned are the wild geese and the "heron". The expedition reached "Lake Winnipeg" July 20, and while here the following additional birds were seen: turkey-buzzard, raven, bald eagle, kingfisher (*Alcedo alcyon*), black duck, pelican, cormorant, "brant, and plover". A dead white pelican (*Pelecanus onocrotalus*) was found on the rocks.

Near Pine River, while descending the Mississippi on July 26, he heard the whinnying-cry for the first time. It was called "Muck-a-wiss" by the Indians, this name expressing their idea of its notes. In the 1855 edition, he mentions only "the monstrous notes of *Caprimulgus Virginianus* [nighthawk]" and thereby falls into error through the use of the incorrect scientific name. This day he also saw the mockingbird. The identification was evidently correct for in (1) he calls it "mock bird," and in (4) *Turdus polyglottus*. He was aware of the rarity of the species for in (3) he states that it has been found a couple of times on Mackinac Island, but never farther north. At the Falls of St. Anthony, Indian pipes decorated with the "tuft feathers of the male duck or red-headed woodpecker" were noted.

Near the mouth of Elk River his party was awakened near dawn by the half-human cry of *Strix nyctea*. The identification, obviously erroneous, was based on sound. He was familiar with the snowy owl for in 1823 he wrote that this species, the Canada jay, various woodpeckers, and occasionally a ptarmigan, are to be found at the Sault in winter.

The entry of August 9 states that the birds found along the Mississippi River near Prairie du Chien are the turkey-buzzard, white pelican, wild pigeon, "snipe", wild



HENRY ROWE SCHOOLCRAFT

turkey, raven, and blue jay. Between Prairie du Chien and Portage, on the Wisconsin River, he observed the woodcock (*Scolopax minor*), "flover", kingfisher (*A. alcyon*), a "small yellow bird", whip-poor-will (*C. vociferus*), wild goose, "brant", "grouse", "snipe", wood duck (*A. sponsa*), wild turkey, and song sparrow (*F[ringilla] melodia*). The listings in (1) and (4) differ considerably and the above is a composite one. He mentions the "summer duck" separately from *A. sponsa* though they are identical.

Attention is called by him on this trip, and on several subsequent ones, to the vast numbers of red-winged blackbirds and ducks to be found in the wild rice along the Fox River. After reaching Sturgeon Bay and crossing to Lake Michigan, the expedition proceeded south to the present site of Chicago. The last entry of ornithological importance was made on August 25. Before reaching the Manitowoc River, great numbers

of drowned wild pigeons were found washed ashore. These were being consumed by the Indians and feathered raptors. The violent storms at times also destroyed "vast broods of young gulls." It may be added that fogs caused far greater destruction of passenger pigeons by drowning than did storms.

A list of the birds seen by the expedition is given on pages 414-415 of (4). It contains the names of some birds not mentioned in the text and is wanting in others. A footnote on page 104 is of special interest. He states that "the magpie is found to approach as far north as Lac du Flambeau." The "three-toed woodpecker" was also found in the vicinity of Lake Superior. A specimen sent to New York in April, 1828, was identified by William Cooper as the Arctic three-toed woodpecker (*Picus tridactylus*), a bird unknown to Alexander Wilson.

Schoolcraft was located at Sault Ste. Marie from 1822 to 1841 as agent for the northwestern Indians. The latter were encouraged to bring to him unusual specimens of birds and mammals. On April 23, 1823, an Indian boy presented to him a bird of the "grosbec species" that he had shot with an arrow. This bird, the evening grosbeak, proved to be new to science and was described and named *Fringilla vespertina* by William Cooper in 1825. The name is expressive of the bird's supposed habit of singing in the evening. Shortly after this date a colored plate and description appeared in Bonaparte's work.

The office of Indian agent required several trips to Wisconsin, but references to birds are few. In July, 1831, while descending the Namakagon River, he wrote: "Ducks and pigeons appear common. Among smaller birds are the blackbird, robin, catbird, red-headed woodpecker, plover and yellow-hammer." On August 8, at Rice Lake, he heard the "meadow-lark" for the first time. Unfortunately we shall never know whether it was the western or eastern form. A "turkey-buzzard" was shot at the Red Cedar River and a flock of "brant" seen. August found him driving across the prairies, between Galena and Portage, where "the traveller is often startled by flocks of the prairie-hen rising up in his path."

The expedition of 1832, led by Schoolcraft, resulted in the discovery and naming of Lake Itasca as the true source of the Mississippi. The only bird mentioned of special interest was the swallow-tailed kite. He was surprised to see one as far north as the vicinity of this lake. Subsequently one was shot near Leech Lake.

Two years ago in attempting to track down a reference, I wrote to the Clements Library at Ann Arbor. In replying, Mr. Vernon Kinitz expressed his regret that he could not be of assistance on the reference given by "Home-Run Schoolcraft." It is necessary to know the character of Schoolcraft in order to appreciate the humor in this sobriquet. He was always in a hurry and as soon as the purpose of a mission was accomplished, he would make a wild dash for home. It cannot be said that he had regard for either the comfort or safety of others. During the expedition of 1832, Lt. Allen and his soldiers, who were totally unfamiliar with water navigation, were left frequently to flounder along at great personal risk.

Specimens in natural history taken during his travels and while resident at the Sault were referred to the Lyceum of Natural History, New York, and the Academy of Natural Sciences, Philadelphia, for identification. These specimens were of considerable importance in stimulating the interest in natural history that had its real beginning in this country during this period. The spruce grouse received by Cooper in 1828 was particularly acceptable since it was the only one in the city of New York.

Schoolcraft seems to have blanketed all kinds of shorebirds under the name "plover". On one occasion Cooper wrote to him: "The plover of the plain is the turnstone, *Streptilas interpres*." In order to remove any puzzlement over the presence of a turnstone on a "plain", it should be stated that a prairie and a flat, sandy beach were equally a plain to Schoolcraft.

The year 1832 marked the end of Schoolcraft's close interest in geology and zoology. From this time until his death he was busy collecting and publishing information on the various Indian tribes. His collections of the legends of the Chippewas formed the basis of Longfellow's *Hiawatha*, an epic poem known to every American.

He died in Washington, D. C., December 10, 1864, and was buried in the Congressional Cemetery.

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How Ancient is the Art of Bird-Banding?

By CLARENCE S. JUNG
Milwaukee, Wisconsin

Bird-banding and the art of marking individual birds for the purpose of re-identification as individuals is considered quite modern. Most historical backgrounds on the subject, quote John J. Audubon's banding of phoebes as a very early example of this art, and a somewhat nebulous report in 1710.

In April 1932, Mr. Wendell Fogg of Cambridge, Mass., published in the magazine *Bird-Banding* a long note regarding what he called 'An Early Successful Bird Banding Venture in England'. A book published in 1796 entitled "Essays of a Gentleman at Exeter" recounts the story of a heron belonging to Lord Orford which was captured and released for hawking purposes. After a long chase between falcon and heron, the latter was brought to earth unharmed. A gold ring engraved with Orford's name was placed on the bird's leg, and the bird again released. This took place in 1773.

About ten years later, the reigning Hapsburg Emperor returned the band with a letter telling that his hawk had struck the heron. By all existing standards this seems an early record.

Unfortunately, too few of us read the fine literature of some of the earlier great students of natural history. Back in 1774 one of the great classics on the subject was published by Thomas Pennant; a most complete, interesting, and well illustrated set of volumes, his "British Zoology".

He mentions a heron banded in 1735 by the Elector of Cologne "recently recaptured," meaning 1772 or 3. To further substantiate the longevity of this species, Pennant then cites a heron that lived 60 years, mentioned by a scholar, John George Keysler, in a book, "Travels Through Germany, Bohemia, Hungary, etc." Checking back on Keysler, we found that in a letter dated June 21, 1729, he remarks about a heron taken in the spring of that year by the Duke of Bavaria in whose household he, Keysler, was staying at the time. The bird had been banded 60 years before by the grandfather of the then present ruler. That takes us back to the year 1669.

The banding of herons was done in connection with the sport of falconry. So I began to look through the pages of the "Zoology" until I came to the story of the Peregrine Falcon. There it was again. Information as to the speed and direction of flight of an individual bird. The identification tag happened to be a bell. Pennant writes of these noble hawks: "Their flight is amazingly rapid; one that was in the shire of ANGUS, a county on the East side of Scotland, eloped from his master with two heavy bells on each foot on the twenty-fourth of September, 1772, and killed in the morning of the twenty-sixth near Mostyn, Flintshire."

One might wonder if bird marking was used only in this noble sport, and with only one quarry—the heron.

An answer is indicated in the excellent published letters of another great British naturalist, Gilbert White. In his book, "A Natural History of Selbourn," he discusses the migration of birds in his letter IX written to the Honorable Daines Barrington, February 12, 1772. Regarding the movement of birds from Scandinavia to England he states: "As proof that birds of less speed (than the woodcock) may pass that sea (the North Sea), considerable as it is, I shall relate the following incident which though mentioned to have happened so many years ago, was strictly a matter of fact; as some people were shooting in the Parish of Trotton in the County of Sussex, they killed a duck in that dreadful winter 1708-9 with a silver collar about its neck on which was engraven the arms of the King of Denmark. This anecdote the Rector of Trotton at the time, has often told to a near relation of mine and to the best of my remembrance the collar was in the possession of the rector." To this Gilbert White added a footnote, "I have read a like anecdote of a swan."

The evidence begins to pile up that the marking of birds was not an uncommon habit among the nobility and gentry of the 17th and 18th century. The extent to which it was done does not seem to be indicated, but in all probability it was on a small scale. One wonders where these 17th century hunters learned the art of marking feathered game of their day. The very apparent clue to follow, is to trace back the sport of falconry. We find evidence that it was brought into Europe from the East, the Mongol hoards and the Moors.

As we begin to look around for indications of bird banding as a developed art, we come upon a record that is overwhelming in its magnitude. It would be only a small exaggeration to compare it with our present day scale.

The story comes from that greatest of all time Foreign News Correspondents, Ser Marco Polo. His reports were not believed at the time, they seemed so remarkable, but history has subsequently given him a special award for accuracy and truth. As is well known, he lived and traveled in Asia for nearly 20 years between 1275-95 A. D., and

for a great part of that time as a member of the court of that great Tartar potentate, Kuhlblai Khan, in the city we now know as Peiping.

In the course of describing court life in his memoir, "The Book of Ser Marco Polo, the Venetian, concerning the Kingdoms and Marvels of the East," a chapter is written, "How the Emperor Goes on a Hunting Expedition." It relates of proceeding to the chase "attended by full ten thousand falconers who carry with them a vast number of gerfalcons, peregrine falcons and sakers as well as many vultures in order to pursue the game along the banks of the river" (probably a tributary of the Amur River).

Then in the course of describing the equipment and method of the hunt, the following is recorded: "Every bird belonging to his majesty, or to any of his nobles, has a small silver label fastened to its leg on which is engraved the name of the owner and also the name of the keeper. In consequence of this precaution, as soon as the hawk is secured, it is immediately known to whom it belongs, and restored accordingly."

How long a time had falconing flourished to have arrived at this grand scale? Bird making was certainly a highly developed intrinsic part of the sport.

From whom did the Mongols learn this sport? According to the Encyclopedia Britanica, it was highly developed among the Japanese 600 B. C. and among the Chinese 2000 years B. C. Ancient art in India indicates that the great rulers of India indulged in the sport in times of great antiquity.

In the Nile valley and that of the Tigris and Euphrates rivers, from which stems our Western civilization, come abundant evidence that birds were marked for individual identification. Mummified hawks marked with silver leg bands have been exhumed from the tombs of these ancient people.

When we look at their first written language engraved on their stone monuments and architectures, we find several hawks easily identifiable—among them the peregrine falcon which must have been familiar to them as were domesticated creatures. They were used as symbols of speed, audacity, and aggressiveness—attributes of nobility. So we may suppose that falconry was even in these dim distant times the sport of kings, and that the trappings from hood to legring and jess were known to these ancient sportsmen.

Then we come to that most ancient of zoologists, wine imbibing, God fearing Noah who reports the earliest repeat of an individual bird. Is it possible that he may have banded his raven and dove when he sent them out in the quest of land?

Just how ancient is this art of bird banding?

BIRD WATCHING AS A HOBBY

By REV. H. L. ORIAN, President
Milwaukee, Wisconsin

"Look at the birds of the air!" This is one of the familiar precepts of the Great Teacher. The large majority of His followers heed this advice in only the most casual fashion. The company of bird students is but a very small segment of the total population. To some people the bird-watcher is an odd sort, slightly 'teched' in the head. A certain practical sort of man is sure that it doesn't make sense to strain one's eyes and put a kink in one's neck in an effort to learn whether the feathered mite he sees, half hidden in the foliage of an elm tree, is a vireo or an immature pine warbler. Besides, you can't make any money chasing birds, and that he thinks is condemnation enough of the practice. Well, why is a man a bird-watcher? One of that fraternity here sets down a few of his own answers to that common query.

For one thing, bird-watching is a pleasant game to play. To see an evergrowing life list of birds, to keep a yearly record of the birds seen, and the dates on which they first appeared, will satisfy the collector's instinct as well as many another hobby. To wait for old friends each returning springtime, and to bid them good-bye in the fall, provides an interest which has all the fascination of a game.

Again, birds make such pleasant and interesting companions along the pathway of life. They are friends who relieve the misery and loneliness of many a day. They never forsake us. They are faithful to the end of life. Many have testified to the tragedy of an increasing loneliness as the years multiply. One by one our friends, our acquaintances, our companions in pleasure and work, leave us. Charles Lamb was not an old man when he wrote:

I have had playmates, I have had companions,

In my days of childhood, in my joyful schooldays—

All, all are gone, the old familiar faces.

He who makes friends with the birds will have them with him to the end. Birds never change. So far as you are concerned they never die. There will always be orioles, and phoebes, and sparrows and swallows. And they do not change either their

form or their color or their voice. The robin sang to us this morning just as he sang when we first heard him sing long ago, and the whippoorwill speaks to us out of the dusk with the same accent which he used long years ago. No matter how old we live to be we hear the birds singing the same songs which they sang to us when we were children. They never forsake us.

Once more, the bird-watcher has a hobby which will help him to retain his balance and preserve his sanity. We are appalled to learn that one-half of all the hospital beds in the United States are occupied by mental and nervous patients. They are people who have broken under the strain of life. In addition there are uncounted thousands of others who have not been hospitalized, but who are still living without mental poise and inner harmony. The world of men and machinery is too much with them. Getting and spending, being caught up in the mad rush of a world plagued by the insanity of war, they have as their constant companions tension, fear, and anxiety.

No one of us wholly escapes that mood. All are "shaken by the black bewilderment of our day." Keeping one's faith in the ultimate decency of things is not easy. And that is especially true of the city dweller. It might seriously be argued that man was never intended to become a modern day cliff dweller, walking down deep canyons which he calls streets, into which the sun can scarcely look. Those of us who live in them, either by choice or necessity, need to escape them at times, and renew our kinship with the elemental simplicities of earth and sea and sky.

To be sure, fellowship with birds and trees and flowers will not work a magic cure for all frustrated personalities. I do not recommend it as a panacea for all our ills. But like a cool breeze blowing through a stuffy room, these breathing spells out in God's out-of-doors will make us see more clearly and think with less confusion. Many a person has found in the soft warble of the bluebird, the whispered confidences of a junco, and the bubbling merriment of the wren, "a saving symbol of the old peace that still lies at the heart of things."

Finally, bird-watching will help all of us to keep alive our faith in life and the Creator of life. It has been so in the past. Many years ago a young man leaving home for the first time was passing through the Berkshire Hills of Massachusetts. The cold autumn evening was coming in. He was homesick. He was going into a new life, the uncertainties of which appalled him, and he was discouraged. Against the sunset of that evening sky he noticed a lonely waterfowl making its way with steady wing-beat toward the South and its winter home. William Cullen Bryant, for it was he, addressed himself to that lonely voyager of the skies:

"Whither, midst falling dew,

While glow the heavens with the last steps of day,

Far, through their rosy depths, dost thou pursue

Thy solitary way?"

Unlike the bird, Bryant's heart was restless, anxious, and lonely. "Where," he wondered, "did the bird secure that unfailing confidence as he made his way over the vast and illimitable spaces of the sky?" Then the lesson sank into his mind and he gives it to us in these concluding lines:

"He, who, from zone to zone,

Guides through the boundless sky thy certain flight,

In the long way that I must tread alone,

Will lead my steps aright."

Once a great poet of the southland stood watching the birds building nests on the uncertain marshes. He was a great sufferer, walking in his own dark valley. There on the desolate marsh he watched the trusting little marsh-hen building a nest to rear her young. She sang deep notes of happiness. She was not afraid. Some instinct deep in her feathered bosom told her an eternal kindness watched over her. Sidney Lanier learned the lesson for himself and sings it for us:

"As the marsh-hen secretly builds on the watery sod,

Behold I will build me a nest on the greatness of God;

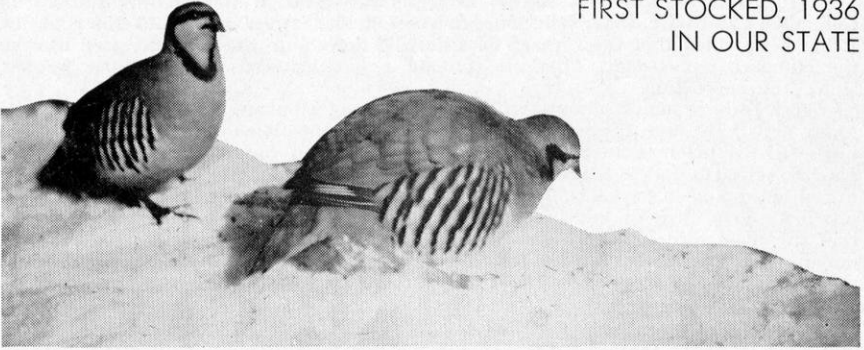
I will fly in the greatness of God as the marsh-hen flies

In the freedom that fills all the space 'twixt the marsh and the skies."

Not many will find the whole course of their lives changed by a bird song, as did Mrs. Govan, author of the beautiful book, "Wings at My Window." But many, hearing the tiny chickadee hurling his brave song into the teeth of a biting Arctic wind, or watching the mother robin, one nest destroyed, hopefully starting another, and hearing her mate lifting his song of hope in a better tomorrow, will find new courage for the morrow and a greater zest for life.

As I have watched the birds I have seen a great many things to make me happier, and perhaps a few things to make me wiser. What more could any person ask of his hobby?

FIRST STOCKED, 1936
IN OUR STATE



The Chukar Partridge in Wisconsin

AN HISTORICAL SUMMARY CONTRIBUTED BY VARIOUS MEMBERS
OF THE WISCONSIN CONSERVATION DEPARTMENT

Illustrations by Mary H. Staeger

The Chukar partridge (*Alectoris graeca chukar*), a native of India, was introduced into America in 1928. This partridge is also called the black and gray partridge by the Indian natives. The range of sub-species of this variety extends along the Himalaya Mountains, southeasterly to Nepal, west as far as Palestine and north as far as Mongolia. Many sub-species of the bird occupy environment that varies from 1,000 to 15,000 feet above sea level and from humid conditions to desert conditions.

In general appearance the Chukar is a little larger than the Hungarian partridge and weighs on the average of twenty ounces. The plumage is a pale grayish brown with a bluish tinge when seen in the sunlight. A black stripe runs above the eyes, along the head and neck, and circles the throat. The sides are barred with eight or nine stripes, the eyes are brown, and the beak and legs are red. There is very little difference in sexes. Usually the male is a bit larger than the female and has immature spurs or knobs on the legs.

Introduction and Stocking in Wisconsin

The first planting of Chukar partridge in the state of Wisconsin was made in the year 1936 in Sheboygan county. Large stockings, however, were not made until the year 1939 when they were reared and released by clubs on a cooperative basis. The total number of Chukars stocked from the year 1938 to 1943 is 29,336. Major plantings were made in the extreme northwestern sections of the state in Burnett and Douglas counties, in the north central section in Marathon, Portage, and Wood, in the eastern section in Sheboygan, Manitowoc, Calumet, and in the southern section in Columbia, Dane, Green Lake, Jefferson, Racine, and Waukesha counties. Smaller plantings were made in 52 counties.

Food Habits

From field observations and from crop examinations, it has been revealed that Chukars have eaten a wide variety of food in Wisconsin. In the southern and central area, most Chukars were observed to be feeding in stubble fields or in the open, and food preferences consisted of ragweed, waste grains, and weed seeds found in stubble or open areas. Chukars were observed in barley, oats, rye, and corn stubble on many occasions. Other foods eaten in the southern and central area consisted of chicory, tender grass shoots, soy beans, manure, poison sumac, grasshoppers, and numerous insect common to the agricultural area. Food eaten, as noted in the northern area, consisted chiefly of acorns, buckwheat, hazel catkins, winged pigweed, goose foot seed, blackbird weed seed, clover leaves, and shorthorned grasshoppers.

In its native country the Chukar feeds mostly on white ants, native grain and weed seeds, and as a rule seeks areas where it can secure these types of food the year around. Predacious animals and birds in their native country take a heavy toll of the species.

Chukars have been observed to avail themselves of winter feeding stations in Columbia, Eau Claire, Iowa, Jefferson, Monroe, Oneida, Sawyer, and Waukesha counties. It has been noted that the Chukar does not dig down into the snow for feed as does the Hungarian partridge. They are content to feed on seeds of weeds that project above the snow line.

Very little is known about the nesting habits of Chukar partridge in Wisconsin. Many nests have been discovered, but very few in proportion to the actual number of birds sighted prior to nesting season. Nests have been found in wild sweet clover patches, orchards, fallow fields, along fence rows, among raspberry bushes, and adjacent to rail fences and in hayfields. Broods of young have averaged from six to sixteen birds per hen. Very little is known about their courtship. It has been noted, however, that the male bird is a very tenacious bird and will fight ferociously to protect its domain. Because of its tameness the Chukar partridge is plagued by many predacious animals and birds. In this country it is apparent that up to the present time the bird has relied too much on its protective coloration.

There appears to be no question but that the Chukar is at least to some extent migratory in habit. This characteristic has made it most difficult for field checks with the limited amount of department personnel available. The Chukar has completely disappeared from a few of the counties in which it has been stocked. The eastern and southeastern counties have shown the greatest possibilities for this bird. In flushing, this partridge lies well to a dog. Ordinarily it will not flush until a dog or observer literally steps on it. In open cover it flushes considerable distances before alighting. Its flight is very similar to that of the Hungarian partridge.

A sharp curtailment of the Chukar stocking program in Wisconsin has been effected. If the birds at the end of a two- or three-year period appear to have acclimated and adapted themselves to Wisconsin conditions, resumption of the larger program will be undertaken. If the birds do not appear to be suitable to the state, the present stocking program will be discontinued except for experimental plantings on an extremely limited scale.

CHUKARS AT THE FEEDING STATION



BY THE WAYSIDE . . .

Female Juncos Attracted by Artificial Light at Night. On April 22 our five-year-old daughter came rushing downstairs at about 10 p. m. and excitedly told us there was a bird trying to get into her window. I went up and found a female junco fluttering at the window. Upon raising the window the bird entered and was promptly banded and released in the morning. Apparently Karen's bed light had attracted it in.—Clarence Searles, Wisconsin Rapids.

During the spring migration a female junco was observed feeding upon the insects around the light over the pump, and also upon those which fell to the floor. The feeding was leisurely although it was eleven p. m. at the time.—H. Peter Thomsen, Madison.

Fraternal Relations Between Crow and Marsh Hawk. While travelling to Red Granite, May 14, I was surprised to see a marsh hawk and a crow eating together from a dead rabbit on the highway.—J. Harwood Evans, Oshkosh.

Notes on the Song of the Saw-whet Owl. A saw-whet owl sang nightly from early February until the middle of March, commencing exactly at dark and keeping at it until well into the night. The song was similar to the tinkling of a little bell, and not once did I hear the saw-filing sound. I think that I shall have more to say about this bird before long.—Francis Zirner, Hayward.

A Nesting Colony of Common Terns and Herring Gulls. Last Sunday I located a colony of common terns, several hundred nests, and also some herring gulls just outside the Green Bay harbor. I have expected the terns for some time, but am sure that this is the most southerly record for the herring gulls in the Bay region.—Earl G. Wright, Green Bay.

Unusual Warblers in Milwaukee. On May 6, 1944, I saw the Worm-eating warbler in Jacobus Park. The following day I saw the bird again and had the record verified by Murl Deusing and others. Then on May 9, Bill Jackson saw the hooded warbler, and on May 11 the blue-winged warbler, both in Jacobus Park. On May 13, Bill Jackson, Dick Bub and I saw the prothonotary warbler in Juneau Park and the cerulean warbler in Estabrook Park. Later in the day I saw the yellow-breasted chat at Lake Park. Bill and Dick verified this one a little later.—Don Bierman, Milwaukee.

Some Banding Returns. A Brewer's blackbird, banded May 6, 1942, was recovered Nov. 30, 1943, at Gulfport, Miss. A chipping sparrow, banded also by me at Wisconsin Rapids, Sept. 14, 1941, came into my trap here April 29, 1944. I have had eight purple finch returns of 53 that I banded in 1943.—Clarence Searles, Wisconsin Rapids.

Florida Gallinules Increasing. There are a great many Florida gallinules in the region this year and we noticed an increase in these birds last fall. I believe this is due to the late opening of the hunting season which permits most of the birds to fly southward before the shooting starts.—Earl G. Wright, Green Bay.

Robins Experience Home Shortage. Some years ago I found a robin's nest with seven eggs in it. Since the usual number is four, further inquiry as to why there should be seven in some cases would be of interest. Another time I found a robin's nest in the yard on which two robins were sitting side by side. I noticed them in this position twice.—Mary H. Staeger, Birnamwood.

Additional Data on the Hoary Redpoll. On Feb. 8, 1916 I took a pair of hoary redpolls out of a flock of common redpolls in my yard. Also in the year 1917, Nov. 7, I identified one individual in a flock of common redpolls. These, plus the flock of twenty, observed Jan. 6, 1944, are all I have seen during my 44 years in Wisconsin.—Rev. Francis S. Dayton, New London.

A Partially Albino Junco. This spring I took a slate-colored junco in my banding trap having a white head, breast and tail feathers about half white. Wings were partially white, the eyes dark and legs pink. Really a queer looking bird.—Clarence Searles, Wisconsin Rapids.

A Red-bellied Woodpecker Wins But to Lose. I have been glad to discover one bird which can make the blue jay step aside at the feeding tray. That has been a female red-bellied woodpecker. However, the blue jay still comes out ahead for he takes the corn from the bark of the tree as fast as the woodpecker places it there.—Mrs. Stella P. Owen, Hudson.

Flickers and Starlings Nest Side by Side. In a hollow limb of a silver maple tree in our yard are three holes leading to ideal nesting sites. There appears to be some connection between the holes, but this season it was developed into a two-story flat with starlings occupying the upper floor and a noisy brood of flickers in the lower. The starlings apparently left the nest first, and shortly afterward one young flicker was observed at the upper entrance, later settling down to his own nest space.—Mrs. Walter E. Scott.

A White Hawk. On Sunday, February 13, there was a strong southwest wind and occasional snow flurries. I was standing at the kitchen windows looking southward over the garden. A pair of cardinals, a large flock of tree sparrows, several juncos and English sparrows were feeding on the ground near a pile of evergreen branches. Starlings and sparrows were feeding at the weathervane feeder and near the sparrow trap. Downy and hairy woodpeckers, nuthatches and chickadees were feeding on the window sill and in the ash tree. Suddenly every bird flew for cover! Glancing up towards the west I saw a pure white hawk, with small head, pointed wings and long tail flying over the garden directly towards me. He flew low over the weathervane feeder, turned sharply in front of the window, flew low between the ash and plum trees, over the sparrow trap, then upward across the garden and over the trees to the southwest. Since the size and characteristics fit those of a gyrfalcon I believe it to have been the white gyrfalcon.—Mrs. T. J. Peterson, Waupaca.

Bittern

By FRANCIS ZIRER
Hayward, Wisconsin

Our dwelling is situated at an extensive tamarack-cedar-black spruce bog, so close that the branches of tamaracks reach almost to our windows; and only a few feet above the high water mark. Bitterns are very common with us, so common that occasionally one is seen sitting on one or another of our woodpiles, often not more than a few feet from the house. The neighborhood is quiet; very little noise is made and all undue motions avoided. So the birds feed comparatively fearlessly in and around the puddles of stagnant water. At times hardly a day passes without one being seen in the rear of the dwelling a few yards away, among the reeds, sedges, tamaracks and other bog vegetation. While feeding one would occasionally stop, stretch its neck, open the beak real wide and remain in this position—with beak wide open—for a number of seconds. It would then move, feed, stop again and repeat the performance, often several times in succession, but without producing a sound.

Arriving here the birds usually come already paired. Upon arrival the first thing they do is to drop into the bog at the old place, where they had nested before and where they usually perform. According to my notes the date of arrival is after the 20th of April, but now I am somewhat skeptical about these dates. April 10 toward evening I heard the familiar "plum"—that much only, and just once. I listened attentively then and all that evening, but since there was not another sound I thought finally that I was probably mistaken. Being short on dry wood I went next morning into the bog to get some. Coming to a small pond which was open for some time already, a bittern rose up and a few yards away another. Clearing the small coniferous growth at a height of about 12 to 15 feet, both birds disappeared among the trees. A little farther I frightened another. This one flew along an old logging road, but barely some 40 feet away it dropped again to the ground. So it is perfectly possible that these birds are here much earlier but, like mallards and some other early migrants, stay in the bog where waters, at least the creeks, are open and food more easily obtainable. Although last winter was unusually mild and almost snowless, the large pond next to our dwelling remained closed until the night of April 27 to 28, five days longer than last year and about two weeks longer than usual. Consequently no food was obtainable until the pond was open.

During the first few days or even weeks after the arrival the birds remain largely silent. Every attempt at music ceases after one or few calls, and if the weather stays cold and dreary, hardly a sound is heard to indicate that they are here. If suddenly surprised—and practically only then—the bird emits a sort of quacking croak, but does this only occasionally in flying or if otherwise alarmed. On account of an enormous amount of dry vegetation it is almost impossible to surprise them at this time of the year. The birds hear the approaching footsteps long before one has the slightest inkling of their presence. So the familiar croak is rarely heard; the birds rise silently and disappear among the trees.

Otherwise they have a considerable and varied repertoire of calls. The most common here is the familiar "plum pudd'n'" repeated usually from several to many times in succession, although at times the pause between the calls is considerable. The beginning of it is always preceded by a faint "boom," but one has to be very near the bird in order to hear it. Sometimes there is added a loud cluck like this: "plum cluck pudd'n'" and sometimes the song is composed of a long string of clucks only. These clucks should not be confounded with the stake-driving sound, however. There are a number of other variations of the common plum pudd'n' such as "dum-a-dum," "donder-doo-doom," "pump-pump-pump" and many others, but some are given so rarely or just once that one has no time to remember or write them down correctly. The loudest and the farthest reaching call of the bittern, however, is the "punk-er-lunk," repeated usually many times in succession, but by no means heard regularly or often; some birds do not indulge in it at all. In the spring of 1932, in the marsh near the Namakagon River we heard one calling "punk-er-lunk" steadily and persistently for several weeks, with slight intermissions a whole hour at a time, and with the exclusion of every other sound. Otherwise this call is, according to my notes, heard very rarely. In the last four years I have heard it only once, and then in connection with the stake-driving sound. The bird kept it up for three days, but that was the end; later the familiar plum pudd'n' only was heard. After that I was not so fortunate to hear it again, although I was and am after the birds daily and see them in every imaginable situation.

The stake-driving sound of the individual birds varies greatly. While some perform very deceivingly, others are not so pronounced. The variation differs from a perfect imitation down to a sound where a considerable imagination is necessary to

find a resemblance to stake-driving. But if performed perfectly it is so deceiving that upon hearing it for the first time one would swear that somebody is working in the bog, driving stakes. And it is not the distance that causes it to sound so, as some observers seem to think, for I was within less than 30 yards from the bird when it performed.

Occasionally the bird performs while feeding. Moving along the shore of the pond it stops, gives one or more calls and moves farther. In this manner it walks sometimes clear around the pond and the call, or calls, is heard every few minutes from another direction. Depending on weather, the performing is at its height in May and the first week of June. After that the concert lets up and ceases almost entirely by the beginning of July. The only sound heard later is a long series of clucks toward the evening or at night.

At this time of the year if all is quiet, air, wind still and sun warm, it stands or sits on the shore of the pond among the dry reeds, sedges or cattails, or on a snag close to the shore under the protective cover of vegetation and dozes; but there are also times when it stands, entirely exposed, on a stump, snag or some other projection. Like most water birds it lives in peace with turtles sunning themselves on the same snag. Only once I saw it giving a small turtle which came too near a jab with its beak, pushing it from the snag into the water.

Suspicious, it stands in a rigid position with the neck, head and beak straight up; but only the body is rigid, the head turns in various directions looking around without, however, deviating from its straight up pose. Convinced that all is not safe the bird suddenly drops down, almost on its belly, gives itself a jerk and flies away, along the shore or across the pond, but only a few feet above the ground or water.

In very quiet localities it stalks through the meadows and pastures, later in summer even through corn and potato fields, in broad daylight, sometimes a considerable distance from swamp or water; or it circles low over the meadows and pastures and, pausing for a moment, drops suddenly to the ground;—in this manner I have seen it picking up a small snake.

Its walk is very similar to the gait of a turkey hen. Coming to one of the little channels which lead from the nearby hills through the marsh to the pond, the bird leaps over precisely the way a turkey hen would do.

Here they do not nest in open marsh. For that matter they could just as well be called woodland birds. A narrow, bog logging road overgrown with reeds and sedges, an opening surrounded with small or large conifers and similarly overgrown, suits them completely. If not too frequently disturbed they will nest year after year at the same place. Two such are known to me here. In one case the birds have to cross a narrow peninsula to reach the pond where most of their feeding is done. This they do mostly on the wing, but upon several occasions I have surprised one walking from the bog to the pond or in the opposite direction. Before the young are hatched they do this in the morning, evening or at night only; later, however, we see them at almost every hour of the day. I have also noticed that they carry food in their beaks, but it is usually so far away or they come in sight so unexpectedly that it is impossible to tell what it is that they carry.

If the birds are disturbed, not directly but with some unusual happening or long lasting noise, they will desert the old nesting place and move somewhere else. Last year toward the end of May, a meadow of about 10 acres and only about 40 yards from the nest, was plowed for potatoes. The work of plowing, harrowing and planting lasted several days and the tractor was puffing most of the time. This of course frightened the birds, but during the daytime they remained quiet and were not seen. In the evening, however, as soon as the noise died down and the field was deserted, the birds rose high in the air—at least 200 feet—and circled for about ten minutes above that part of the field and bog, croaking excitedly and anxiously as if they were to reconnoiter and see what could be done. Next evening after the puffing had ceased the performance was repeated. The third day, however, the birds were gone. A few days later I found or rather heard the bird performing about 300 yards away, but again, no more than about 40 yards from the dry land. This year the birds occupy the old place again!

Although I have been watching these birds very closely for a number of years, it was last year that I first saw a pair together. One evening a bird performed on the other side of the pond which is, at that place, about 200 feet wide. I moved closer to the shore to obtain a better view of it, when suddenly a pair of them, which I had failed to notice before, arose only a few feet in front of me. The birds flew at first over the water toward the other side where the other bird was performing. In about the middle of the pond, however—due perhaps to the other bird which was in plain sight—the pair turned, rose higher and higher, probably some 60 feet above the ground and began to circle as if to reconnoiter. After circling in this manner a number

of times, the pair disappeared in the distance among the tamaracks. (There is only one other bird here that does reconnoiter in a similar manner but with more persistence, and that is raven.) The bird on the other side of the pond, however, remained in the same position and apparently unaware of my presence, performed further as if nothing unusual had happened.

On my trips into the bog evenings and nights I have, upon several occasions, heard a croaking sound, moving back and forth, coming sometimes from a considerable height, then again low over the bog, but always moving. At times dark, ghostly forms passed with great speed within 10 to 20 feet of me. It was always too dark, however, to enable me to see what it was excepting of course that they were some large birds. I had attributed the flying and croaking to a species of night heron, but in this I was mistaken. May 18 last year I was in the bog just a little before dark. Migration of warblers was at its height and the birds were actually swarming everywhere. While standing thus on a slightly drier spot and partly concealed by the dense growth of evergreens, I heard that familiar croaking sound again. Two large birds appeared in the distance, chasing one another with unbelievable speed just above and between the tree tops, which at that particular place are about 8 to 12 feet high, both birds croaking angrily, excitedly. It was already too dark to place them; aside from that the birds flew with such speed above and among the trees that I could only now and then catch a glimpse of them. This went on for a number of seconds. Suddenly the birds started straight toward me and coming to the small opening, on the edge of which I was standing, dropped right in and started to fight jumping at one another like two roosters, using beaks, wings and feet at the same time. Then I saw that the birds were bitterns and very probably two males. I stood like a statue, and at first the birds did not pay the slightest attention to me, if they saw me at all. Before long, however, the larger bird cornered the smaller one which began to back toward me. In this manner the smaller bird, with its back turned, came so close that I could have touched it. Now the larger bird became suspicious; facing me only a few feet away, it apparently began to realize that the dark form standing in front of it, was not just a tree stump. The bird froze in its track assuming the well known pose and the other bird, without turning, followed suit. For quite some time not one of us moved. Before long, however, the weight of my body began to tell, I was sinking deeper and deeper, water started to gurgle under my feet and I was forced to move. This of course put life into the birds; with much flapping of the wings, but without a croak, they rose and disappeared in the distance.

A STARLING NESTING STUDY

By DONALD R. BIERMAN
Milwaukee, Wisconsin

This study of the European starling (*sturnus vulgaris*) was made in the spring of 1943 in my backyard in Milwaukee. The nest occupied by the starlings was in a birdhouse on the side of our garage about ten feet above the ground. Since there are no native hole-nesting birds in the vicinity, I decided to let the starlings go about their nesting activities unmolested so that I might study them in my spare time. The house could not be opened in any way, but the actions of the birds were a pretty good clue as to what was going on inside.

In the original form this study was a day-by-day record from March 28 to June 3, but parts have been omitted to save space.

March 28: At about 10:00 a. m. I heard a tremendous uproar among the sparrows in the year. It was caused by the presence of two starlings on the roof of the garage. The sparrows had been using the house all winter for a roost and a pair apparently had planned to nest in it. Both starlings made attempts to approach the house but were driven away by the sparrows. Eight or ten other sparrows always come to help this pair when they give their distress calls.

April 5: After four unsuccessful attempts to enter the house since March 28, the starlings make another determined effort and succeed despite the resistance made by the sparrows. The sparrows make a lot of noise but actual battle does not occur often. When it does, the sparrow is severely worsted and flees in a hurry. The sparrows fail to gang up on either starling as they have often been reported to do with native birds.

Once inside, the starling throws out some of the sparrow's nesting material. Both starlings stayed around the garage the rest of the day and the greater part of every day thereafter.

April 6: The sparrow's resistance has ceased. The female sparrow still roosts in the house at night, however, because the starlings still roost on the public buildings downtown.

April 8: The starlings now exercise complete control over the garage and the yard. No other starlings or sparrows are allowed on the garage. The yard is used by

sparrows for feeding purposes and occasionally starlings are also allowed to feed in the yard. The female sparrow still manages to roost in the house at night, sneaking in after the starlings have left for their roost.

April 9: After close study, I am able to distinguish the male from the female starling. The female is of a slightly duller color and her bill lacks the livid coloring at the base of the lower mandible. To make matters easy, the male lacks two or more feathers in the center of his tail, giving him a split-tailed appearance noticeable at a good distance. The male is more pugnacious than the female. The female throws out more of the sparrow's nesting material and replaces it with her own which is of the same nature. The male, in the meantime, drives other starlings out of the yard and from the neighbor's yard as well. He allows sparrows and robins to feed in the yard. They keep at a distance and show respect.

April 12: The sparrows are back to scold some more. The male starling keeps chasing them all day. The female is still carrying nesting material into the house.

April 15: Quite a bit of nesting material is being carried in. The day is warm and the starlings are a little more active than usual. The male, however, often throws out more nesting material than he brings in. When not carrying in material, the starlings spend their time prowling around in the lawn beneath the house. The female sparrow still roosts in the house at night.

April 23: This morning, as every morning for the last two weeks, the male does his imitations and other vocal performances on the roof of the garage. This evening, before going to roost, the male comes to the house for the last check-up. While there he acts strangely and I suspect the female might be roosting here for the first night.

April 24: The male acts strangely at the house again tonight, but I am unable to determine whether the female has entered the house to roost or not.

April 25: There are eggs in the nest, most likely a full clutch, because the female goes into the house every now and then. Tonight she definitely is in the house.

April 26: Incubation is going on, mostly by the female at present. More nesting material is brought in.

April 30: The birds are disturbed considerably by the opening of the garage doors. Otherwise incubation goes on normally. The female is still doing most of the work.

May 3: They are having more peace, (perhaps, because it is Sunday). The male is very nervous and still does not do his fair share of incubation. When changing places, one bird flies to the garage roof and gives a soft call. The bird inside flies out to a nearby tree to preen and the other takes its place.

May 7: The starlings are both nervous now. They chase the squirrel if it so much as passes the garage on the telephone wires. The opening and closing of the garage doors no longer frightens them.

May 8: The starling nest on the corner of our block contains young now.

May 9: The strange actions of both birds lead me to believe the eggs have hatched. Close observation reveals tiny particles of food in the birds' bills. Later in the afternoon, one of them comes out of the house with an egg shell. It flies to a neighboring yard and smashes the shell to bits. I stand within ten feet of the house while both birds change places without bothering with me.

May 10: I can hear the young birds in the nest. The old birds are now using their typical low, rasping, hissing noise to announce their presence at the nest.

May 15: A rainy day and the starlings are soaked to the skin. This does not seem to bother the young while they are being brooded.

May 16: The young are one week old and their voices are getting huskier right along. The brooding seems to have stopped as both birds leave immediately after feeding. The female enters the house immediately upon arriving with food, but the male is nervous and hesitates before entering.

May 18: I can hear the young calling way up in my room. The old birds gather all their food from the neighbor's yard. A robin sits on the roof near the house but the starlings pay no attention to it. When one of the old birds enters the house the young begin to cry instantly. The cries cease just as quickly when they leave.

May 19: The male's tail is back to normal again and so I have to rely on their habits to tell them apart at a distance. The male is more nervous and he sits around quite a while before entering with food.

May 22: The young have acquired a different tone of voice. The male no longer feeds them if someone is in the yard. The dog has made him very nervous.

May 23: The first fledglings of starling, robin and sparrow are out of their nests, but the young in my house are two weeks old today and show no signs of leaving.

May 25: There are young starlings on the wing now. Those in my house have not shown their heads at the door yet. The old birds are getting more nervous right along, keeping a sharp watch, especially for cats.

May 26: Late this afternoon I notice that the old birds are excited about some-

thing on the ground. I find it is a dead fledgling that causes the excitement. It seems to be fully large enough to have left the nest. I have no idea what could have killed it. Two fledglings stick their heads out of the door to watch things in the yard.

May 29: I thought the young would have left the nest by now, but they are still here. They have their heads at the doorway all day now, but crawl back when I approach the nest. They keep up a constant low note that gets much louder when they are being fed. The old birds scold continually when they are at the nest or nearby. They are under a great strain now.

May 30: The young are exercising their wings a great deal, but still are reluctant to leave. Another pair of starlings appears at the nest during the absence of the parents. They are met at the door by the young, so cannot enter. They leave at the approach of one of the old birds.

I have decided to have some fun with them and place a mounted owl near the nest. The old bird returns with food and it nearly dies with fright but soon recovers and gives a distress call. The call is answered by six other starlings, six sparrows, one robin and one Baltimore oriole.

June 1: Four other starlings are on the roof giving their vocal performances but the male no longer is bothered with them.

A very amusing incident occurred today. A starling was throwing out nesting material from an old sparrow's nest on the end of the garage. The discarded material fell into the branches of a lilac bush below. Here it caught the eye of a female robin that was building her nest in the neighbor's tree. As fast as the starling threw it out, she gathered it up and wove it into her own nest. This continued for a half-hour and constitutes one of the only records of a starling helping a robin build her nest.

June 2: The two young starlings finally left the nest. I find one on the fence and one in the next yard. They are over three weeks old as they leave the nest. They can fly well enough to get into low bushes.

June 3: Everything is quiet at the nest. The young are still in the block. A starling came to the house once to have one last look, then left.

They did not return to raise a second brood.

REPORT OF THE SIXTH ANNUAL MEETING

By MRS. A. P. BALSOM, Secretary

The sixth annual convention of the society was held in Milwaukee April 22 and 23, 1944. With exception of the banquet which was held in the City Club, all meetings were conducted in the auditorium of the Milwaukee Gas Light Company, through the courtesy of E. A. Geiger. The program and arrangements were made by Murl Deusing very ably assisted by the members of the Bird Group of the City Club and the Milwaukee Bird Club. William McKern, Director of the Milwaukee Public Museum gave the address of welcome.

Alder flycatcher nestlings do not keep the same relative positions in the nest as many suppose. They move about. If the adult is observed feeding only from the south side of the nest for example, it is not always feeding the same nestling. This conclusion was reached by Robert McCabe, who presented a paper titled, "Preliminary Studies on the Ecology of the Alder Flycatcher in the University Arboretum." Although this flycatcher is named after the alder in which it frequently nests, it preferred elderberry in this study area and secondly dogwood. The incubation period was twelve days and twenty-three per cent of the nests under observation were parasitized by cowbirds.

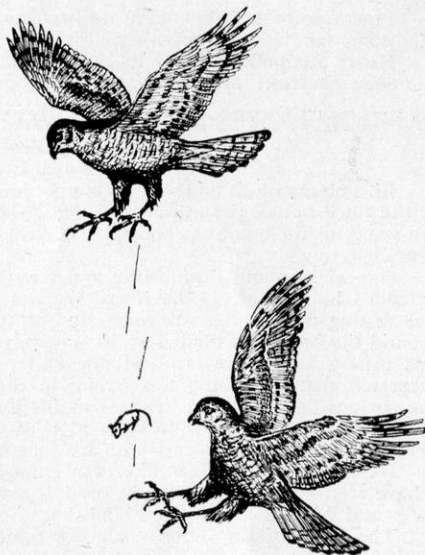
Miles D. Pirnie, Director of the W. K. Kellogg Bird Sanctuary, Michigan, presented a program of movies, "Nesting Ducks of Wisconsin and Michigan." The comparative size and markings of ducklings was very well illustrated. A paper, also presented to the convention entitled, "How Ancient is the Art of Bird Banding" by Clarence Jung, has been printed in full elsewhere in this issue.

A short business meeting concluded the Saturday afternoon sessions. The following officers were elected: President, H. L. Orians; Vice-president, E. L. Loyster; Secretary, Mrs. A. P. Balsom; Treasurer, J. H. Evans; Editor, N. R. Barger; and Directors, Mrs. R. P. Husson and Dr. B. L. von Jarchow. Appointments for one year were made by the president as follows: Librarian, G. H. Doane; Legal Counsellor, A. S. Bradford; Membership, Mrs. A. Weber; Sanctuaries, Mrs. W. E. Rogers; Publicity, E. L. Loyster; Assistant Editor, Mrs. N. R. Barger; and Bird Banding Editor, H. C. Wilson.

Due to the societies' numerical growth which has continued despite the times, it was voted to place all memberships on a calendar-year basis in order to reduce clerical work for the officers. Thus all members, whose subscriptions expire at any time other than the end of the calendar year, will be billed for one year **plus** the odd amount that is necessary to fill out an additional complete year.

The after-dinner speaker, W. F. Kubichek, of the U. S. Fish and Wildlife Service, showed a lengthy film of birdlife titled, "Haunts of the Hunted." Although this film covered a vast array of species, the courtship dance of the Western grebe treading the surface of the water, will ever stand out in the minds of the audience. The toastmaster, H. L. Orians, primed the audience into a very jovial mood and Clarence Jung, with top-hat and tails, took advantage of this frame of mind and conducted a very successful auction. All donors and buyers who so generously contributed to the success of this feature have our thanks.

The sessions of Sunday afternoon were devoted to movies taken by Wisconsin photographers. A capacity crowd enjoyed colored reels by Paul Hoffman, Earl Wright, Murl Deusing and H. L. Orians. The following unique sequences stand out in our memories: Earl Wright photographed a male red-wing joining two cattail stems in his grasp in order to secure a more stable footing in the wind. Paul Hoffman depicted the homelife of the Black Tern in excellent detail and presented studies in superb color of the ruddy duck. This movie was ably described by H. L. Schaars in the absence of Paul Hoffman. Murl Deusing caught the action of a male marsh hawk transferring food in mid-air to his mate which was flying a few feet below him. Lastly H. L. Orians added his inimitable touches of humor to his illustrated lecture thereby rounding out the convention program in a gay mood.



THE WINTER SEASON . . .

The following is an annotated list of the more unusual observations of the season:

Green-winged Teal: One, Madison, wintering, by Gordon Orians.

Canvas-back: Milwaukee, Jan. 15, by Gordon Orians.

White-winged Scoter: Female, Milwaukee, Feb. 4, by H. L. Orians.

Ruddy Duck: Milwaukee, Jan. 15, by Gordon Orians.

Golden Eagle: One, Sawyer County, Mar. 19, by Kahmann.

Marsh Hawk: Three, near Appleton, Mar. 3, by Mr. and Mrs. Rogers.

Sparrow Hawk: Plentiful around Milwaukee during January.

Spruce Grouse: Vilas County, February, by Mrs. Miles.

Prairie Chicken: Flock, Oconto County, by Richter.

Killdeer: Horicon, Feb. 26, by Jones. Madison, Mar. 6, by Mrs. Phillips. Oconto, Mar. 24, by Richter.

Wilson's Snipe: Two, Madison, wintering, by McCabe and Barger.

Mourning Dove: Plentiful, Madison to Milwaukee, southward.

Hawk Owl: Horicon, Jan. 2, by Mathiak and Jones.

Flicker: Dunn County, Dec. 28-30, by Helmer Mattison.

Red-headed Woodpecker: St. Croix County, Mar. 1, by Mrs. Owen.

Crow: First arrivals; Oconto, Feb. 13, by Richter; Sawyer County, Feb. 25, by Kahmann.

Hudsonian Chickadee: Vilas County, February, by Mrs. Miles.

Tufted Titmouse: Dane County, Feb. 26, by Jackson.

Brown Creeper: Vilas County, February, by Mrs. Miles.

Prairie Marsh Wren: Horicon, December, by Jones.

Mockingbird: Madison, Jan. 23, by Schorger.

Brown Thrasher: Waukesha County, Jan. 9, by Batha. Columbia County, Feb. 15, by Bert Barger.

Robin: Numbers augmented by migration in southern Wisconsin during the last week of February. Appleton, first noticed Mar. 8, by Mrs. Rogers. Oconto, Mar. 23, by Richter.

Bluebird: Horicon, Feb. 26, by Jones. St. Croix County, Mar. 10, by Mrs. Owen. Oconto, Mar. 20, by Richter.

Meadowlark: Waupaca County, Mar. 18, by Mrs. T. J. Peterson. St. Croix County,

Mar. 3, by Mrs. Owen. Migration noticeable in Dane County, Mar. 17 (Harold Shine).

Rusty Blackbird: Madison, Dec. 26, by Schorger.

Cardinal: Spooner, by McNeil (Ranger Mac). Observed regularly in Oconto this winter by Richter. Thought to be increasing in Waupaca County by Mrs. Peterson.

Evening Grosbeak: Oconto, Mar. 6-7, by Richter. Appleton, Mar. 9, by Mrs. Rogers.

Pine Grosbeak: Female in Milwaukee, Jan. 12, by Bierman. Four females in Madison, Jan. 16, by Schorger.

Hoary Redpoll: Twenty in New London, Jan. 6, by Rev. F. S. Dayton.

Song Sparrow: Milwaukee, Dec. 31, by Gordon Orians.

RANDOM NOTES FROM A FLAMBEAU RIVER DIARY

By E. M. DAHLBERG, Ladysmith, Wis.

(Continued from last issue)

Bird observations on the Thornapple include many incidents that could not happen at the town house, the nursery, or the Cedars. In spite of their power of flight, birds are slaves to their habitat and especially in the winter season, are quite confined to a restricted range.

One night about dusk, Mary and I were still-fishing for pike by a fallen elm that extended halfway across the river. We were sitting perfectly still in our canoe, which was resting against the upstream side of the log. A great blue heron came silently around the bend and landed on its ungainly legs within a foot of Mary's paddle which was resting across her lap and one end on the tree. His actions revealed that he suspected that something was wrong in the scene in spite of our "frozen" postures; the curious doubling and bending of his long neck was so funny at such close range, that Mary was compelled to respond with the explosion of a suppressed laugh. The heron almost cuffed her ears with his long wings in the hasty take-off.

Heron is gregarious wherever enough of them remain to practice the habit. I have seen colonies of them in nesting season on the topmost branches of the hemlocks and birches along the Flambeau.

The birds of the Thornapple are somehow a highly nocturnal crowd—birds of a feather, so to speak. Owls in at least three models "who," "whet," and "screech" at any hour of the night. The whip-poor-will can be a source of insomnia if one is at all jittery about night sounds. I have counted the repetition of their calls like one counts sheep. My champion vocal marathon so far made a non-stop demonstration of 253 calls. This count was made shortly after my reading of August Derleth's nature notes, in which he recorded an observation (or should I say an audition?) of a whip-poor-will that uttered 264 calls without stopping. I am determined to audit a Thornapple River whip-poor-will that can outwhip the best "whippers" anywhere along the bottomlands of the Sauk country!

One of these birds once entertained us from the ridgepole of our pup-tent on a river trip. That was the first time that I had ever heard the preliminary notes that precede the endless round of "whip-poor-wills." There is no spelling in the English language to produce these sounds, but perhaps the reader has heard the bobwhite at close range, and has heard the soft spoken descriptive adjective before he says "bob-white." Two or three such adjectives in very low notes seem to serve as a sort of take-off or voice finder before the endurance test. The muffled and throaty sound between calls is heard also only at close range. Borrowing again from August Derleth, this sound is at least suggested by the onomatopoeia in "cluck" or "quirt" and I think the latter is the better imitation.

Woodcocks, too, are somewhat nocturnal or at least highly vesperal—at any rate, I have known them to be out pretty late nights. This bird carries on its courtship on a very high plane, almost among the clouds. In fact, it is literally up in the air during mating season. The name woodcock is a wholly unwarranted flattery of the male, for the hen is a perfect facsimile of him and just as expert on the wing. Woodcocks unfortunately engage in a most perilous out-door sport. They love to congregate in small groups at night in roads especially after rain. Here they are blinded by on-rushing headlights and thousands of them pay with their lives each season for their folly of playing in the runways of man and his gadgets.

The past two years have brought countless changes in all of our personal pursuits. In our public schools the biological sciences have been pushed aside to make way for extra classes in the more war-worthy subjects of physics and mathematics. In the greater landscape, our forests and woodlots have become in a large measure, casualties of war. Slabshack on the Thornapple and the camp in the cedars have been virtually abandoned in the absence of the two boys and all their friends who used to meet there. Only the birds and their unfailing return to old haunts seem to persist in a normal way of life.

NEWS . . .

(Continued from page 26)

Lee Steven recently presented a program to the Milwaukee Bird club titled, "The Structure of a Bird."

Walter Scott, who was inducted in the armed forces last year, has recently been hospitalized in the south Pacific because of a broken wrist.

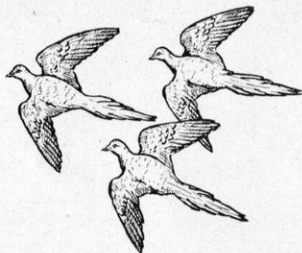
F. H. King, a member of the society who formerly sent in field notes from Manitowoc, is now a prisoner in Germany. He is doing farm work.

F. R. Zimmerman, the waterfowl authority, is now attending Harvard as lieutenant j. g. in Navy communications.

Sam Robbins, the warbler shark, is spending the summer in Stratford, Vermont, where he has charge of a congregation. Robbins left Wisconsin some time ago to attend a ministerial school in Chicago.

Pictured below is a booth arranged by E. A. Hepler for the annual Community Hobby Show in Beloit recently. The certificate which hangs near Hepler's left shoulder is the first prize award. The booth is decorated with green and white crepe paper. The poster with the black border standing on the easel to the right explains the membership privileges offered by our society. The one on the left is a copy of the invitation to the convention in Milwaukee. From left to right on the table are a feeder, bluebird house, robin shelter, two wren houses, another robin shelter, a flicker house and a white wren house. Hanging up is a flicker house made from a keg. The open book on the book rack is "The Birds of America" by John J. Audubon. In front of the book are some of the booklets and other literature of the society. The pictures hanging in the back are from the Audubon Society. Ten subscribers to the Passenger Pigeon were secured at this booth, from a part of the state that has been lightly represented in our society to date.

Many have deplored the loss of the passenger pigeon hoards contending that they should have been delivered from the greed and avarice of man. On the other hand there are some who believe that their extirpation was inevitable because the birds could not tolerate the changes wrought by civilization. The following expression is made by an exponent of the latter theory:



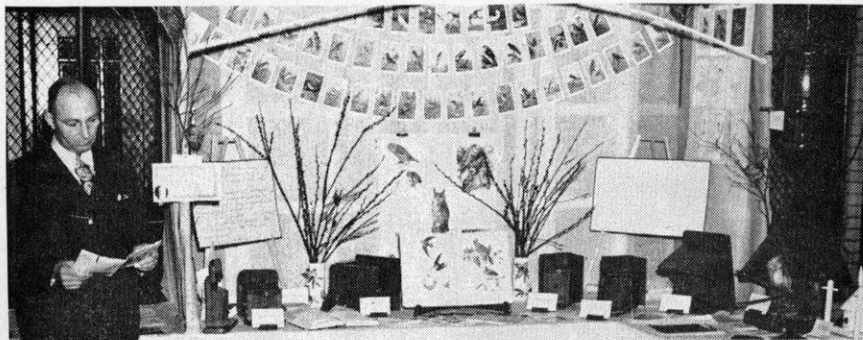
Come brother! Those tears of yours for you . . . and not for us;
We pigeons do not share your regrets.
When we swept in clouds of millions we had a land:
The cathedral forest, the grove, the prairie ocean.
And now?
We, the ghosts of pigeons, thank you for the service you have rendered us;
The day may come when you will want a similar service for yourself.

—Ed Hein

Lawrence Johnson, a Dunn County member, writers from Florida that he has seen a swallow-tailed kite.

Ben Hubbard, who assisted Zimmerman with waterfowl, was back on furlough recently from North Carolina.

George Curran, the member who found the pomarine jaeger specimen in Wisconsin, has been discharged from the army for medical reasons, and has taken up residence again in our state.



An American Hawk Owl At Horicon

On the afternoon of January 2, 1944, S. Paul Jones Harold Mathiak and Frank Burrow studied a Hawk Owl in Horicon Marsh with the aid of a 40-power telescope. Ample time and opportunity was had to note the characteristic posture, profile and other marks.

A check of available records show the bird to be of rare occurrence in the southern part of the state, Kumlien and Hollister reporting it as a "very rare winter visitant in southern Wisconsin; more frequent in the northern part especially of late years." Early day records from Racine and Lake Koshkonong are reported, with two taken at Meridian in April, 1885, and December, 1900, and three from Bayfield county in the winter of 1892. A specimen in the Milwaukee Public Museum is labeled "Fox Point, Milwaukee, Wisconsin," and one in the Oshkosh museum, taken by Crawford, carries no other collection data.

—Mrs. Walter E. Scott