

THE FLICKER

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St. Croix National Park Wildlife

By Arnold E. Erickson

THE St. Croix National Park lies twenty-one miles east of Hinckley, Minnesota on the St. Croix River. It consists of about twenty-seven thousand acres, most of which are covered by aspen, and jack and Norway pine. Several extensive spruce and tamarack swamps, also, are found throughout the area; and fine stands of hardwood occur along the creeks. It was my good fortune to work for the National Park Service in the St. Croix Park this past summer, and the observations recorded in this article were made at that time.

In Wisconsin, not far from the National Park, a pair of Sandhill Cranes dwell, returning spring after spring to the same place. From early this spring until the end of May, they were seen daily; and in the mornings and evenings, their far-carrying calls caused us to rush out of doors to watch them pass over the river. About the end of May, the cranes fell silent and were seldom seen. Apparently, they had begun to nest in the extensive meadow on the Wisconsin side of the river. However, near the close of June, the cranes again became noisy and were frequently seen. Later, I came to the conclusion that at the end of May when the cranes became secretive and quiet, they had begun to nest. And when some four weeks later they resumed their wandering, noisy habits, I believed that they had been unsuccessful. But I was mistaken, for I did not take into account the fact that

months are required for the young to learn to fly. Finally, on September 16, the old cranes and two young were seen as they flew the St. Croix River.

A pair of handbill cranes is also said to live near Grindstone Lake, some twelve miles northwest of Hinckley. I have not seen these birds, but they were reported to me by one who has lived in the district for many years and who is well acquainted with game birds.

Seven species of hawks were seen in the St. Croix this past summer, but of these, two only were common—the marsh hawk and the red-tailed hawk. Every section of land, it seemed, supported a pair of marsh hawks; and eleven pairs of typical red-tailed hawks and one pair of Kreider's hawks were encountered. This pair of Kreider's hawks, when first observed, challenged us from a distance with their shrill cries. Then they came in for a closer look. As the first hawk flew screaming over us, it appeared almost as white as a snowy owl; but as it turned, we saw that its tail was pale red and its shoulders and back were speckled with black. The second hawk was almost pure white. They were evidently a mated pair, and according to a farmer who lives in the vicinity, they have dwelt near this land for three summers.

Interesting observations were also made on wood frogs and on the wood turtles during the summer. On June 29, 1936, while walking along a road that skirts one of the

few duck ponds in the park, we came upon a throng of migrating wood frogs, *Rana cantabrigensis*. By the dozens, they emerged from the pond, crossed a short strip of grass, and then were out on the road. They were all young frogs, but they varied much in size. Some of them, it was evident, had just metamorphosed. In the space of two hundred yards, five to six hundred migrating frogs were to be seen.

The wood turtle, *Clemmys insculpta*, has always been considered a rare turtle in Minnesota; and, in fact, it has hitherto been reported from only two localities—Itasca State Park and Cannon Falls. It is, however, by no means as uncommon as it was once thought to be. We have found it again and again in the lowland woods along Bear and Hay Creeks in the St. Croix Park. Next to the snapping and soft-shelled turtles, it is probably the most abundant turtle in the area. One specimen that was kept in captivity refused to eat, despite the fact that a large variety of animal and vegetable food was offered it.

Any statement concerning the wildlife of the St. Croix Park, no matter how brief, would be incomplete without mention of the beaver; for one of the largest concentrations of beaver in Minnesota today occurs in the St. Croix National Park area. Aspen, the food tree which limits the distribution of the beaver, is abundant along Bear, Sand, and Hay Creeks, tributaries of the St. Croix River. Crooked Creek, due to the small amount of aspen along its banks, is not a favorable habitat for beaver; although one of the largest dams in the area occurs on its affluent, Wilbur Brook.

A recent survey of these creeks has revealed the following information concerning the beaver. Bear Creek, especially in its lower reaches, is probably the best beaver stream in the park. Aspen is abundant along its banks, and many of the trees are eighteen to twenty inches through the butt. Also, the creek is unusually sinuous, thus affording more territory for

dams; and at the same time bringing the beaver in contact with more aspen than would be possible along a straight stream. All in all, there are thirty dams on Bear Creek within the park. More than half of the, sixteen, are inactive; chiefly because the aspen supply has been exhausted in their vicinity. One of the largest active dams in the area is on Bear Creek in section twenty-two. Although it is only forty feet long, it stands four feet above the water on the down stream side and impounds a body of water two hundred yards long and four to five feet deep.

Sand Creek is also a good beaver habitat. The aspen is plentiful, the creek bed wide, and the water high. Within the park area there are only four dams on Sand Creek. All are large and active.

Hay Creek, within the area, is dammed by fourteen dams and also contains four large beaver lodges. Only two of the fourteen dams, however, are active. They are small, new structures in the northwest quarter of section seventeen. There is enough aspen in their vicinity to last for several years. Just below the middle of section eighteen on Hay Creek is a series of twelve inactive dams and four inactive lodges. Four of these dams and three lodges are in section eighteen; the other eight dams and one lodge are in section nineteen. Many of these dams are sixty to seventy feet long; but all of them have been partially torn and, for the present, are deserted. When intact, they impounded the water for one mile and made a large swampy area. Until the fall of 1935, most of them were in use; but at this time the beaver were trapped out and the dams opened. This work was carried on by the Park Service and the Minnesota Conservation Department in order to make Hay Creek a more suitable place for trout.

On Crooked Creek, there are two active dams and nine inactive dams; and on its tributary, Wilbur Brook, occurs the largest active dam in the area and probably the largest in Minnesota. In fact, I have found reference to only two dams that

exceed in length this 1050 foot structure. The ends of the dam, running up into aspen groves, are low and consist chiefly of mud; but about three hundred feet of the central portion of the dam, from the water below to the crest above, stands six feet high. The dam floods an area about a quarter of a mile by an eighth of a mile. Three large stack lodges are required to house the colony, which, conservatively estimated, must number thirty-five to fifty individuals.

On the four main creeks in the area there are, then, fifty-one dams, of which twenty-three are active. If four beaver are considered an average number of residents per dam, and to this number are added forty animals for the large dam on Wilbur Brook, then there are one hundred and thirty-two beaver in the park. Outside the

park on Hay, Sand, and Crooked Creeks, there are large, active dams; and the Kettle River district is well populated with beaver. Hence, the beaver population of the entire creek system is probably much greater than one hundred and thirty-two animals.

In estimating the number of beaver in the park, I have used the number of active dams as a basis for comparison rather than the number of lodges. I have done this because there are many concealed bank lodges and relatively few stack lodges. C. E. Johnson, in estimating the beaver population of the Adirondacks, assumed that each stack lodge housed ten beaver—two adults, four young, and four yearlings. In the St. Croix Park, I know of six stack lodges and at least ten bank lodges.

Minneapolis, Minnesota

Watch For Reptiles

An appeal for co-operation among field naturalists in collecting of Minnesota reptile and amphibian specimens is issued by W. J. Breckenridge, associate curator of the Museum of Natural History.

NO COMPLETE report on the reptiles and amphibians of Minnesota has ever been published. The Museum of Natural History of the University of Minnesota is now assembling all available data on these groups and making additional collections with the idea of publishing a bulletin on the distribution and identification of these forms and as much on their life history as can be secured. The writer feels that much valuable material is observed in the field and not collected by those primarily interested in birds. If at least a part of this group would become sufficiently interested in these animals to collect and preserve some specimens with proper data for the Museum, it would help materially in making this proposed bulletin more complete.

Any specimens of frogs, toads, lizards, snakes, or turtles from over the state,

even of the more common species, may help in determining the exact ranges of these species. Certain species, namely, the common spotted leopard frog, painted terrapin or mud turtle, snapping turtle, garter snake, and common toad are sufficiently well represented in the collection at present from the Twin City area; but a specimen or two of even these will be welcome if taken in the more remote parts of the state.

A few suggestions on the preservation of these forms might be appropriate here. Any of these species, except the tadpole stages of the amphibian, can be killed by tying them in a cloth bag and submerging them in water for several hours or over night. Chloroform or ether is much quicker if available. They may then have a small slit made into the body cavity (several in the case of snakes) and be dropped into a solution of one (1) part formalin (obtainable at any drug store) to ten (10) parts water. After several days in this solution, they may be removed, wrapped in several thicknesses of wet paper or cloth and then wrapped again in dry wrappings and shipped through the mails.

Spring Field Trips

AT THE February meeting of the club, a suggestion was made that a series of field trips be scheduled for the spring months and that this schedule be published in sufficient time to enable the members to make plans for trips to the places which interest them most and at times most convenient for them. It was also suggested that someone acquainted with the region to be visited be in charge of that particular trip to act as guide, and that each locality should be chosen for some specific reason with the date planned accordingly. A number of such localities were suggested and are outlined below. The expenses will vary according to the distance traveled, but a maximum of one cent per mile may be figured for transportation charges. In addition, there may be slight charges for food, unless it is to be brought as lunches from home. For one or two of the trips, there may also be an additional small fee for rental of canoes or for lodging.

It will be absolutely necessary to make reservations a week before the intended trip and exceedingly desirable to make these reservations long before this time. All reservations must be made in writing and will be answered by the person in charge who will give the particulars and details of the trip. In making reservations, give your name, whether or not you can furnish a car, whether you have camping equipment, and whatever suggestions you wish to make. The following trips have been planned:

About April 15. Late afternoon and evening. Fort Snelling—courting woodcocks. Kenneth Carlander (4227 Harriet Ave. S., Minneapolis) in charge. 20 miles round trip.

April 24-25. Saturday afternoon and Sunday. Lake Minnetonka—great blue heron rookery and migrants. Canoe trip and camping. Sterling Brackett (Dept. of Zoology, U. of M.) in charge. Round trip 40 miles.

May 1 or 2. Wyoming—courting of prairie chickens. Walter Breckenridge (Museum of Natural History) in charge. Trip 75 miles.

May 16. Sunday. Tamarack swamp on France Avenue—long eared owls and board-winged hawks. Robert Upson (4405 Lyndale Ave. S., Minneapolis) in charge. 25 mile trip.

May 22-23. Saturday and Sunday or one of these days only. Frontenac—shorebird migration. Arnold Erickson (2828 32nd Ave., Minneapolis) in charge. Camping if both days included. 140 mile trip.

May 29. Saturday. Rice Street—night heron colony. Ross Hanson and Oscar Oure Jr. (2625 Newton Ave. S., Minneapolis) in charge. Round trip of 16 miles.

June 12-13-14. Heron Lake—nesting marsh birds and prairie birds. Horace Paul (2110 Knapp Ave., St. Paul) in charge. Camping with a number of meals to be arranged for. Round trip of 350 miles.

Bird Banding

Individuals locating nests of hawks or owls this spring are urged to write Richard H. Pough, National Association of Audubon Societies, 1775 Broadway, New York City for any quantity or size of bands with which to band the young. Co-operation

among the amateur ornithologists in this regard can materially aid in reducing the number of unanswered questions concerning these groups of birds. Each band will be accompanied by a card which is to be returned to Mr. Pough when the band has been placed upon the bird. Mr. Pough, will clear records with both the Survey and the bander.

Ten Years of Winter Birds

By E. D. Swedenborg

THE following is an annotated list of birds seen in Minnesota during the months of December, January, and February since January 1, 1927. It is not a complete list but was compiled from *The Auk*, *Wilson Bulletin*, *Bird Lore* (both the Christmas censuses and Dr. Roberts' *The Season* from the Minnesota region), *The Flicker*, and in a few instances from my own records. A few species could be added to the list from other sources. Lack of space made it impossible to use all records, several hundred being omitted; but efforts were made to include as much of the state as possible and to use mid-winter dates whenever such dates could be found.

In all, 124 species are listed. Quite a number of these are not really winter birds, some being late fall or early spring migrants, and perhaps even more being birds that were entirely out of their element in Minnesota during the winter months, injuries or other causes probably interfering with their normal migration.

LOON. One on Lake Harriet, Minneapolis, Dec. 6, 1928. (Mrs. Frances Davidson.)

HOLBOELL'S GREBE. One at Hastings, Dec. 8, 1929. (Jerome Stoudt)

HORNED GREBE. One at Lake Harriet, Minneapolis. Probably an injured bird. Present until Dec. 8, 1928. (E. D. Swedenborg)

PIED-BILLED GREBE. One near Red Wing during last week of Dec., 1929. Seen by several members of the Minnesota Bird Club.

DOUBLE-CRESTED CORMORANT. At Minneapolis, Dec. 1, 1932. (Swedenborg)

"*Birds of Cook County,*" the title of a forthcoming article by Mr. E. D. Swedenborg, author of "*Ten Years of Winter Birds,*" will appear in the May issue of *The Flicker*. Mr. Swedenborg has devoted several years to intermittent observation and study of the avian life in Cook County.

GREAT - BLUE HERON. One along Nine Mile Creek, near Minneapolis. Last seen Jan. 11, 1936. Seen several times previous to this by Robert Upson and E. D. Swe-

denborg.

LEAST BITTERN. An injured bird near St. Paul, Dec. 23, 1933 (Brother Hubert Lewis)

WHISTLING SWAN. One at Hastings, Jan. 31, 1931. (Stoudt) One at Minneapolis, Dec. 3, 1932; seen by several members of the bird club.

CANADA GOOSE. Seventeen at Waseca, Jan. 17, 1928. (E. A. Everett)

MALLARD. Individuals and flocks stay until freeze-up every year. 17 at St. Paul, Dec. 25, 1933 (Alden Risser); 23 near Lanesboro, Dec. 23, 1934 (members of bird club); 9 at Minneapolis, Dec. 25, 1935 (Swedenborg); 1 at St. Cloud, Jan. 3, 1934 (Hiemenz).

BLACK DUCK. One at St. Paul, Dec. 25, 1933. (Risser) One at Minneapolis, Dec. 8, 1935. (Upson)

GADWALL. One at St. Paul, Jan. 1, 1931. (Risser)

BALDPATE. One at White Bear Lake, Dec. 26, 1936. (Ralph Woolsey)

PINTAIL. One at St. Paul, Dec. 31, 1931. (Risser) Two near Minneapolis, Dec. 10, 1933. (Swedenborg)

GREEN-WINGED TEAL. Three at White Bear Lake, Dec. 26, 1936. (Woolsey)

BLUE-WINGED TEAL. Two at Lamoille, Dec. 29, 1931. (John C. Jones)

SHOVELER. One at Minneapolis, Dec. 3, 1932. (Swedenborg)

REDHEAD. One at Minneapolis, Dec. 1, 1933. (Swedenborg)

RING-NECKED DUCK. One below Hastings, Dec. 21, 1935. (several members of the bird club) One near Minneapolis, Dec. 22, 1935. (Swedenborg)

CANVAS-BACK. Two at Minneapolis, Dec. 5, 1932. (Swedenborg) One at Hastings, Jan. 2, 1934. (Risser)

LESSER SCAUP DUCK. Stays in numbers until the freeze-up. The most interesting record, 14 seen at Frontenac, Dec. 26, 1930. (members of the bird club)

AMERICAN GOLDEN-EYE. Scores of records. Flocks numbering up to 500 at Hastings (Stoudt); four at St. Cloud, Jan. 3, 1934 (Hiemenz); a few along north shore of Superior, Feb. 1927. (W. J. Breckenridge)

BUFFLE-HEAD. One at Hastings, Jan. 31, 1931. (Stoudt) One at same place, Jan. 2, 1932. (Risser)

OLD-SQUAW. Thousands along north shore of Superior, first half of February, 1927. (Breckenridge)

WHITE-WINGED SCOTER. One at Hastings, Dec. 6, 1931. (Stoudt)

SURF SCOTER. One near St. Paul, Feb. 11, 1934. (Risser and Donald Mahle)

RUDDY DUCK. At Minneapolis, Dec. 4, 1928. (Mrs. Davidson)

HOODED MERGANSER. One at Hastings from Dec. 15, 1928, to Feb. 3, 1929. (Stoudt) One at Minneapolis, Dec. 1, 1932. (Swedenborg)

AMERICAN MERGANSER. Numerous records. Thirty at Hastings, Jan. 2, 1930. (Stoudt) 10 at Frontenac, Dec. 21, 1935. (members of bird club) Seen during December also at Minneapolis, St. Paul, Shakopee, Lake Superior.

RED-BREASTED MERGANSER. Several early December records. Five at Hastings, Jan. 12, 1936. (several members of bird club)

TURKEY VULTURE. One at Wacouta, Dec. 24, 1934. (Gustav Swanson)

EASTERN GOSHAWK. One at Hastings, Feb. 12, 1931. (Stoudt) Cloquet, Dec. 22, 1931. (Stoudt) Also seen numerous times in Roseau County by P. O. Fryklund, at Minneapolis, Frontenac, etc.

SHARP-SHINNED HAWK. One at

Minneapolis, Jan. 29, 1931. (S. Durant) At Minneapolis, Jan. 10, 1932. (Swedenborg)

COOPER'S HAWK. One at Minneapolis, Feb. 21, 1930. (Mrs. Davidson) One shot near Pipestone, Jan. 16, 1933. (Alfred Peterson)

RED-TAILED HAWK. Three at Frontenac, Dec. 26, 1930; 5 at Lanesboro, Dec. 23, 1934; 7 at Lanesboro, Dec. 22, 1935. (These three records by several members of the bird club) One near Minneapolis, Dec. 25, 1932. (Swanson and Charles Evans) One at St. Paul, Dec. 25, 1933. (Risser)

RED-SHOULDERED HAWK. Individuals seen at Frontenac, Dec. 24, 1934 and Dec. 21, 1935. (several members of the bird club)

AMERICAN ROUGH-LEGGED HAWK. One at Sandstone, Dec. 29, 1933; two at Frontenac, Dec. 22, 1934; one at Lanesboro, Dec. 22, 1935. (all by members of the bird club) One at Minneapolis, Dec. 25, 1932. (Swedenborg) One near Roseau, Dec. 21, 1933. (Fryklund)

GOLDEN EAGLE. One at Roseau, Dec., 1933. (Fryklund) One shot at Elsworth, Feb. 15, 1933. (Peterson)

SOUTHERN BALD EAGLE. Two at Frontenac, Dec. 24, 1934; two at Frontenac, Dec. 21, 1935. (members of bird club) Two at Hastings, Jan. 2, 1932. (Risser) A few near Preston, Jan. 20, 1934. (Charles DuToit)

MARSH HAWK. Numerous records. One near Minneapolis, Jan. 1, 1932. (Swedenborg) One at Hastings, Jan. 2, 1932 (Risser) Three near Lanesboro, Dec. 22, 1935. (several members of the bird club)

PRAIRIE FALCON. One shot at Fairmont a few days previous to Dec. 23, 1935. (Dr. G. H. Leudtke)

PIGEON HAWK. One at Minneapolis, Jan. 26, 1931. (Swanson)

SPARROW HAWK. One at Hastings, Feb. 19, 1930. (Stoudt) One at St. Paul, Jan. 12, 1934. (Risser) Other records of individuals seen at Shakopee, Minneapolis, etc.

RUFFED GROUSE. Permanent resident. Numerous records.

WILLOW PTARMIGAN. Several found by P. O. Fryklund in Roseau County during Dec., 1933, and January and February, 1934.

PRAIRIE CHICKEN. Permanent resident. Several records.

PRAIRIE SHARP-TAILED GROUSE. Permanent resident. Numerous records.

EUROPEAN PARTRIDGE. One interesting record for southern Minnesota, a bird seen by several members of the bird club at Lanesboro, Dec. 22, 1935. Quite common as a permanent resident in southwestern Minnesota.

BOB-WHITE. Permanent resident. Numerous records.

RING-NECKED PHEASANT. Common permanent resident. Scores of records.

AMERICAN COOT. One at St. Paul, Dec. 31, 1931. (Risser) One near Minneapolis, Dec. 25, 1934. (Swedenborg) Probably injured although able to fly.

WILSON'S SNIPE. Numerous records from the southern part of the state. On Dec. 25, 1936 the compiler of these records flushed fourteen Wilson's snipe at a bend in Nine Mile Creek near Minneapolis. In a nearby tree was a great-horned owl. On Feb. 27, 1937, I again flushed fourteen of these birds at the same place. Again in a nearby tree was a great-horned owl.

HERRING GULL. Present on the park lakes in Minneapolis until these lakes freeze over, usually during the first few days of December. (Swedenborg) Seen by members of the bird club at Frontenac, Dec. 21, 1935, and along the north shore of Superior above Duluth, Dec. 28, 1933. Several other records.

RING-BILLED GULL. 150 at Hastings, Dec. 26, 1931. (Risser) A few along the Northshore during the first half of February, 1927. (Breckenridge) Scores of December records from the southern sections of the state.

MOURNING DOVE. One at Hastings, Jan. 2, 1929. (Stoudt) One at Lamoille, Dec. 21, 1931. (Risser) Six near Lanesboro, Dec. 22, 1935. (members of bird club)

BARN OWL. Two near Shakopee, Dec.

22, 1929. (Donald and Leander Fischer and Stanley Stein)

SCREECH OWL. Permanent resident. Several records.

GREAT-HORNED OWL. Quite common permanent resident. Numerous records.

SNOWY OWL. 5 near Shakopee during December, 1929. (Stein and the Fischers) Numerous records by Mr. Fryklund in Roseau County. Several other records.

HAWK OWL. Numerous in Roseau County during December, 1935. (Fryklund) Numerous between Duluth and Grand Marais during first half of February, 1927. (Breckenridge) One at Pine City, Dec. 20, 1931. (Jones)

BARRED OWL. Permanent resident. Numerous records.

GREAT GREY OWL. Numerous records from Roseau County. (Fryklund) One seen near Minneapolis, Jan. 7, 1934. (Risser)

SHORT-EARED OWL. One at Hastings, Dec. 20, 1930 to Feb. 12, 1931. One seen near Minneapolis on Dec. 27, 1935. (Upson) Three near Stewartville, Dec. 19, 1936. (George Rysgaard and Risser)

RICHARDSON'S OWL. Records from Roseau County during several winters. (Fryklund)

SAW-WHET OWL. One at Minneapolis, Feb. 15, 1927. (Swedenborg) One at Hastings, Dec. 30, 1930. (Stoudt)

BELTED KINGFISHER. One at Minneapolis, Jan. 10, 1929. (Swedenborg) One at Minneapolis, Dec. 23, 1929. (Swanson and Evans) Seven near Lanesboro, Dec. 22, 1935. (By several members of bird club) Other records.

NORTHERN FLICKER. One at Hastings, Jan. 19, 1929. (Stoudt) One at Young America, Dec. 25, 1928. (S. A. Grimes) Four at Lanesboro, Dec. 23, 1934. (members of bird club) Other records from Minneapolis.

NORTHERN PILEATED WOODPECKER. Permanent resident. Several records.

RED-BELLIED WOODPECKER. 19 at Frontenac, Dec. 26, 1932 and 14 near Lanesboro, Dec. 23, 1934. (members of bird club) Numerous records as far north as Minneapolis.

RED-HEADED WOODPECKER. 34 at Frontenac, Dec. 26, 1932, and 24 at Lanesboro, Dec. 22, 1935. (members of bird club) Three at Minneapolis, Dec. 25, 1936. (Swedenborg) Numerous other records.

HAIRY WOODPECKER. Permanent resident.

DOWNY WOODPECKER. Common permanent resident.

ARCTIC THREE-TOED WOODPECKER. One at Minneapolis last week of Dec., 1929. (Mrs. Davidson) One at Hastings, Jan. 12, 1930. (Stoudt) Several more northern records.

HORNED LARK. Present every winter. Most interesting record, a flock of 200 near St. Cloud, Jan. 3, 1934. (Hiemenz)

CANADA JAY. One at White Bear Lake, Jan. 12, 1930. (Risser) One at Cloquet, Dec., 1931. (Stoudt) One in Pine County, Dec. 21, 1931. (several members of bird club)

BLUE JAY. Common permanent resident.

AMERICAN MAGPIE. One at Winnebago, last week of Dec., 1933. (Mahle) One at Robbinsdale, Dec. 6, 1928. (Swanson).

RAVEN. In Roseau County during winter of 1935-1936. (Fryklund)

CROW. Present every winter. Scores of records.

BLACK-CAPPED CHICKADEE. Common permanent resident.

HUDSONIAN CHICKADEE. One in Pine Co., Dec. 22, 1931. (members of bird club. One near St. Cloud, Jan. 3, 1934. (Hiemenz)

TUFTED TITMOUSE. One at Hastings, Jan. 23, 1929. (Stoudt) Two at Frontenac, Dec. 22, 1934. (Risser and Mahle) Four near Lanesboro, Dec. 23, 1934. (members of bird club) A few records at St. Paul and Minneapolis.

WHITE-BREASTED NUTHATCH.

Common permanent resident.

RED-BREASTED NUTHATCH. Several along north shore of Superior during first half of Feb., 1927. (Breckenridge) One at Excelsior, Feb. 12, 1930. (Sterling Brackett) One at St. Paul, Jan. 1, 1936. (Risser)

BROWN CREEPER. Records from southern part of state during every winter.

WINTER WREN. One at St. Paul, Jan. 14, 1933. (Brother Hubert Lewis) One at Lanesboro, Dec. 23, 1934. (members of bird club) One at Long Meadow, near Minneapolis, from Jan. 1, 1935 (Risser and Evans) to Feb. 2, 1935. (Dr. C. C. Prosser and Swedenborg.

CAROLINA WREN. One seen on several days previous to Dec. 12, 1933, at Fairmont. (Dr. Leudtke)

MOCKINGBIRD. One at Ely, Dec. 26, 1932 to Feb. 11, 1933. (Sigurd F. Olson)

ROBIN. Probably most interesting, a flock of 15 at Red Wing, Jan. 1927. (Mrs. Densmore)

EASTERN BLUEBIRD. Two at Minneapolis, Feb. 23, 1930. (Swedenborg) One at Spring Grove, Jan. 8, 1933. (Percival Narveson) One at Red Wing, Feb. 27, 1933. (Mrs. Densmore)

TOWNSEND'S SOLITAIRE. One at Madison, Jan. 3, 1932 to Feb. 2, 1932. (Mrs. C. E. Peterson)

GOLDEN-CROWNED KINGLET. Four at Minneapolis, Dec. 26, 1928. Two at Minneapolis, Jan. 6, 1934. (Swedenborg)

RUBY-CROWNED KINGLET. One at Lanesboro, Dec. 22, 1935. (Mahle)

BOHEMIAN WAXWING. Winter visitant, sometimes in flocks of several hundred birds. Numerous records.

CEDAR WAXWINGS. Records in southern part of the state for almost every winter, usually only a few individuals, but a flock of 27 was seen at Minneapolis, Dec. 25, 1929. (Donald Fischer) Several other records.

NORTHERN SHRIKE. One at Minneapolis, Dec. 25, 1929. (Swanson and Evans) One at Shakopee, Dec. 22, 1929. (Please turn to page eleven, column two)

Miniature Camera Photography

Advantages and weaknesses of pigmy machine
discussed by nature photographer

By Ralph Woolsey

THE current revival of interest in the miniature camera has passed through several stages of development, from early skepticism and derision to a phenomenal expression of popular approval and acceptance. In response to the demands created by this cumulative avalanche of exuberant enthusiasm have come numerous technological advances of real value, with the result that today we find the minicam occupying a place of greater or less importance in nearly every phase of photography. Whether or not the diminutive negative will, for any given purpose, produce results as good as or better than its larger contemporaries is, of course, the subject for many heated debates between minifanatics and proponents of larger machines; and many of these persons become either so obsessed with their individual views or so self-deluded in their own enthusiasm for certain types of equipment that it is virtually impossible in many cases for the prospective camera user to garner any helpful information which is unbiased or does not smack of intellectual dishonesty, however unintentional. None the less, impartial information may be of interest to some; and this article will attempt to compare as fairly as possible the respective merits and disadvantages of both camera types as the writer sees them, particularly with reference to their application in the photography of birds or similar subjects.

To commence, there is nothing essentially new about the miniature camera. Vest pocket and even smaller film sizes which, by all accepted standards can be classified as miniature, antedated the present era by many years; and even the negative of postage stamp proportions has its avatars in the form of the now extinct "detective cameras." That certain

modern cameras utilizing single or double frames of standard motion picture film have been brought to a high degree of mechanical perfection does not change the fact that the miniature camera is experiencing only a well-deserved revival and by no means represents a new size departure.

Obviously, the bird photographer is concerned with portability; and in this respect, the minicam is without a peer, being of pigmy size and weight. Bear in mind, however, that numerous and ingenious accessory gadgets are oftentimes important and sometimes indispensable in miniphotography; and the case which contains them is likely to constitute no small item. Nevertheless, a very complete miniature outfit need not weigh more than ten or twelve pounds; whereas the large camera, with whatever basic accessories may be needed in the field, may tip the scales to the tune of thirty pounds or more. The tripod, although it need not be so heavy for minicam use, is every bit as important to the user of a small camera as it is or his benighted big-camera brother, especially in the use of telephoto or similar lenses.

The minicam can be brought into play with greater facility than can the larger outfit because of its small size, the ease and rapidity with which critical focusing may be accomplished by means of its range finder, and the convenience of quickly setting shutter speeds. There are certain advantages in focusing on the ground glass screen of the large camera, however. The image is viewed in full negative dimensions, and the actual depth of focus may be inspected. It is also easier to compose a picture on the ground glass than through the view finder of the minicam, which produces a brilliant image

with everything from the camera to infinity in sharp focus. On the other hand, while the minicam operator must ascertain hyperfocal distances by means of a scale engraved on the lens mount of his camera, this is sometimes of considerable advantage, as he can, with his range finder, deliberately and quickly measure off the depth of field which he desires in any given scene and then select the diaphragm opening on the hyperfocal distance scale.

This brings us to the matter of lenses. Miniature cameras are equipped with lenses of very short focal length and which accordingly possess great depth of focus, even while working at full aperture. Although this is one of the outstanding features of the small cameras, and one which admirably equips it for certain types of work, there is some doubt as to its value in bird photography, where an out-of-focus background is usually desirable and may be obtained with ease in the large camera. Lenses for miniature cameras are of extremely high quality and fine definition, some having a circle confusion as small as $1/800$ of an inch. Such precision is necessary due to the fact that practically all minicam negatives are usually subjected to great enlargement, whereas the larger negatives, made with lenses equally fine for their purpose, are seldom, if ever, called upon to stretch themselves to incredible dimensions. The minicam may be equipped with extreme speed lenses, combined with a shutter capable of speeds up to $1/1000$ of a second. (Such a shutter is not peculiar to the miniature, as are *practical* speed lenses of $f:2$ aperture and more, but it is more useful when coupled to such fast lenses.) High speed lenses are of little value to the average still photographer of birds, however.

In making photographs of birds' nests or other objects where closeups are necessary, a double extension of some sort for the lens is needed. This the minicam lacks and the large camera provides, but supplementary lenses and optical near-focusing devices may be obtained for the miniature camera for the purpose of de-

creasing the focal length of its lens so that closeups may be made with normal lens extension. Despite the fact that such shots must be made at fixed distances, these attachments are sometimes satisfactory; but care must be taken in compensating for parallax displacement between the camera and the taking lens when working at short distances.

Included among the many readily interchangeable lenses which are offered for the higher priced miniature camera, are several of long focus as well as one or two of the telephoto type; and the bird photographer who uses the small camera will doubtless discover that he cannot obtain sufficiently large images of his quarry unless he avails himself of one or two of these. When using lenses on the miniature camera which increase the image more than two diameters over that produced by the regular lens, a firm tripod or other support is advisable if exposures slower than $1/25$ of a second are to be made, in order to minimize movement or vibration, which is inimical to sharpness in the greatly enlarged negatives.

Miniature cameras utilizing 35 millimeter films generally make use of strips which provide for about thirty-six exposures. While it is possible to remove the filmstrip from the camera before it has been fully exposed in order to use another type of film, such practice is not very practicable. It can be seen, therefore, that all exposures on a given filmstrip should be as nearly uniform as possible. The more meticulous minicameraman will consult his exposure meter at every turn and will try to expose in all cases for a predetermined optimum negative density. In this way only can the contrast of all the exposures on the filmstrip be accurately held within reasonable limits of uniformity. Users of large cameras may at any time change the type of film being used, and have the further advantage of being able to over-or-underexpose single negatives for certain degrees of contrast and then develop these negatives separately if necessary. A point in favor of the minicam in

the matter of exposure is its film transport mechanism, which is constructed so that double exposures are prevented; and this is of distinct advantage to the bird photographer, who sometimes forgets to change film during a moment of excitement and is later thoroughly disconcerted or even moved to the verge of profanity by the appearance of a double image on his negative.

Miniature films must be processed with much greater care, although there is no special technique involved which is essentially different from that employed by any conscientious craftsman in processing any other kind of film. To insure best results, a suitable fine grain developer is used and all processing solutions are maintained at uniform temperatures in order to avoid any possibility of film reticulation. Development to a certain gamma or degree of contrast is desirable, and its control is determined in accordance with the exposure for optimum density mentioned.

Dust must be scrupulously avoided when handling or drying miniature film, because the tiniest particles will appear as objectionable spots on the finished enlargements. The user of a large camera, who does not necessarily face ruin by a speck of dust, sometimes is accused of gross technical laxity by minicamerists; but at best, the difference in technique is mainly quantitative. After all, it has been definitely proven beyond question that the tiny negative *can* compete on equal terms with larger ones, provided exact and uniform conditions are provided and adhered to in exposure and processing; and such negatives will have brilliance, sharpness, and freedom from objectionable grain which can reasonably raise no criticism.

Since contact prints are seldom used except for filing or for positive projection transparencies, the minicam worker must make enlargements from his diminutive negatives, which process is much slower than contact printing; so the large negative has its points in this respect. Miniature negatives must be projected with an enlarger designed for them if best results

are to be obtained, due to the special optical system which is computed especially for that size negative; yet, even when using the precision lens from the camera for enlarging, a certain amount of light dispersion is present. No miniature enthusiast who is honest will claim that his 5x7 or 8x10 projections, with extremely few exceptions, are as sharp as contact prints of the same size. Some workers in bird photography insist on prints which are as sharp as the proverbial pinpoint, while others do not object to the slight soft effect prevalent in nearly all minicam enlargements over five diameters; so this is naturally a matter which is best left to personal preference. Fortunately, there are not many minicamerists who, when they cannot get a projection print to turn out as sharp as they desire it, try to explain its slightly diffused appearance under the singularly inappropriate guise of "artistic" or even "pictorial" alibis, which should fool nobody but the veriest tyro.

Leading photographic authorities agree that the miniature camera, which *can* be adapted for every kind of photographic work, and which is supreme in two or three fields, is not invariably the ideal machine for work which demands a camera specifically designed to solve most easily the photographic problem at hand. For the bird photographer, the use of the miniature camera will depend solely on how easily will solve his problems as he sees them.

Winter Bird Records

(Continued from page eight)

(Donald Fischer) Several other records.

STARLING. Permanent resident. Largest flock recorded, ninety birds, near Lanesboro, Dec. 23, 1934. (members of bird club) Numerous other records; Roseau County. (Fryklund) Isanti County, Hibbing, Minneapolis, and others.

NORTHERN YELLOW-THROAT
One near Minneapolis, Dec. 25, 1934.
(Swedenborg) Watched for almost two hours.

ENGLISH SPARROW. Abundant permanent resident.

EASTERN MEADOWLARK. One at Young America, Dec. 23, 1928. (Grimes)

YELLOW-HEADED BLACKBIRD. One at Nichols, Dec. 25, 1934 to Jan. 5, 1935. (Swedenborg)

RED-WINGED BLACKBIRD. About 300 at Nichols, Feb. 1, 1936. (Swedenborg) A flock of over 300 at Hastings, winter of 1930-31. (Stoudt) Numerous other records.

RUSTY BLACKBIRD. About 75 at Hastings, Dec. 20, 1930. (Stoudt) Four at St. Paul, Dec. 25, 1933. (Risser) Numerous other records from St. Paul, Minneapolis, Nichols.

BREWER'S BLACKBIRD. One at Hastings, Jan. 12, 1930. (Stoudt) Four at Nichols, Dec. 25, 1934. (Swedenborg) A few other records in the Twin Cities area.

BRONZED GRACKLE. Two at Minneapolis, Dec. 25, 1932. (Swanson and Evans) Four near Minneapolis, Dec. 25, 1934. (Swedenborg)

EASTERN CARDINAL. Permanent resident, gradually spreading into the northern part of the state. Forty-five were seen at Lanesboro, Dec. 23, 1934 by several members of the bird club.

PURPLE FINCH. Present every winter, sometime in quite large flocks. Scores of records.

EVENING GROSBEAK. Two at Hastings, Jan. 18, 1930. (Stoudt) Two at Minneapolis, Jan. 25, 1936. (Upson) A few other records.

PINE GROSBEAK. Winter visitant. Six at Minneapolis, Jan. 1, 1930. (Swedenborg) Two at Sturgeon Lake, Dec. 27, 1933. (members of bird club) At Cloquet, Dec. 22, 1931. (Stoudt) Numerous other records.

REDPOLL. Numerous records almost every winter, sometimes seen in flocks numbering a few hundred.

PINE SISKIN. A flock of about 50 near Minneapolis, Dec. 2, 1932. (Swedenborg) One at Lanesboro, Dec. 23, 1934 and 56 at Frontenac, Dec. 26, 1932. (both records by several members of the bird club)

EASTERN GOLDFINCH. Present every winter, the most interesting record that of a flock of about 100 near St. Cloud, Jan. 2, 1935. (Hiemenz and Jack Hanson)

RED CROSSBILL. Wintered in numbers in 1927-28 at New York Mills. (Miss Mary Juola)

WHITE-WINGED CROSSBILL. A few along the north shore of Superior during the first half of Feb., 1927. (Breckenridge) One near Minneapolis, Jan. 3, 1933. (Marius Morse)

VESPER SPARROW. One at Lanesboro, Dec. 22, 1935. (Upson)

SLATE-COLORED JUNCO. Records for every winter. 328 individuals were seen by several members of the bird club near Lanesboro, Dec. 22, 1935.

TREE SPARROW. Records for every winter in southern part of state. Flocks of 100 or more sometimes encountered.

WHITE-CROWNED SPARROW. One at Inver Grove, Dec. 26, 1935. (George Rysgaard and James Kimball)

WHITE-THROATED SPARROW. Five at St. Paul, Dec. 24, 1928. (A. C. Rosenwinkel) One at Hastings, Jan. 2, 1929. (Stoudt) A few other records for the Twin Cities area.

FOX SPARROW. One at Minneapolis, Dec. 16, 1931. (Swedenborg)

SWAMP SPARROW. One at Minneapolis, Dec. 24, 1928. (Swanson and Evans) One near Minneapolis, Dec. 25, 1932. (Swedenborg) One at Hastings, Jan. 2, 1932. (Risser)

SONG SPARROW. One near Minneapolis, Dec. 26, 1932. (Swanson and Evans) One near Minneapolis, Dec. 25, 1934. (Swedenborg) One at Hastings, Jan. 21, 1928. (Stoudt)

LAPLAND LONGSPUR. Present every winter, sometimes in quite large flocks.

SNOWBUNTING. Present every winter. Most interesting record that of four flocks, estimated at about 400, 700, 1,000, and 1,000 birds. This was near St. Cloud, Jan. 3, 1934. (Hiemenz)

Minneapolis, Minnesota

THE FLICKER

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Lead Poisoning of Ducks Investigated

By FREDERICK BELL

ON December 3, 1936, Dr. Green's office was notified of an epizootic among the waterfowl which had remained on Bear Lake near Albert Lea.

Charles Drake and the writer were sent down to the lake to diagnose the cause of the catastrophe. Others in the party were Mr. Fredine, state biologist, Mr. Stadheim, and Mr. Larson, local game wardens, and a resident of Albert Lea.

We first visited the river channel on the outskirts of town where industrial wastes kept a channel open far out into the lake which is included in the game reserve. This area contained a heavy concentration of ducks which showed little inclination to fly at that time of the day (about 1:30 p. m.). These birds have been fed every year by local sportsmen and are quite tame, allowing easy approach to within forty of fifty yards with individual variations, of course, Paradoxically, those ducks which were farther out on the lake flew at our approach, while those which were near shore exhibited but slight alarm. Perhaps those which were farther out were visitors, while the in-shore birds were residents. Any attempt to estimate the number of ducks would have been folly, but it is safe to say that there were thousands, whether two, three, or more, we could not say. The ducks which flew settled again, for the most part, on the ice at the edge of the open water; therefore they appeared as a single dark line to us.

There were several species represented. We observed occasional canvas-backs, red-heads, bluebills, pintails, black ducks, spoonbills, and ruddys, with the green head mallard in the great majority. There was no evidence that any of these ducks were suffering from lead poisoning.

We next visited Bear Lake. There was a cold wind of about twenty miles per hour, but the sun was shining. Several inches of snow had fallen the previous night and was drifting across the lake, piling up wherever the wind was broken by the rushes which extended far out into the lake. The result was that over most of the lake there were numerous small drifts which undoubtedly hid many of the dead ducks, as sick ducks invariably head for the slight cover which the rushes afford.

The first indication we had that we were approaching the open hole was the flight of numerous crows which had been feeding on the carcasses. We proceeded some hundreds of yards further before the first flight of ducks departed, exhibiting their characteristic wariness. From that time on, the ducks left at short intervals in large flocks numbering from twenty-five to one hundred or more, leaving behind only those which were visibly affected. The remaining ducks varied in condition from those dead to those which could fly for a hundred yards or so before alighting. Curiously enough, most of the ducks left the water to run out on the ice a short distance and cower in whatever

cover they could find. Only when we were within a few feet of them did they attempt to escape further. Sixty-five dead and dying ducks were collected in a very small area. Several mudhens were also collected, however, of these only one was sick; this was due to the invasion of its peritoneum by a fluke.

It was not until I had left the place and had walked to the other side of the lake that I realized the extent of the disaster. Every bed of rushes harbored ducks in the various less advanced stages of the affliction, and carcasses were to be found all around. One drake was observed to fly about one hundred yards and then come down rather abruptly and lie still. When we picked him up, we found that he had suffered internal hemorrhage and was bleeding profusely from the mouth. The ice was very rough in that particular area.

The birds were brought into the laboratory where it was found that the alimentary tract contained an average of 10.44 shot per duck. The highest number of shot found in any one bird was 49. This evidence, together with the characteristic symptoms of lead poisoning presented,

made our diagnosis conclusive. The number of shot found was more than sufficient to cause death, even under less adverse circumstances than these ducks were exposed to.

A *Leucocytozoon* probably species *anatis* Wickware was found in the blood of one of the ducks and undoubtedly played a part in the sickness of that bird. The mudhens collected did not contain shot.

We may be encouraged, in the otherwise gloomy outlook, by the fact that Dr. Ralph Dowdell and Dr. Robert G. Green of the University of Minnesota are formulating an alloy shot which will dissolve in water thus making it inaccessible to ducks.

We would like to take advantage of the space allowed us here to make a plea to the member of the bird club to send us, any specimens found sick or dead which might help us to further our knowledge of the diseases of our wildlife populations. The specimens may be taken to any game warden in this state, or they may be sent to us directly. Packing in iced containers will serve to preserve the animals until we receive them.

Minneapolis, Minnesota

Meeting Notes

THE January meeting of the Minnesota Bird Club was held on the fourteenth of the month with the election of the 1937 officers as its principal item of business.

Sterling Brackett gave a talk on the organization and early history of the Minnesota Bird Club.

John Dobie spoke at the meeting held February 11, 1937, at the University of Minnesota zoology building. He gave an interesting account of the faunal life of the White Earth region of Minnesota. Numerous photographs depicting the animal forms of the area were displayed by the speaker and added greatly to the

value and interest of the lecture

"Faunal Life Zones in Minnesota" was the subject of the address given by Mr. Thaddeus Surber at the March meeting. Mr. Surber described several peculiar and interesting range extensions of animal forms indigenous to the state; such extension resulted, for the most part, from man wrought changes in environmental conditions.

Mr. John Moyle spoke at the meeting on April 8, 1937, on the subject "Floral Areas of Minnesota" and illustrated his lecture with lantern slides depicting the vegetative types characteristic of each area.

Summer Birds of Cook County

An annotated list of species recorded
in northeastern Minnesota

By E. D. SWEDENBORG

COOK County, in the northeast corner of Minnesota, is, in my estimation, the most beautiful and interesting region in this state of natural beauty. Mrs. Swedenborg and I first visited this section in June, 1930; and we have returned for short stays at least once each summer since. During June, 1934 and 1935, Dr. and Mrs. C. C. Prosser were with us; and most of the nests found during this period were located by Dr. Prosser. The list that follows is not intended to be a complete list of the breeding birds of the county but is compiled from our records only during this period. A study of the ranges given in Dr. Roberts', *The Birds of Minnesota*, shows that we missed quite a number, and we can look forward to finding some of these during future visits.

LOON. Common on Lake Superior and several of the smaller lakes.

AMERICAN GOLDEN-EYE. Quite common. Female and twenty-two young on Lake Christeen, June 26, 1935. Female and seven young at same place June 24, 1936.

AMERICAN MERGANSER. Quite common. Small ducklings seen floating down the rapids near the mouth of the Brule, June 18, 1933. Female with young, Northern Lights Lake, June 23, 1933. Female with eight young, Caribou Lake (near Lutsen), June 25, 1936.

BROAD-WINGED HAWK. Quite common. A pair nested at Caribou Lake, June, 1936.

OSPREY. One at Caribou Lake, June 25, 1936.

DUCK HAWK. One at Carlton Peak, Aug. 29, 1932; and one at Caribou Lake, June, 1936.

PIGEON HAWK. One at Caribou Lake, June, 1935.

SPARROW HAWK. Common along Lake Superior.

RUFFED GROUSE. Family groups seen during June and July each season. Numerous during early July, 1932.

KILLDEER. A few along Lake Superior and Devil's Track Lake.

HERRING GULL. A common breeding species along Superior. A colony about two miles southwest of Grand Marais. Ten nests located there June 21, 1934 (5-three eggs; 3-two eggs; 2-one egg). Same colony June 25, 1935, fifteen nests (11-three eggs; 1-two eggs; 3-one egg). Same colony June 23, 1936, eleven nests (5-three eggs; 5-two eggs; 1-one egg).

BLACK-BILLED CUCKOO. One at Caribou Lake, June 24, 1936.

GREAT HORNED OWL. One at Loon Lake, June, 1934. Heard several times at various places.

CHIMNEY SWIFT. A few seen flying overhead several times at Loon and Caribou Lakes.

BELTED KINGFISHER. Common. Nest with young, June 19, 1934, at Loon Lake.

Flicker. Common. Nest, young, June 19, 1933 at Loon Lake. Nest with young, June 24, 1933, at Grand Marais.

PILEATED WOODPECKER. Not common, but seen at various places in the county.

YELLOW-BELLIED SAPSUCKER. Nest, large young, at Gunflint Lake, July 9, 1932.

Hairy Woodpecker. Quite common. Nest with young, Brule River, June 22, 1936.

Downy Woodpecker. Common. Nest, young, at Loon Lake, June 24, 1933.

KINGBIRD. Seen only near Grand Marais, June 25, 1935.

PHOEBE. Very numerous. Each bridge and deserted building of any type seems to have its nesting pair.

OLIVE-SIDED FLYCATCHER. A pair at Loon Lake, June 22, 1933.

TREE SWALLOW. Quite common. Nest with young, June 19, 1934, at Loon Lake.

BANK SWALLOW. A small colony at the mouth of the Brule River, June 18, 1933.

PURPLE MARTIN. A few seen near Lutsen, June, 1935.

CANADA JAY. Two at Seagull Lake, August 28, 1932. A pair at the South Brule, June 23, 1933. A family group, the young full grown, at Loon Lake, June 22, 1933.

BLUE JAY. Present in limited numbers.

CROW. Quite common. Young being fed out of nest, June 21, 1936.

BLACK-CAPPED CHICKADEE. Common. Nest with young at Loon Lake, June 17, 1934.

HUDSONIAN CHICKADEE. Seen only on the Brule River, June, 17, 1930.

RED-BREASTED NUTHATCH. Common. Carrying food, Loon Lake, June 19, 1933. Several family groups, young being fed, Caribou Lake, June 23, 1935. Nest with young twenty-five feet up in a dead aspen, near mouth of Brule River, June 23, 1936.

BROWN CREEPER. Not common but seen at various places. Nest with five young and an egg, Brule River, June 19, 1930. A family group, the young being fed at Loon Lake, June 22, 1933.

HOUSE WREN. Common. Nest of young, June 19, 1930. Nest, five eggs, June 18, 1933. Both at Grand Marais.

WINTER WREN. A pair at Loon Lake, June 18, 1934.

ROBIN. Common. Several nests found, the latest date being a nest with four eggs at Devil's Track Lake, July 11, 1932.

HERMIT THRUSH. Present but the

least numerous of the breeding thrushes.

OLIVE-BACKED THRUSH. Surprisingly common. At least a dozen nests located. Among others, a nest with three young and one egg, at Brule River, June 24, 1933; nest, four eggs, at Caribou Lake, June 22, 1934; nest, four eggs, Poplar River, June 26, 1935.

VEERY. Present in various localities but not common.

BLUEBIRD. Seen along Lake Superior each summer in limited numbers.

GOLDEN-CROWNED KINGLET. Quite common. Nest, five young, at Brule River, June 18, 1930. Young being fed, out of nest, at Brule River, July 10, 1932. Young being fed at Grand Marais, June 18, 1933; nest, six young, Loon Lake, June 19, 1934.

CEDAR WAXWING. Common. Among several nests found, the earliest was one with three eggs, at Caribou Lake, on June 23, 1935.

RED-EYED VIREO. This, the only member of its family we have found in the county, is almost an abundant summer resident. Nest, four eggs, Loon Lake, June 20, 1934. Began building, Caribou Lake, June 23, 1935.

BLACK AND WHITE WARBLER. Quite common. Nest, four eggs, Loon Lake, June 19, 1933.

TENNESSEE WARBLER. Two singing males on South Brule River, July 9, 1932. A pair seen ten miles above Grand Marais, June 15, 1930.

NASHVILLE WARBLER. At Caribou Lake during June, 1935 and 1936.

PARULA WARBLER. At Caribou Lake on June 23, 1935.

YELLOW WARBLER. Seen only in the brush along Lake Superior.

MAGNOLIA WARBLER. Seen in several places. Nest, four eggs, Poplar River, June 26, 1935.

BLACK-THROATED BLUE WARBLER. Uncommon. One of the Brule River, June 17, 1930. Another at Gunflint Lake, July 9, 1932. Nest, four eggs, Loon Lake, June 18, 1934.

MYRTLE WARBLER. Quite numerous. Feeding young out of nest, Caribou Lake, June 22, 1934. Nest, three large young, same place, June 23, 1935.

BLACK-THROATED GREEN WARBLER. Common. Young out of nest, being fed, at the Brule River, July 19, 1932. Young bird unable to fly being fed, Loon Lake, June 22, 1933.

BLACKBURNIAN WARBLER. Common. Nest with young at Caribou Lake, June 28, 1935.

CHESTNUT-SIDED WARBLER. At Caribou Lake, June, 1935, and in the brush along Lake Superior each season.

BAY-BREASTED WARBLER. Only record is one at the Brule River, June 18, 1930.

PINE WARBLER. One on an island in Loon Lake, June 20, 1933.

OVENBIRD. Seen at a few places visited in the county but not very numerous.

GRINNELL'S WATER THRUSH. Rather common. Young out of nest and being fed, Loon Lake, June 29, 1933. Nest, four eggs, Caribou Lake, June 22, 1934. Nest, three large young, Caribou Lake, June 21, 1936.

NORTHERN YELLOWTHROAT. Only record, at the Brule River, June 18, 1930.

CANADA WARBLER. Quite common. Nest, four eggs, Caribou Lake, June 23, 1935.

REDSTART. Quite common.

ENGLISH SPARROW. Present at Grand Marais.

RED-WINGED BLACKBIRD. Not numerous, but a few found in swampy sections.

BRONZED GRACKLE. Quite common. Nest of four eggs, Caribou Lake,

June 22, 1934. Nest, large young, same place, June 24, 1935.

COWBIRD. Young bird being fed by a chipping sparrow at Grand Marais, June 25, 1933.

SCARLET TANAGER. One at Caribou Lake, June, 1935.

ROSE-BREASTED GROSBEAK. Uncommon. Nest, four young, Loon Lake, June 20, 1934.

PURPLE FINCH. Common. Nest of three eggs, Caribou Lake, June 22, 1934. Nest, large young, same place, June 24, 1935.

PINE SISKIN. A few records. Apparently a family group at the Grand Marais tourist camp, July 10, 1932. A few at Caribou Lake, June 27, 1935.

GOLDFINCH. Quite common.

WHITE-WINGED CROSSBILL. A pair on the South Brule River, July 11, 1932.

SAVANNAH SPARROW. Seen only in the lower part of the county along Lake Superior.

SLATE-COLORED JUNCO. Not common but seen in several places. Nest of four young, Loon Lake, June 19, 1934.

CHIPPING SPARROW. Common. Nest, four eggs, Caribou Lake, June 24, 1935. Nest, four small young, same place, June 27, 1935.

CLAY-COLORED SPARROW. A few along Lake Superior.

WHITE-THROATED SPARROW. Quite common. Young out of nest, being fed, Brule River, June 23, 1936.

SWAMP SPARROW. Near Grand Marais, June, 1935.

SONG SPARROW. Common. Nest of four eggs, Caribou Lake, June 22, 1934.

Minneapolis, Minnesota

Nature is man's teacher. She unfolds her treasures to his search, unseals his eye, illumines his mind, and purifies his heart; an influence breathes from all the sights and sounds of her existence.—Street.

Birds of Hinckley

By A. B. ERICKSON

DURING the spring and summer of 1936 at least six species of hawks occurred as summer residents near Hinckley in Pine County. Of these hawks, the osprey and the broad-winged hawk were the least common. The marsh hawk and the red-tailed hawk were the most abundant raptors; and, in fact, the only hawks whose nests we found.

One pair of marsh hawks, whose attempts at nesting I followed over a period of six weeks, will be dealt with first. On the sixth of June the nest of these hawks was found in a clump of knee-high aspen. It contained eight eggs—an extra-ordinarily large clutch. The nest was photographed. Returning on June twelfth, I found all but one of the eggs destroyed and the shell fragments scattered around the nest.

Several days later, on the fifteenth, I observed the female of this pair of marsh hawks carrying material for a new nest; and by watching her, I was able to locate the new nest site. Not wishing to disturb the birds, I decided to remain away from the nest until the clutch had been completed. When I returned to the nest seven days later, on the twenty-second of June, five eggs had been deposited presumably at the rate of about one every one and four-tenths days. I visited the nest on July sixteenth for the last time when I flushed the female and found, not five eggs, but two added eggs.

The red-tailed hawk frequently divulges the whereabouts of its nest because of its over anxiety. An observer may be fully a half mile from the nest of one of these hawks when, from high in the sky, a series of shrill *krees* becomes audible. As the observer approaches the nest, the hawk wheels down and continues its cries. Actually, the anxious hawk leads one to its nest. In this manner, I was lead to three nests. Each one of them was in the crest

of a tall isolated Norway pine. Two of the nests held three downy young each.

On August sixth I observed an immature red-tailed hawk and two adults wheeling and gliding in the sky. The young bird seemed to be just as active and graceful as the adults.

The nesting records and sight observations of some of the smaller dun-colored sparrows of the family *Emberizinae*, collected in Pine County in 1936, gave me some data from which to draw conclusions as to the comparative abundance of these sparrows, although no censuses were attempted.

The vesper sparrow is, by all odds, the most abundant of these small sparrows. It nests in all the meadows and along the edges of pine woods. Between June eighth and July ninth seven nests of this sparrow were found, usually by chance. If nests had been sought methodically, many more could have been found.

The clay-colored sparrow frequents the same haunts as the vesper sparrow and, in the Hinckley region, is slightly less abundant than that bird. Three nests of the clay-colored sparrow were found during the first half of June. One of these nests was attached to a small stick that projected from the ground; the nest itself hung about two inches from the ground and contained two young and one egg.

In the region under discussion, the song sparrow and the chipping sparrow seem to vie with one another for population supremacy. In this list of comparative abundance of sparrows, however, I place the former slightly above the latter.

Likewise, the field sparrow and the white-throated sparrow appear to be represented in this region by population of equal size. Southern Pine County is the northern edge of the field sparrow's summer range in eastern Minnesota. Similarly, (Please turn to page eight, column one)

GOSHAWKS

REPORTS from various northern Minnesota localities seem to indicate that last winter goshawks were fairly numerous. Mr. P. O. Fryklund, Roseau County, reports that ". . . goshawks are the only northern hawks that have shown up in any number here this winter." Goshawks were stated to have been seen frequently about Duluth this past winter season. Donald Hansen at Cloquet observed one in his chicken yard, April 19.

SNOW BUNTINGS

THE past winter may be considered a "snow-flake" winter according to the observations of the Minnesota Bird Club members. Dr. Alden Risser reported an unusual abundance of these birds at Stewartville; Dr. and Mrs. Donald Mahle observed two dozen flocks numbering two to eight dozen individuals per flock along the highway between Plainview and Minneapolis on February 4, 1937. On March 19 Dr. Mahle observed a flock of three to four hundred birds including snow buntings, horned larks, and Lapland longspurs near Plainview. This heterogeneous flock remained together for some time, although the majority of the horned larks took leave the following day. Mr. Fryklund reported that the snow buntings arrived early and were abundant in Roseau County.

GREATER SCAUP

TWO GLAUCOUS gulls were observed by Franklin Crosby, Jr. on Minnetonka Lake, April 27. The following day Dr. W. J. Breckenridge and Franklin Crosby, Jr., returned to the site and found but one of the individuals; this was studied through the telescope to verify its identification.

GLAUCOUS GULLS

TWO more greater scoup records have been added to the Minnesota bird roster. On April 24, while trapping ducks on Thief Lake for banding, state wardens Martin Nelson and Robert Forder and the Thief Lake Project Biologist Kenneth Krumm captured a male greater blue-bill which they sent to the University museum. A female greater scoup was collected by Dr. W. P. Abbott at Grand Marais on May 3.

(Continued from page six, column two)

this region is close to the southernmost territory of the white-throat. Here, then, one would expect a low incidence of the species in question.

During the summer I encountered three pairs of field sparrows. No nests were found, but the actions of the birds indicated that they were nesting.

With the white-throats I had still less success. I found no nests; in fact I saw no white-throats. I heard only their lazy, long-drawn peabody songs coming from the depths of black spruce swamps. I do not believe that there were more than four or five pairs of peabody birds in the region.

At least nine species of warblers occurred in the Hinckley region throughout the nesting season, but the nests of only two species were found. On June fifteenth I found an oven bird's nest under the leaves of a wintergreen plant. It held four eggs. During the last days of July I found the nest of a Blackburnian warbler on the end of a jack pine branch. For half an

hour I watched the mother feed the young.

The rarest warbler in the region was the Nashville warbler. I noted but a single pair. A few pairs of black-throated green warblers and pine warblers occurred in certain jack pine stands. The chestnut-sided warbler, the yellow warbler, the redstart, and the northern yellow-throat were common in the region.

All the Minnesota thrushes except the olive-backed and the gray-cheeked thrushes were seen in the region during the nesting season. Nests of the robin and bluebird, as might be expected, were abundant. Deep in a black spruce swamp, at the base of a stump, the nest of a thrush was found. It had been constructed without the use of mud, and in it were two blue-green eggs and a cowbird egg. The nest belonged either to a veery or to a hermit thrush. There seems to be no way to distinguish between the eggs and nests of these two thrushes. Since I was unable to revisit the nest, I never learned the identity of the owner.

Bird Feud

So often is the question asked "What harm may the startling be expected to do?" that it might be well to chalk up the following black mark to the credit of our latest pugnacious intruder from Europe.

On May 11, 1937, the junior author found a male red-bellied woodpecker in apparent possession of a nesting hole about eighteen feet up in a large willow stub located in a wooded ravine near Randolph and Lexington Avenues in St. Paul.

For several days the woodpecker was seen to visit the hole frequently, but he spent most of his time calling from nearby perches in quest of a mate to share the chosen nest site. Since this location is, perhaps, the northernmost outpost for the breeding of this species, his call had many chances of going unanswered.

By W. J. BRECKENRIDGE
By E. H. DELLER

On May 17th, during the absence of the woodpecker, a starling was seen to fly directly to the hole and enter with all assurance of the rightful owner. The woodpecker was seen to visit the site several times, apparently unaware that any other claimant had visited the hole. The starling returned, on one occasion, when the woodpecker was in the hole. The starling drew back momentarily in surprise on seeing the woodpecker but immediately rethrust its head into the hole and, with its sharp bill, gave the cornered woodpecker several vicious pecks; out came the terrified woodpecker who beat a hasty retreat, leaving the starling master of the site. Whether the red-bellied woodpecker, if and when he secures a mate, will succeed in retaking and defending his nest site remains to be seen.

Hunting Owl Nests at Shakopee

A great-horned owl's nest of three young discovered by bird club members.

By KEN CARLANDER

THERE were thirteen of us bird-clubbers and friends gathered in Shakopee April 11, 1937, when our leader Ralph Woolsey arrived and set at ease the worried members of the group. A few of us had already put in a little pre-bird-club-hike birding along the sloughs enroute to Shakopee and had seen many of the common water birds that had just arrived: green-winged teal, great blue heron, coots, pin-tail, lesser yellowlegs, and others. The only interesting record was that of a Bonaparte's gull, an early record at least for this retarded season.

As the trip was organized primarily to search for owl's nests, we set out immediately for a wooded hill where four weeks earlier Ralph had located the nest of a great-horned pair. This nest, situated in a cavity of a large tree, contained three downy owlets—one runt and two huskier offspring. These were taken out of the nest and placed for a time in the open where all could view them. One of the parent birds hooted around for a while but soon retired into the woods.

This nesting site is of particular interest, because it has been used for four or five successive years by horned owls. It is impossible, of course, to state whether or not the same pair of owls have been the occupants during this time. If they are the same, they are indeed a fortunate pair of birds when one considers the number of hunters which frequent the vicinity. This year the young were banded, and they may, in the future furnish some interesting data regarding nesting habits.

The next rendezvous of the birders was a woods where a pair of barred owls make their home. The owls were discovered, but much pounding on hollow trees failed to

locate the nest. A flying squirrels' nest was found, however. Several purple finches were discovered singing in a thicket nearby and two or three particularly bright males were watched for some time. Hermit thrushes and a pileated woodpecker also attracted interest.

Numerous pellets gathered from beneath the trees from which the barred owls were flushed were examined by W. J. Breckenridge, curator, University of Minnesota Museum of Natural History, and found to contain chiefly the remains of cotton-tails.

In an ordinary year we would have expected to find several nests of red-tailed hawks, but none were located. Probably the very late and unusual spring caused them to delay their nesting activities.

After lunch, a hike along the Minnesota River revealed a few interesting birds; several red-breasted and American mergansers seen at close range from an overhanging bank, myrtle warblers, red-bellied woodpeckers, and two marsh hawks circling so high as to be invisible to the naked eye.

When we returned to the highway where we planned to disband, we met Mr. E. D. Swedenborg who told us of two whistling swans that had just flown to a lake several miles down the river. As these were not to be missed, this lake was added to the itinerary. Sure enough, two swans were found swimming majestically among the lesser fowl.

Then, as it was getting late, we turned homeward. The day's list included fifty-five species. We saw few unusual birds and none that may go down in the records, but I believe we all agreed that the trip was a 'owling success.

Ortonville Bound--Dawson Snowbound

Informal Narration of an Unusual Field Trip

By G. N. RYSGAARD

"PARTIALLY cloudy with possible rain in the Lake Superior region," was the weatherman's prediction for the week-end of April 23, the week-end which Kenneth Carlander, David Faegre, and the author had chosen for a trip to Big Stone Lake where the geese and pelicans were reported numerous.

Hoping that the weatherman, as traditionally, had erred on his prediction, we proceeded with our plans for the trip; and Saturday morning found us leaving the Twin Cities in a drizzling shower which was soon to develop into a downpour and later into sleet and snow as we traveled westward.

The inclement weather had forced the birds into hiding, and the number seen, both in species and individuals, fell far short of our expectations. Our observations between St. Paul and Dawson included but eleven hawks representing six species, although at this time, due to the retarded season, the raptors should have been represented by nearly maximum abundance. Our ill luck was partially compensated when a pigeon hawk flew for some distance along the highway parallel to our car. Its closeness permitted us all an extraordinarily fine view of its beauty and grace.

A pair of long-billed dowitchers feeding along the roadside afforded us several minutes of thrill. The two approached within ten feet or so of the car before disappearing into the tall grass and weeds beside the highway.

Before we reached Dawson, it began to snow. Hoping that storm would soon terminate allowing us to continue on to Ortonville, we stopped at Dawson. From Dawson west the roads were blocked by drifting snow. The storm continued, however;

and we found ourselves snowbound in a town of less than two thousand. We did not lack for company; more than fifty other transients were caught by the sudden and unexpected snow. The hotel was filled to capacity; and for lodging, we had our choice of the armory or the floor above a cafe. The first night was spent curled up in an arm chair in the armory; the second night we slept on the floor above the cafe.

The storm continued through the following day. The strong wind driving biting sleet prevented us from wandering far from town. A short trip about the town proved to us that the birds were having a difficult time of it. What few birds were seen were huddled in spots of shelter trying to escape the furious wind. Several grackles, robins, song sparrows, juncos, and English sparrows were seen seeking protection behind bushes and drifts of snow. The flickers were to be observed clinging to the unexposed side of the trees and showed little inclination to fly when approached. The martins could be seen fighting the wind overhead; it seems incredible that they could have found food on such a day.

Twelve to fourteen robins collected around a refuse heap behind one of the local cafeterias to gather scraps of food. Once in awhile a couple of males would engage in combat, one of the birds would be driven back-scene a few feet and then the dispute was forgotten, both birds returning to the refuse pile to eat side by side. One individual was observed to drag a bit of meat, too large for him to carry, a distance of forty feet or more away from the pile.

By Monday morning the storm had subsided, and we went to work with shov-

els to extract our car from a huge snow drift. While so engaged, several flocks of geese flew low overhead; and we distinguished the white-fronted, snow, blue, Canadian geese, the Canada geese being by far in the minority.

Rain accompanied us throughout the return trip, however, we saw more birds

than on the trip out. Perhaps the most interesting observation was that of two red-shouldered hawks seen in the prairie region of the state. Several large flocks of Franklin's gulls were seen in roadside fields.

The list of birds seen on the trip numbered sixty-eight.

Publications of Interest —————: -

MORE Songs of Wild Birds, by Albert R. Brand, is a sequel to his publication of 1934, "Songs of Wild Birds." The text of his volume, like the preceding publication, is subordinated to the phonograph records of bird songs. Mr. Brand has secured his remarkable recordings of bird songs by carrying his recording apparatus afield on a truck to the habitat of each species. Locating a singing individual he set up his microphone within the song range and secured the recorded song on celluloid film.

With the book, one receives three double-faced phonograph records on which have been recorded forty-three songs of common North American birds. With the recorded songs appearing in the first book, seventy-five are now reproduced in this manner.

This book may be secured from Thomas Nelson and Sons, New York City, for the price of \$2.50.

MINNOWS of Michigan, by Carl L. Hubbs and Gerald O. Cooper, is not only a hand book for the minnows of that state but is a volume containing material on the entire family Cyprinidae. It is excellently illustrated with photographs and drawings. Minnows of Michigan, Bulletin No. 8, Cranbrook Institute of Science series, is available from the Institute, Bloomfield Hills, Michigan for 50 cents.

THREE Seasons at Hawk Mountain Sanctuary, by Maurice Brown, ornithologist-in-charge at the Hawk Mountain Sanctuary, is an enlightening publication dealing with various aspects of raptorial migration at the world's first hawk sanctuary. Hawk Mountain, formerly a site of vantage for slaughter-hunters who killed upwards to three hundred hawks per day, was purchased by the Emergency Conservation Committee and transferred into a sanctuary in 1934.

This interesting, non-technical bulletin, Publication No. 61 of the Emergency Conservation Committee, 734 Lexington Avenue, New York, may be had for five cents.

Banding Kinglets

By C. E. PETERSON

THESE tiny birds are regular spring and fall visitors to my banding station, but my records show banding dates for fall only. Before a special trap was employed I obtained three golden-crowned kinglets for banding in the following manner: One frosty morning in October an early caller favored me with a kinglet which she had caught with her hands. The bird had perched overnight on the running board of her car and was chilled to such an extent that it was easily captured. It was revived by the warmth of its captor's hand. I banded the bird and released it in apparently good condition. The following day a bird of the same kind was dancing about in the government sparrow trap. This was unexpected, as the trap was baited with millet, sunflower seeds, bread, and corn, none on which a kinglet could feed. Possibly a flying insect had enticed the bird through the two wire funnels. The next day another kinglet was caught in the same way.

Later, one of Dr. Brenckle's six celled water drip traps was purchased and put into operation. "Catch all," I think, is a good name for this trap since it describes its qualities so adequately. With few exceptions, all the birds I have captured and banded, regardless of their size and habits, have been taken in this trap. The triggers, regulated by rubber bands, respond to the weight of a kinglet and the size of the cell provides for birds as large as flickers. The kinglets find the cells sufficiently spacious to permit considerable activity, and only when closely approached do they display fear. One season several pushed their tiny heads up through the hardware cloth and hung helplessly until I released them. Twice kinglets feigned injury or death. They hung head down with their toes securely grasping the wire mesh of the sides of the cells. Here they remained motionless with all muscles relaxed and closed eyes until I touched their feathers. Their sudden recovery to activity startled me, as I really believed they had died of fright.

In all, fifteen golden-crowned and thirty-six ruby-crowned kinglets have been banded at my station. Of these, however, there have been no repeats, no returns, nor any recoveries.

Minneapolis, Minnesota

Nesting Record

AS HAS been the custom in years past, *The Flicker* will collect and publish the season's bird nesting records for the state in the fall issue. The 1937 nesting records will be compiled by George N. Rysgaard. All records and associated data should be in tabulated form specifying the date, species (in A. O. U. check-list order), location, contents of nest or comment on young birds seen out of the nest. Typewritten forms will greatly aid in the compiling and in preventing errors.

Only through the co-operation of all the Minnesota Bird Club members can we hope to compile a worthwhile nesting record, and it is hoped that all members will contribute whatever records they may have by the end of the season.

The data should be mailed to George N. Rysgaard, Camp Miller, Sturgeon Lake, Minnesota before August 25, 1937. This will allow sufficient time in which to compile and thoroughly re-check the record before publication.

THE FLICKER

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Afoot In Northern Minnesota

By G. N. RYSGAARD

An informal narrative of the adventures of four enthusiastic bird-students on vacation.

THE morning of June 15, 1937, found Dr. Alden Risser, Mr. Alvin Evenson, Mr. Lawrence Pittelkow, and the author northward bound for a week's trip of birding. The car was piled high with baggage, leaving just sufficient room to shoe-horn the four occupants into it.

The noon hour caught up with us as we reached Camp Miller on Sturgeon Lake, and here we stopped to partake of a bit of lunch and plan our trip. Strange as it may seem, up to this time we had made no plans as to where we should or would go. It was decided among us now that we should make no outline of our journey but travel and stop where and when we wished. It is well that we decided thus, for I am sure that we would never have followed an outlined plan had we made one.

While sitting on the bank of Sturgeon Lake watching two loons silently gliding across the water, we became suddenly conscious of a fine, wheezy voice of a warbler. A little search among the top branches of the nearby Norway pine disclosed its maker to be the exquisite little parula warbler. Just at that moment our attention was called away from the parula to give audition to the loud calls of an olive-sided flycatcher resting majestically on the spire of a tall jack pine a short distance away.

It seemed rather unusual to note an olive-sided so far removed from the swamp-land with which one customarily associates them. From the evergreen woods all about us came myriads of bird voices enticing us to tarry and search out the little creatures from which they came, but we were anxious to be away. Near Grand Rapids, we paused at a roadside pond to watch a female green-winged teal and her brood of seven young swimming placidly about.

Near sun-down we reached Surprise Lake where we prepared our evening meal, did a fine job of tangling fish lines on dead-heads, and laid out our blankets on the ground for an evening's sleep. We took all precautions against the ravaging mosquitoes which buzzed around our heads like enraged hawks by making an improvised tent of mosquito bar over our heads. Somehow our arrangement was awry, and the evil vampires attacked us in hordes. We were finally forced to surrender our bed clothes to the mosquitoes and spend the night in the car, sleeping as best we could.

We awoke rather early, unknotted our cramped bodies, and after a hurried breakfast, proceeded on our way. We traveled northward to the Rainy River, following it to Lake of the Woods. We stopped to lunch on the Rainy River and view the famous voyageur canoe route of the fur

trading and exploration days of Minnesota. By early afternoon, we reached Lake of the Woods whereupon three of us set out along the sandy shore looking for birds, leaving Mr. Evenson to engage in his favorite sport, fishing. Osprey, common terns, and Bonaparte's gulls were numerous everywhere, but the wooded shore-line was rather devoid of bird life.

A vague description by the fishermen living on the lake convinced us that piping plover were to be found on a sandy island off the mainland. Enthusiasm was at a high pitch, and we engaged a fisherman to pilot us to the island. We were in a hurry and giving little thought to the weather, we embarked, clad only in shirts and trousers, in a smelly fisherman's boat. Before the boat had ground to a full stop on the sandy shore of the island, we were following the scurrying forms of shorebirds with our eyes. We all leaped ashore with a bound and intently gazed at the piping plover, semi-palmated sandpipers, and killdeer dodging in and out among the scanty vegetation. I do not recall who was the first to discover a nest of the piping plover; it seems as though each found a nest simultaneously and proudly voiced his find. For some while we stood discussing the beautiful sets of eggs and watching the parent birds which demurely moved about a short distance from us. We photographed the nests and then went in search of other treasures. We were so engrossed in the enthusiastic search, that we failed to notice the approaching storm which suddenly burst upon us. The wind rose and drove unbelievable sheets of rain against us. Our fisherman had returned to aid the rowboats floundering in the channel, so we had no choice but to wait. We tramped to the far end of the island where we discovered a colony of nesting common terns. We examined some thirty nests which held from one to three eggs each. The adults wheeled above us; but, unlike their close kin, the black terns, they made very little fuss.

Our boat finally reached the island and transported us back to the mainland where we changed to dry garments and warmed ourselves around a blazing stove fire.

The morning dawned clear, and we headed westward for the virgin prairie lands, stopping here and there along the way to ramble through inviting wooded spots or investigate an intriguing swamp. One spruce and white cedar swamp particularly attracted our fancy, and we spent quite some while tracking down northern yellow-throated, Connecticut, and Nashville warblers among its tangles. Our interest was suddenly deviated from this search when the clear *pst zee-zee-zee* of the Hudsonian chickadee reached our ears. Our undivided attention was needed to follow the ubiquitous little bundle of feathers that darted from tree to tree, leading us on in spirited chase. With sticks in hand, we tapped the numerous standing decayed stumps of spruce and cedar with a dubious air, hoping that by a chance we might locate the nest. Our hopes were not to be rewarded in this way, however; but we were all satisfied to have seen and heard this lively denizen of the north woods.

We reached Warren about eight o'clock and immediately made camp, which, in itself, consisted of nothing more than driving the car out over the prairie to a favorable location and throwing our blankets on the ground beside a small fire.

On arising in the morning, we immediately noted the threatening overcast skies. Before we had quite finished breakfasting, the threatening became a reality; and the rain began to pelt down upon us. All indications led us to believe that an old-fashioned all-day rain was our lot. The spirits of Dr. Risser and the author were not to be intimidated by trivial reverses of nature such as this, and we directed our footsteps across the virgin prairie land.

By far the most hospitable of the prairie birds were the marbled godwits which would rise fully a quarter of a mile away and come flying on labored wings to meet us, all the while uttering their peculiar, but pleasant, greeting, *go-wit*, which gave rise to their name. Search as we might, we could locate neither nest nor young; although in one instance we found a few scattered shell fragments and what may once

have been a nest. A further search failed to disclose anything more fruitful. Perhaps there were young nearby, for over a dozen adults collected about us; sometimes they protested harshly above us, and sometimes they glided to the ground within a few feet of us, raising their wings vertically as they touched the earth and slowly folded them in their characteristic manner. They displayed very little fear, approaching us closely, muttering their call in a subdued voice.

Strolling along through the prairie grass, we flushed grasshopper, Savannah, clay-colored, vesper, and Baird's sparrows, as well as the elusive Sprague's pipits, from our path; and when we paused, we enjoyed the blending of their voices in an insect-like medley, interspersed with the more musical voice of the vesper sparrow and the tinkling song of the Sprague's pipit overhead.

The Baird's sparrows and Sprague's pipits were a source of concern to the author who flushed them again and again, only to have them drop from view into the concealing protection of the prairie grass, never permitting one to see them carefully. After numerous trials resulting in but fleeting glimpses of the modest creatures, he had to satisfy himself with a composite mental image.

On several occasions during the day afield, we observed the pipits to mount high into the air, in their characteristic manner, and deliver their song which may be likened to the music of Chinese glass ornaments tinkling in the breeze.

A continuous series of *chips* overhead drew our attention as we passed near a spot from which a pipit had recently flushed. Looking up, we saw a Sprague's pipit circling about in its usual manner. The *chipping* continued as long as we were in this vicinity, and we at once suspected the presence of a nest close by. We dropped a handkerchief at the spot from which we believed the bird to have arisen and set about on our hands and knees searching the ground. Luck was not with us, however; and the fruitless search was abandoned. Later in the day, in way of com-

ensation, we discovered a young pipit out of the nest but yet unable to fly more than a few feet.

Other highlights of the morning's walk included the finding of a short-eared owl's nest sheltering two young which we judged to be approximately a week old,



Photo by L. Pittelkow

A Piping Plover's Nest

The parents stood close by while we examined the beautiful eggs

and the pursuing of LeConte's sparrows in the marsh lands. We were somewhat disappointed not to discover its close twin, the Nelson's sparrow.

After lunch our two companions joined us in a search for the nest of the chestnut-collared longspurs which were numerous about our camp site. As we walked four abreast, a female flushed a few yards ahead of us. The search was on in diligence now, each hoping to be the discoverer. Mr. Evenson interrupted the hunt to inquire as to the type of nest a longspur would build. After each offered a bit in describing the nest, Mr. Evenson remarked, "Well, this must be the nest; it tallies with that description!" We rushed to the spot, forgetting to cast contemptuous looks his way for barring the discovery from us for even those few minutes. There lay the nest in a small excavation holding four young

birds. This was a grand climax to the day, and we returned to camp and celebrated with a game of softball; and probably the bird inhabitants looked on in wonderment at the strange performance.

We drove on to Goose Lake, at present an extensive slough well-known for its pair of nesting sandhill cranes. Here we made our camp.

We awoke to see the first rays of the morning sun gingerly creeping across the sky and hear the strange *kuk-kuk* calls of the yellow rails from the swamp below.

Preparations were soon made for a short tramp through the marsh, our special objective being to find, if possible, the nest of the sandhill crane. Our first discovery was a Wilson's phalarope's nest of four eggs. The parent bird slipped from the nest undetected; and it was not until we returned at a later hour and caught a glimpse of the bird silently sneaking away, that we were positive of the identification of the nest and clutch of eggs.

As we tramped along hoping to sight a yellow rail or stumble upon a crane's nest, we flushed a female gadwall which feigned injury and performed in other ways to attract our attention. We diligently searched among the rushes, but the probable nest or young were too carefully secreted away for us to find.

We were primarily interested in locating the nest of the sandhill cranes, however; and by "crossing the palm" of a sheep-rancher, we were promised guide service to the nest. We were to be disappointed in our quest; for on reaching the nesting site, we learned that the birds had not visited the spot that year.

The following day we selected a luring tract of prairie land as our hiking ground. The sun was already high overhead, and in the distance were to be heard the soft mellow notes of the upland plover as we began our trek across this prairie expanse. We walked four abreast, slashing the grass with our feet, hoping all the while that we might discover a godwit's nest. Dr. Risser unexpectedly halted with an exclamation, causing us immediately to rush to his side. There before him was a small sparrow-like

nest buried in the prairie grasses, and in the cavity lay two brown-blotched white eggs. No bird had been seen to flush from the nest, and thus we were in doubt as to who the owner might be. We carefully marked the location and returned an hour or so later to discover a Baird's sparrow incubat-



Photo by L. Pittelkow

A Common Tern's Nest

Very little effort is expended in nest building; this photo depicts a well-constructed home

ing the eggs. Dr. T. S. Robert's *Birds of Minnesota* gives but one previous discovery of the nest of this species in Minnesota, and it was with no little delight that we gazed upon the find.

During the remainder of the day we added to our list of findings an upland plover's nest containing four eggs and a marsh hawk's nest with three young and one egg.

The marsh hawk's nest was an exceedingly well made structure; it was raised more than a foot above the water of the swamp in which it was located and was constructed of large sticks and reeds. We did not measure it, but it was considerably larger and better constructed than an ordinary nest of this species.

As we left the nest, we spied a nearly grown young prairie red fox a short distance away. He was standing mid-way between two large clumps of bearberry bushes, and he appeared oblivious of our presence. We took chase; the young fox became confused for a moment, and then he dashed for the nearer of the two clumps

of bearberry and disappeared into his den. All about the entrance were scattered remains of rabbits. It seems strange that the fox should dwell in such close proximity to the marsh hawk and not discover the latter's nest of young.

We continued our journey toward Red Lake the next morning, stopping now and then along the route to make short excursions into interesting bits of woods or along the edge of a roadside pond. On one such pond we observed an American golden-eye leading her flock of eight across the water.

We drove all night, reaching Ely by dawn. After a short rest and breakfast, we set out on a fifteen mile foot trail to Crooked Lake. Each one of us stowed away a can of corn for his mid-day lunch.

The trail was a beautiful winding path, skirted on either side by dense evergreen woods. The trail had been cleared sufficiently on either side to allow one glimpses of the numerous birds which darted through the branches. The warblers were to be heard on every side, and during the course of the journey fifteen species were identified. Among these were the Canada, black and white, Connecticut, parula, Nashville, and mourning warblers.

Now and again, we were serenaded by the winter wrens from the lowland tangles, and the warblers continued to ply their shrill voices overhead, providing a pleasant medley for our ears. On one occasion, a ruffed grouse promenaded across the path before us, proudly leading her flock of eight young.

We reached Crooked Lake about noon and had lunch at the forest service station located on the lake shore. On the return trip, we stumbled upon the nest of a Canada warbler. The nest, constructed of twigs, moss and leaves, and lined with rootlets, was built on the ground along side the trail and held four young birds.

While hurrying along the trail, I heard a note entirely strange to me. It resembled the chattering of a red squirrel, yet there was something different about the note that led me to believe that its maker was not the noisy chickaree. I set about searching the lower branches of the nearby trees and soon discovered the source of the noise to be a Canada jay. Close to the vociferous adult sat a young jay, seemingly enjoying the loud utterances of his parent. If the parent bird shifted his position to another branch, the youngster followed close behind. He apparently did not wish to lose sight of the food-provider.

Wherever the sun filtered through the dense woods in sufficiency to warm a spot on the path, a large mixed flock of butterflies were to be seen. The tiger swallowtails, banded purples, and silver crescents were so abundant; they were to be seen everywhere.

Near the end of the trail, I sat down on a large rock to rest. As I sat, I became aware of the drilling of a woodpecker close at hand. His form suddenly appeared from the opposite side of a jack pine but a few yards away; and, to my astonishment, I beheld an American three-toed woodpecker. I must have jumped at the sight, for he paused in his work, eyed me scrutinizingly for some while, and then took flight.

I had proceeded but half a mile further when an Arctic three-toed woodpecker darted across the trail before me and came to rest on a tree close to the path. He was much less shy, allowing me to approach him closely.

These last two observations lettered a fine climax to the week's trip which had been so fruitful. During the week, we had observed one hundred and forty-five species and had located the nest or young of twenty-eight species.

St. Paul, Minnesota

Nature gives to every time and season some beauties of its own; and from morning to night, as from the cradle to the grave, is but a succession of changes so gentle and easy that we can scarcely mark their progress.—Dickens.

AMERICAN AVOCETS

THREE avocets were observed in Minnesota this fall by Messrs. Moyle and Behr. Though probably once breeding in the state, the bird has long been extinct in Minnesota. The avocet was last noted in our state in 1892, according to the records included in Dr. T. S. Robert's *Birds of Minnesota*. One of the birds was observed near Ivanhoe, Lincoln County, August 26; the other two were seen near Big Stone Lake, Big Stone County, August 27.

AMERICAN EGRETS

MINNESOTA witnessed an invasion of American egrets this last fall. Several observers reported a group of five at the Bass Pond, near Minneapolis, the third week of August. John Moyle noted one near Fairmont on August 20 and two at Lake Shetek on August 25, all of which were in company with great-blue herons.

WHOOPING CRANES

TWO equal sized flocks of whooping cranes, numbering about fifty in aggregate, were observed by Dr. and Mrs. A. F. Risser at Chamberlain, South Dakota, October 11. The two flocks, about an eighth of a mile apart, were flying slowly southward, all the while giving utterance to rather soft, mellow calls. With field glasses, the dark crowns were to be seen in many instances.

LINGERING BIRDS

DUE to the unusually mild winter conditions thus far this season, many regular summer residents are clinging to the north country. Dr. A. F. Risser reports a meadowlark observed on December 13, a robin seen intermittently and last observed January 3, and a short-eared owl noted on December 16 at Stewartville. Minnesota.

BANDING RETURN

A juvenile black-crowned night heron, 43-649814, banded by Russell M. Berthel in Ramsey County, Minnesota on July 25, 1936 was recovered by Antonio Valdes, Mantua, Province Pinar del Rio, Cuba on September 15, 1937.

1937 Minnesota Nesting Records

By G. N. RYSGAARD

MEMBERS of the Minnesota Bird Club contributed notes on the nesting of one hundred and six species of birds for the state during the 1937 breeding season.

Among the more unusual records of nesting may be included the Pigeon Hawk, Piping Plover, Wilson's Phalarope, Common Tern, Sprague's Pipit, Short-eared Owl, Golden-winged Warbler, Canada Warbler, Baird's Sparrow, Lark Sparrow, and Chestnut-collared Longspur.

PIED-BILLED GREBE. Two nests of this species were reported. The earliest was found at Tanner's Lake by Dana Struthers on June 23; it held 7 young; the second was located by Robert Upson at Minneapolis June 25. It held two eggs.

GREAT-BLUE HERON. A rookery of ten nests which probably contained eggs was discovered in the Cloquet Valley Forest by Marius Morse, May 3. A twenty-seven nest rookery was found by A. B. Erickson at the St. Croix Nat'l Park. There were large young in the nests on June 29.

GREEN HERON. On June 5 a nest of five eggs was found at Minneapolis by E. D. Swedenborg.

LEAST BITTERN. A nest found by R. Upson on May 30 contained two eggs; a second nest found by Upson on June 25 held five eggs. Both were found at Minneapolis.

MALLARD. The earliest nest was found May 3 by M. Morse at Cloquet Valley Forest. It contained two eggs. The first young were seen by G. Rysgaard, L. Pittelkow, A. Risser, and A. Evanson at Warren on June 18. Eight young were seen in a flock.

GREEN-WING TEAL. G. Kutz reported the finding of a nest with eleven eggs at Stillwater, May 24. On June 15,

at Deer River, A. Risser, A. Evanson, L. Pittelkow, and G. Rysgaard saw a family group of seven young.

AMERICAN GOLDEN-EYE. Eight young were seen on Lower Red Lake, June 21, by G. Rysgaard, A. Risser, A. Evanson, and L. Pittelkow.

TURKEY VULTURE. Three soaring young were observed by D. Struthers at Sand Point Lake, July 16.

COOPER'S HAWK. A lined nest was found on April 24 at Minneapolis by R. Upson. On May 3 the nest had two eggs as its contents.

RED-TAILED HAWK. On April 18 a nest with one egg was found by D. Mahle at Plainview. The following day, R. Upson found a nest of two eggs at Minneapolis.

OSPREY. M. Morse located a nest, July 8, at Cloquet Valley Forest. Contents of the nest unknown. On July 10, D. Struthers found three nests at Vermillion Lake.

MARSH HAWK. D. Struthers located a nest of four eggs, May 8, at Minneapolis. Five young and one egg were in a nest found by E. D. Swedenborg at Minneapolis, June 10. On the twentieth of June a nest of three young and one egg was found by A. Risser and G. Rysgaard at Euclid.

BROAD-WINGED HAWK. Robert Upson located the earliest nest on May 30; the nest held four eggs and was found in Minneapolis. Two one-week old young were in a nest found by M. Morse, June 29, at the Cloquet Valley Forest.

PIGEON HAWK. D. Struthers reported a nest with young found, June 29, at Canadian Trout Lake.

SPARROW HAWK. Two fledged young were found by D. Struthers at Minneapolis on June 21.

RUFFED GROUSE. On June 18 eight young about ten days old were seen near Cloquet by Marius Morse. Arnold Erickson flushed seven fledged young on August 24, in the St. Croix National Park.

PRAIRIE SHARP-TAILED GROUSE. Arnold Erickson saw three fledged young on August 19 in the St. Croix National Park.

EASTERN BOB-WHITE. On June 29 George Rysgaard saw five young that could fly. Sturgeon Lake, Minnesota.

RING-NECKED PHEASANT. On June 29 Mr. E. D. Swedenborg flushed a family of young about ten days old.

VIRGINIA RAIL. On May 27 B. Upson found a nest near Minneapolis that held six eggs.

SORA. The first nest was found on May 21 by Upson; it held four eggs. On May 27 the nest, which then had more material added to it, held seven eggs. Two other nests found on May 27 held eight eggs and two eggs; seen by Upson.

AMERICAN COOT. Two nests seen on May 27 held three fresh eggs and one newly hatched young, one nearly hatched egg and six pipped eggs, respectively. (Upson).

PIPING PLOVER. Lawrence Pittelkow, George Rysgaard, and Dr. A. F. Risser found four nests of this species that held four eggs each, at Lake of the Woods, June 16. On June 26 C. DuToit found a nest of four eggs near Lake Alexander, Douglas County.

KILLDEER. The first nest was found on April 24 by Dana Struthers; there were two eggs in it. On June 11 Struthers found the last nest. It, too, held two eggs.

UPLAND PLOVER. Alden Risser, George Rysgaard, Lawrence Pittelkow, and Evanson found four quailie's eggs on June 20 near Euclid.

WILSON'S PHALAROPE. George Rysgaard and Dr. Risser found a tricolor phalarope's nest at Warren on June 19. It held four eggs.

COMMON TERN. A colony of Wilson's terns on Lake of the Woods was

visited by Rysgaard, Risser and Pittelkow on June 16. Thirty nests, which held from one to three eggs, were examined.

BLACK TERN. A short-tailed terns' colony near Minneapolis was visited on May 27 by Upson, when only one nest held 1 egg. D. Struthers visited the same colony on May 29, when three eggs were in one nest, and two other nests held one egg each.

MOURNING DOVE. Ten Carolina doves' nests were found. The first, seen on April 24 by Upson, contained two eggs. Mahle found a nest near Bigelow, Minn. It held two eggs on August 5.

YELLOW-BILLED CUCKOO. Bob Upson and R. Berthel found a nest at Afton on June 23; two eggs were in it.

BLACK-BILLED CUCKOO. On June 2 Swedenborg saw a nest of three eggs near Excelsior. George Rysgaard found a nest of two eggs at Sturgeon Lake on June 9.

SCREECH OWL. On April 20, 3 eggs were counted in a hole in a tree in which an adult screech owl brooded; it obligingly climbed up Upson's wrist when he put his arm in the tree, so that he could find all the eggs.

GREAT HORNED OWL. On April 7, near Red Wing, Breckenridge saw two young cat owls that could fly; Dr. Mahle found a nest that held one downy owl on April 18, near Plainview, Minn.

SHORT-EARED OWL. Rysgaard and Risser found two young marsh owls about a week old on June 18, near Warren.

WHIP-POOR-WILL. On July 22 at the St. Croix Nat'l. Park, Erickson found a young whip-poor-will that was beginning to feather.

NIGHTHAWK. D. Struthers found two eggs on June 10. Marius Morse, in the Cloquet Valley Forest, found two bullbat's eggs on June 24.

RUBY-THROATED HUMMINGBIRD. Dana Struthers saw a young hummer on July 23, near Afton.

BELTED KINGFISHER. On June 27

Swedenborg heard young in a nest near Minneapolis.

FLICKER. Five newly hatched young and 2 eggs were in a nest built at ground level in a two foot high stump; found on June 16 in the St. Croix National Park by A. B. Erickson. On July 3 Upson found three nearly fledged young in a live cottonwood.

RED-HEADED WOODPECKER. On May 31 D. Struthers saw an adult male red-headed woodpecker at the entrance of a nesting hole about forty feet up in a tree.

HAIRY WOODPECKER. Rysgaard found a nest of young at Sturgeon Lake on June 9; on the same day, in Anoka County, Mr. Breckenridge found a nest of young.

DOWNY WOODPECKER. May 9, an adult entered a fresh hole. Fort Snelling (Upson).

KINGBIRD. Marius Morse found a nest of 4 young on July 9, in the Cloquet Valley forest. June 20—2 nests; 2 eggs, 3 eggs. Euclid. (Dr. Risser and Rysgaard).

ARKANSAS KINGBIRD. Mrs. C. E. Peterson saw young western kingbirds being fed on June 15, near Dassel. On June 18 Dr. A. F. Risser, G. Rysgaard and L. Pittelkow found a nest that held one egg, near Warren. Young awing near Dassel were seen on July 30 by Mrs. Peterson.

CRESTED FLYCATCHER. On July 14 W. J. Breckenridge found young in the nest, in Anoka County. E. D. Swedenborg saw young awing on August 4.

PHOEBE. Dr. Mahle saw phoebes carrying nesting material near Plainview on April 23. E. D. Swedenborg found a nest with 2 eggs on May 15. On June 22, near Ely, a nest of young was seen by Risser, Rysgaard and Pittelkow.

LEAST FLYCATCHER. At Madison chebecs were "feeding young and incubating on June 23" (Mrs. C. E. Peterson). On May 22 G. Rysgaard found a completed but empty nest at Fontenac. Marius Morse saw a nest that held four young, one of which was dead, on July 14, in Cloquet Valley.

PEWEE. On June 25 Mrs. C. E. Peterson saw young pewees being fed and other pewees incubating, near Madison, Minn.

HORNED LARK. On April 15 Upson found a nest of four eggs; on June 18 Dana Struthers found a nest of four eggs. Both were seen at Minneapolis.

ROUGH-WINGED SWALLOW. On June 21 Upson found two nests in Minneapolis; one held an undetermined number of young, the other, five eggs.

BARN SWALLOW. On June 16, near Lake of the Woods, Pittelkow, Rysgaard and Risser found three eggs in a barn martin's nest. They saw four large young near Lake Winnibigoshish on June 21, on which date Upson found a nest of two eggs near Minneapolis.

PURPLE MARTIN. On June 3 Mrs. C. E. Peterson saw martins carrying nesting material, at Madison, Minn. Rysgaard saw martins building at Sturgeon Lake on June 10.

CANADA JAY. On June 22 one young was seen awing near Ely by Rysgaard and Dr. A. F. Risser.

BLUE JAY. Upson found a nest that held four eggs on May 10. On May 27, near Excelsior, E. D. Swedenborg found a nest of five eggs.

CROW. On April 7 a nest of five eggs was found by B. Upson. On May 9 five eggs were found in a nest near Minneapolis by Upson.

BLACK-CAPPED CHICKADEE. On June 17 L. Pittelkow, Dr. Risser and G. Rysgaard found a nest near Lake of the Woods, but couldn't examine it.

WHITE-BREASTED NUT-HATCH. On May 23 Dr. Risser and Dr. Mahle found a nest that held one egg, at Frontenac. On June 20 E. D. Swedenborg saw young awing.

HOUSE WREN. G. Rysgaard saw house wrens building at Sturgeon Lake on June 10.

SHORT-BILLED MARSH WREN. E. D. Swedenborg saw shortbilled wrens building on May 30.

LONG-BILLED MARSH WREN.

On July 1 Upson found a nest of four eggs.

CATBIRD. On May 23 Rysgaard and John Wilson found two eggs in a nest near Frontenac. Mrs. C. E. Peterson found three eggs in a nest near Ortonville, on July 18.

BROWN THRASHER. Six thrashers' nests were found. On May 23 G. Rysgaard and E. D. Swedenborg found nests containing four eggs each; Rysgaard saw his at Frontenac. Mrs. C. E. Peterson saw young awing near Madison, Minn., on July 25.

ROBIN. Robins began building near Plainview on April 17; on April 23 one nest held three eggs (Dr. Mahle), Marius Morse found a nest of eggs in the Cloquet Valley Forest on June 13.

WOOD THRUSH. On May 31 Mr. E. D. Swedenborg found a nest that held two eggs.

HERMIT THRUSH. On June 15, June 25 and July 26 Marius Morse found nests of this species that held four eggs each. He found them in the Cloquet Valley Forest.

VEERY. On July 4 D. Struthers found three young in a nest near Lake Vermillion. On July 19 Rysgaard saw newly fledged young awing at Sturgeon Lake.

BLUEBIRD. Dr. Mahle found a nest of five eggs near Plainview on May 30. On July 27 there were two eggs in a nest at Madison, Minn.; the two young left the nest on August 13. (Mrs. C. E. Peterson).

SPRAGUE'S PIPIT. On June 18 one newly fledged young was seen awing by Rysgaard and Dr. Risser, near Warren.

CEDAR WAXWING. On June 25 a cedar bird was seen incubating by Mrs. C. E. Peterson, at Dassel. Mr. E. D. Swedenborg found large young in a nest near Finland on July 20.

MIGRANT SHRIKE. A nest of one egg was found on May 9 by E. D. Swedenborg. D. Struthers and Upson found a nest on May 31 that held three eggs and two young.

YELLOW-THROATED VIREO.

June 21—Nest, 4 downy young (Upson).

RED-EYED VIREO. On June 11 N. Mahon spotted a nest that held three eggs. At Finland Swedenborg found one on July 22 that held two young and one egg.

WARBLING VIREO. On June 20 one was seen incubating its eggs near Euclid (Risser, Pittelkow, Rysgaard and Evan-son). Mrs. C. E. Peterson saw a nest on June 25, but couldn't determine the contents. Madison, Minn.

GOLDEN-WINGED WARBLER. On July 1 A. B. Erickson saw nearly fledged young; on Aug. 10 he saw young that could fly well. St. Croix National Park.

YELLOW WARBLER. On May 23 Rysgaard found a completed but empty nest at Frontenac. On May 31 Upson and Struthers found a nest of three eggs. On June 24 Mrs. C. E. Peterson found a nest of one young and three eggs, near Madison, Minn.

MYRTLE WARBLER. D. Struthers found a nest near Lake Vermillion on June 24 that held two eggs and two young.

CHESTNUT-SIDED WARBLER. On July 21 Mr. E. D. Swedenborg found a nest of four small young near Finland.

OVENBIRD. M. Morse found four eggs in a nest in the Cloquet Valley Forest on June 18. At Beaver Bay E. D. Swedenborg saw young awing on July 21.

MOURNING WARBLER. Mourning warblers were seen feeding their fledged young on July 19 at Finland (Swedenborg).

NORTHERN YELLOWTHROAT. June 10—Nest, 4 eggs (Swedenborg). June 29—Nest, 3 eggs of yellowthroat, 1 of cowbird. Sturgeon Lake (Rysgaard).

CANADA WARBLER. A necklaced warbler's nest that held four young was found near Ely on June 22 by Risser, Rysgaard and Pittelkow. E. D. Swedenborg saw a nest that held three warbler's eggs and a young cowbird on July 18, near Finland. Two of the warbler's eggs hatched on the 19 and 20.

REDSTART. On June 21 at Savage, Minnesota, W. Breckenridge found a nest that held one egg. Nearby he saw a young bird able to fly, being fed by the male.

BOBOLINK. On June 11 B. Oure found a skunk blackbird's nest that held five eggs. K. Morrison, N. Mahon and B. Upson were working the field at the same time.

EASTERN MEADOWLARK. On July 16 D. Struthers found a nest of two eggs.

WESTERN MEADOWLARK. On May 16 E. D. Swedenborg found a nest of four eggs.

YELLOW-HEADED BLACKBIRD. On May 21 Upson found two nests of three eggs each and on May 30, two nests that held three eggs and four eggs.

RED-WINGED BLACKBIRD. Upson found several nests that held from one to four eggs each. On June 23 Upson and R. M. Berthel found several nests; a few held small young, but most of them held four eggs each. Afton, Minn.

ORCHARD ORIOLE. Full grown young were seen near Ortonville on July 18 by Mrs. C. E. Peterson.

BALTIMORE ORIOLE. On June 17 Risser, Rysgaard and Pittelkow found five eggs in a nest at Lake of the Woods.

BREWER'S BLACKBIRD. On May 21 a nest of two eggs was found by Upson. In the St. Croix National Park Arnold B. Erickson found one egg and three new-hatched young in a nest on June 16.

BRONZED GRACKLE. On April 29 Upson found a nest that held one egg. On June 22 two young awing were seen by G. N. Rysgaard, Dr. A. Risser, L. Pittelkow, and A. Evanson. Ely, Minnesota.

COWBIRD. The following birds were reported victimized this year: **RED-EYED VIREO**—June 20—4 eggs in nest. (Swedenborg). **YELLOW WARBLER**—May 31—1 egg in nest. (Struthers), July 18—Young left nest (Rysgaard). **NORTHERN YELLOW-THROAT**—June 29—1 egg in nest. Sturgeon Lake (Rysgaard).

CANADA WARBLER—July 18—1 small young in nest. Finland (Swedenborg). **RED-WINGED BLACKBIRD**—May 27—1 egg in nest (Upson). May 31—1 egg in redwing's nest (Struthers). **SCARLET TANAGER**—June 19—4 tanager's eggs, 1 cowbird's egg (Swedenborg). **FIELD SPARROW**—June 21—feeding young brown-headed blackbird. Savage. (E. D. Swedenborg). **SONG SPARROW**—June 23—feeding young cowbird awing (Upson).

SCARLET TANAGER. A black-winged redbird's nest found near Excelsior on June 19 held four tanager's eggs and one cowbird's egg (Swedenborg).

ROSE-BREASTED GROSBEAK. On May 29 Dr. Donald Mahle found a nest of 3 eggs near Plainview. E. D. Swedenborg saw two nests that held three and four eggs respectively on June 2. On June 24 Mrs. C. E. Peterson, at Madison, Minn., saw a young grosbeak on the ground being fed by a male parent.

PURPLE FINCH. On July 9 Dana Struthers saw young awing at Lake Vermillion. Swedenborg saw young awing near Finland on July 19. At Sturgeon Lake. Rysgaard saw one young awing on July 24.

SAVANNAH SPARROW. Two katydids and two grasshoppers were fed to the five young in a nest found by Erickson on July 12, in the St. Croix National Park. On June 19 Pittelkow and Rysgaard found a nest with two young near Warren.

BAIRD'S SPARROW. Evanson, Rysgaard, Pittelkow and Risser found a nest of two eggs near Euclid, on June 20.

VESPER SPARROW. A grass finch's nest found on May 2 near Plainview, Minn., by Dr. Risser and Dr. Mahle held four eggs. On July 22 Marius Morse found a nest in the Cloquet Valley Forest that held two half-grown young and one egg.

LARK SPARROW. Mr. W. J. Breckenridge found a nest of five eggs on the sand dunes of Anoka County on June 9. On June 15 he found young lark finches at the same place.

SLATE-COLORED JUNCO. On July 21 Swedenborg found a nest of five large

young near Palisade Head. Marius Morse, at Cloquet Valley Forest, found a nest of four eggs on July 23.

CHIPPING SPARROW. On May 25 George Kutz found a nest of four eggs near Stillwater. Swedenborg found a nest of 2 small young on July 17, near Beaver Bay.

CLAY-COLORED SPARROW. On May 30 E. D. Swedenborg found a nest of 3 eggs. A. B. Erickson found a nest of three eggs on June 17 in the St. Croix National Park.

FIELD SPARROW. E. Swedenborg

found field sparrows building on May 2. On June 21 Breckenridge saw young awing.

WHITE-THROATED SPARROW. Marius Morse found young peabody-birds in the Cloquet Valley Forest.

SONG SPARROW. Morse found a nest of four newly hatched young in the Cloquet Valley Forest on August 11.

CHESTNUT-COLLARED LONG-SPUR. Four young black-bellied longspurs were seen in their nest near Warren by Rysgaard, Pittelkow, and Risser on June 18. *St. Paul, Minnesota*

A Bittern's Courtship Actions

By Charles Evans, M. D.

AS THE sun drops low in the west at the end of a warm spring day, there flows from the marshes a wave of cool air laden with peculiar sounds and smells that prick the imagination of any nature-lover. Among the most familiar of these sounds is the *thunder pumping* of the American bittern; yet seldom is the bird observed in the act of producing these curious sounds.

Late in the afternoon, May 16, 1928, a friend and I were exploring a patch of quill reeds that stood, appearing as an island, among the sedges of the lowlands bordering the Minnesota River. As we approached the edge of the quill reeds, I noticed two bitterns standing in a clearing about twenty-five yards distance. The two birds were about a rod from one another, and both were standing erect with necks outstretched. On seeing them, we froze to the spot; and soon they forgot us.

One of the birds, probably the male, very deliberately lowered his head and with slow, stately steps, made his way to the other. Here he once more stretched forth his neck, and the two stood facing one another with bills pointed skyward; and to all

appearances resembled two slender sticks projecting above the low sedges.

The stage was now set, the actors were in their places, and all was in readiness for the enchanting strains of a bittern's serenade. With a series of jerking motions, the male lowered his head until it was close to his body. Each jerk was punctuated with a loud *cab*, the familiar pile-driving sound. Now, with a motion as though it were disgorging some large object, the bittern drew himself up to his original position, giving forth, as he did so, the well-known pumping sound, *umm cab uh*.

The female remained rigidly motionless while her suitor executed this performance several times. Whether bored or desirous to tease her demonstrative lover, I do not know; but suddenly the female took flight, alighting some fifty yards away. Without an undignified display of haste or loss of poise, but nevertheless very promptly, the male followed in pursuit.

The dignity of this entire performance was in striking contrast to the courtship performances of so many of our birds, every motion being stately and deliberate.

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