The Flicker

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THE FLICKER

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THE COVER

Lake Itasca (Photo by Harvey Gunderson)

THE PRESIDENT'S PAGE

At the close of the calendar year, it is a policy in many business organizations for the president to issue an annual report. Consequently, this may be an opportune time to report on the status, activities, plans and problems of the Minnesota Ornithologists' Union.

This is a year that is crucial in several respects for our organization. Because of important business matters the M.O.U. Policy Committee met three times during the fall of 1954. Meetings occurred on September 18 at the Duluth branch of the University of Minnesota, November 8 at the Museum of Natural History of the University of Minnesota, and on December 3 at the home of the president. It is very important that all affiliated societies should be represented at policy committee meetings where matters vital to the M.O.U. are being presented.

At the September meeting the policy committee decided to hold two annual meetings of the M.O.U. rather than a single meeting as has been done in past years. Consequently, on December 4, 1954, the first winter paper session of the Minnesota Ornithologists' Union was held at the Museum of Natural History of the University of Minnesota in Minneapolis. This meeting was devoted to the presentation of 16 papers on a great variety of ornithological subjects, movies of special interest, and a business session. More than 100 persons were in attendance, and the concensus of opinion was that the session was a marked success.

The annual spring meeting will be held at Itasca State park from May 28 to 30, 1955 and it will be devoted chiefly to field trips. The field trip committee has scheduled the following trips for 1955: to the North Shore of Lake Superior on February 19 and 20, to Frontenac on May 14 and 15, and the hawk counts at Duluth on the second and third week ends of September. Your participation in these excursions will help to insure the success of this worthy venture.

In several nearby states the state bird organizations raise funds by the sale of natural history books. Inasmuch as we are in need of additional finances this possibility is being investigated by the policy committee. If this project is to become a reality it would be desirable to have a member from each affiliated society volunteer to sell books.

The most pressing problem facing the M.O.U. is concerned with financing *The Flicker*. Previous to the June 1954 issue *The Flicker* was printed at the St. Cloud Reformatory at a cost of about $70 an issue, and it often appeared six months or more behind schedule. Consequently, the policy committee and the publications committee decided to change to a new printer so that *The Flicker* could be published in an attractive format and by a responsible firm. The new *Flicker* will cost at least $1500 annually. At the annual meeting in December the membership voted to raise the dues to $2.00 a year. That means that we need at least 750 members to finance our magazine.

We now face a very real crisis. Each M.O.U. member must personally be responsible for obtaining one or two new members. Will you contact in your community those individuals who are interested in birdlife and ask them to join the M.O.U.? Be sure to invite into membership persons, such as, bird club members, librarians, game wardens, conservation workers, garden club members, sportsmen and students. *The Flicker* is the only publication in the state that brings current information on the birdlife of Minnesota. Will you help to preserve *The Flicker* so that it does not go the way of the Dodo, Great Auk and the Carolina Parakeet?

It would be a big financial lift to our society if some of our present members changed to higher classes of membership, such as, sustaining members, life members and patrons. Remember that 1955 is a year of decision for our members. There is a job to be done by every member of the M.O.U. Are you willing to put your shoulder to the wheel and do your share?

Lewis L. Barrett, President

Gaspe Trip Diary

Dear Diary:

We're off for the Gaspe Peninsula at last. Alfreda is taking notes. Let's peek:

Saturday, July 17, 1954. Minneapolis to Manitowoc, Wis., ferry to Ludington, Michigan, by *Alfreda Johnson.*

"The chartered bus, "Baby Elephant," with 27 members of the Minneapolis Bird Club, left the city at 8:00 a.m. Our chauffeur was LaVern Hoff, a very capable fellow.

We followed No. 12 through Hudson, Wis. Here we crossed the St. Croix river, then through farming regions and dairying places. The roadside was covered with wild flowers blooming everywhere. Arrived at Menomonie, Wis., at 10:00 a.m. Here we crossed the Red Cedar river. Along the way some of us were busy counting the number of white horses we could see. Crossed the Chippewa river at Eau Claire, Wis. — then the Black river, on to Stevens Point, where we stopped for refreshments. Arrived at Appleton, Wis., at 8:00 p.m.

Here the bus was refuelled. We had a little trouble with the bus from there on to Bay City, Michigan. The boys who filled the gas tank used dirty cans and as a result the fuel oil was dirty and couldn't get through the fuel lines. We dumped our fuel at Brillion, Wis., and proceeded only to find out the trouble wasn't over. Stopped several times. Finally at Bay City the trouble was over.

We are now approaching Manitowoc, Wis. Here we crossed on the ferry, arriving at Ludington, Mich., at 5:00 a.m. on Sunday morning.

Sunday, July 18 — to Toronto, Ontario, Canada. "My Day" by *Emma Fitch.*

We crossed Lake Michigan from Manitowoc to Ludington on the C & O ferry boat "The Spartan." Many of us were off the boat at five o'clock and the wide expanse of Lake Michigan and the lighted boats in the harbor was quite a sight. Our boat carried a freight train of 24 cars, autos, our bus, and many passengers.

Many of us had breakfast at Gibbs, where we were welcomed with: "We welcome you, we're glad you came our way, And we'll do our part to make the start of a very pleasant day."

Here we were sorry to lose two of our members, Abby Purcell and Pat Kiesz, who had to return home on account of illness.

We left Ludington, with its sand dunes and Herring Gulls. These were practically the only birds we saw all day. We continued on highway 10 until Midland, where we went north to Bay City. This was the greatest event of the day, because it was here that the bus was put into a good condition to speed us on our way.

From Bay City we went to Port Huron, on Lake Huron. Here we crossed the famous Blue Water Bridge, over the St. Clair river, which is a short cut into Canada. Every 24 hours 100 boats of iron ore from Minnesota pass under this bridge. At Port Huron we saw the end of the cabin cruiser races. In spite of it being Sunday, we saw farmers baling hay and fields of ripening grain, but nothing like western Canada.

We found London, Ontario, a progressive city. Here we had our evening meal at the Lounge. The main items on the menu were roast beef and Yorkshire pudding. After consuming one of these dinners, a huge salad arrived. Leone suggested taking it to Toronto and having a snack on the playground of Sunnyside motel. However, that was forgotten when we arrived there 12:10 E.S.T. At that time minds weren't very alert when one overheard this conversation: First voice, "I understand Hamil-

ton isn't far from Niagara." Second voice, "Where is Niagara?" First voice, "New York." Only a few saw this sign going through London — "City Awning Co. — It's a Shady Business."

Now on to Montreal.

Monday, July 19 — on to Montreal — by *Eleanor Dahl,* who received meritorious award for bravery above and beyond the call of duty when, single handed, she killed a bee that was causing pandemonium in the bus.

Herring Gulls lined up on the breakwater greeted the Birders as they came to breakfast at the Sunnyside motel hotel.

Leaving Toronto, we passed a very large swimming pool, an amusement park, the gateway of the 1927 exposition, ship docks, (a ship from Sweden) and prosperous looking industrial plants beautifully landscaped. It was more than a half hour of steady driving before the factories really thinned out. Also passed the race track, and a beautiful boat club, conveying the idea that Canadians really know how to enjoy their leisure.

Stopped for a mid-morning stretch at Cobourn, which is the birthplace of the late Marie Dressler. The home is now a dining room, furnished in heavy cherry wood and old walnut. One dining room had a collection of buttons beautifully mounted.

We passed the Canadian Air Force landing field that seemed to spread over such a large territory — surely Canada must have a very fine air force.

As we had decided to help every other state and province not look like Minnesota, Boyd chose to leave all collected refuse at a special receptacle in Kingston. What the natives must have thought when they saw a big Jefferson bus drive up and stop, and an energetic young man get out and empty a sack???

Helen Seymour treated pitted dates as we were driving hurriedly along the beautiful St. Lawrence river. We had so much distance to cover, we couldn't stop and there were so many interesting cabins and estates to see on some of the Thousand Islands.

Next little 10 minute stop (Morrisburg). Geneva Heath returned with home grown Canada cherries. From this point on, we were intent on signs — 40 miles from Montreal — 29 miles from Montreal — and finally Montreal.

At 7:00 p.m. we were unpacking at the Montreal West End motel, but several of us decided to hike away from the camp for dinner. As LaVerne Hoff, our driver, needed diesel fuel, he suggested we ride in with him. A man offered to lead us to the fuel pump and took us down to what might be old factory district, bordered by poor tenement houses. Balconies on most of the apartments and with two or three people on each one, people looking out of windows — some with three heads to a window — children in doorways with night attire on and two children running to the drug store in their night gowns. It couldn't be often that such a big bus was seen on such narrow streets. The district was surely over-populated.

One of our party had been told that Drurys was such a good place to eat. We got there too late. We interrupted the conversation of the "bobbies." They said "Do go to the Steak House." It was very late before we finally ate dinner, but our writer for this day had the best onion soup she has ever eaten.

Tuesday, July 20 — A Minnesota state statistician's statistics. By *Thyrza Tyrrell* — on to Mont Joli, Quebec, Canada.

I just came along for the ride and to watch the bird watchers watch the birds, but so far they haven't had many birds to watch except each other.

At 6:00 Mrs. Simpson dropped out of her cozy bed in room 16 of the Montreal West End motel deluxe and let the flies out of the bathroom. Three-fourths of an hour later the rest of us got up and all were packed and on the bus at 7:00.

After a ride through Montreal's downtown section, we went across the toll bridge and up to the highway on the south side of the St. Lawrence to Long-

ueuil, where we stopped for breakfast. Where some of us ate we were served freshly squeezed orange juice, toast with lots of butter, good coffee and a French newspaper. After looking over the quaint little town with its big church, we continued up along the river.

During the morning we had many beautiful views. During our stop at Nicolet on Lac St. Pierre, I had a free Coca-Cola at the Coca-Cola bottling works (smaller than Minneapolis, the owner said.) At this town many of our voyageurs learned to speak at least one word of French: "toilette?"

Many of the homes had curving stairways up to the second floor porch. During the day we saw 4329 of them. Also common were old fashioned double swings (about 1972 of these were seen on porches and lawns.) Most of the people stand or sit on the porch and watch the cars go by. There were many lovely flower gardens but we saw only one person caring for a garden. We also saw 35 chimneys with no houses, 11,475 washings on the line, of all colors; also 2,375,421 cows and 45,281 horses and 257 sheep and 139 pigs. These statistics will be found accurate, depending on which side of the road you look. Also seen were one Cowbird (a real bird) sitting on the back of a sheep, 473½ crows (one was partly behind a fence), one deer grazing near the road (seen by Stella Adams), one deer on a signboard (painted), 59 Cormorants on the rocks, 232 Green and Brown Herons, and 57 varieties of colors on the houses. We also met one cow that tried to push us off the road until herded away by a boy on a bicycle.

Our next encounter was with a red French-speaking truck, with which we had an argument over which could cross the bridge first — truck or bus.

At noon we stopped at St. Croix, where most of us ate at the Mansion Hotel, St. Croix in the Sallia Diner. No menu, so on came the food and more food; and finally the bill — $2.10 each for overstuffing. Mrs. Ness tried to buy a plastic bowl cover but got no closer to it than a dish, with a clerk who could not speak English.

Among other birds seen were robins on the wallpaper and a stuffed quail (somebody said) or Cooper's Hawk (somebody else said) up in the corner of the dining room.

As the road grew rougher and the hills hillier, the bus took off and spread its wings (this is a bird trip, you know) -- but lit quite hard on coming down (lack of practice probably).

I forgot to mention the Catholic fathers with derby hats Amy Chambers met at St. Croix.

On down the road we met hay wagons and little two-wheel carts and bicycles. The St. Lawrence became salt water about 50 miles north of Quebec. Along here the fences got closer together — some wood, of various designs, and others barbed wire and others just plain rock, with fields 50 feet wide and 100 feet long (approximately) — one for each three cows or two horses. About this time up came the story of Peter Rabbit. A generous award is offered to anyone who can tell us what Peter Rabbit told his mother and what his mother said to h.im.

At St. Denis we finally had an afternoon rest stop. Here a long line formed before a doorway while others wandered about. Mr. Anderson played games with stones with native children and gave them pennies.

After many miles of touring along the St. Lawrence we came to the viaduct to Mont Joli where we took a tour of the back streets to the very modern and comfortable Commercial hotel. (Did I forget to mention 173 fish nets spread out on fences?) After a very good "light" lunch some of us toured the town (postcards only 5c in the camera shop and 8c for the same thing in the hotel), got sprinkled with soot from the train and retired to our little twin beds for the night.

Wednesday, July 21 — to Perce, Golfe du St.-Laurent, by *Albert Anderson.*

Mont Joli, Quebec province. Stayed last night at Commercial hotel, the best place to stay so far — fine rooms with bath and excellent dining room. Left at 8:00 a.m. Shortly after we left Thyrza said she saw a "wild canary" sitting on a rock at river edge. Believe it was a figment of her imagination.

St. Lawrence river very wide here and all along the way there is a profusion of wild flowers. People we met were very cordial but spoke only French. Most farm work done by horses. Many women help in the fields. Noticed a small sawmill propelled by water power. We stopped for a few minutes by the river where we saw a white porpoise, dead, that had been washed up by the tide. It was about 10 feet long. There was a strong chemical smell caused by washed-up kelp sea weed. Cemetery along the road had wooden crosses, old and weatherbeaten; was used originally as early as 1790.

Saw many large cormorants as big as geese on the rocks, also many sea gulls. Noticed many streams and waterfalls coming down from the hills to the river. At Matane there were several saw mills and a large log boom in the river. Beautiful churches in the villages we passed through, mostly of stone. The priests have long black robes down to their ankles. Also at Matane was a broad water power dam.

At Cap Chat met a native who could speak English, which was unusual. He said there was only one other English speaking family there, and the wife of that family came from Cleveland; her husband owned the lumber mills and she showed the Simpsons through the mill and the town. All the villages have such narrow streets, like the old country. Mostly American made cars are seen, with some small cars from England. Aside from horses everywhere, you see a number of dog carts with which they haul small things and peddle fish.

The last hundred miles into Perce was very mountainous, so steep in places that twice the bus couldn't get up without the passengers getting out and walking up. The second time the bus stalled and passengers walked, a police car picked up Evie Kelley, Esther Ness, Inez Holmes and Martin Simpson. Along the way we passed through twelve covered bridges. Very primitive in places, where women milk the cows. In the last few miles into Perce one of our crowd saw a deer at the edge of the woods and another saw a fox. We finally got into Perce at 7:45 p.m. Very cool and the bay very foggy — had been nearly all day. This town of Perce was discovered early in the 16th century.

Thursday, July 22 — in Perce, Gaspe peninsula, P. Q. Canada — Perce Manoir (Accommodations for 30 guests) by (*Mrs.*) *Lillian A. Malick.*

The 26 members of this tour arrived at Perce about eight o'clock last evening.

It rained all last night, still raining this morning, still raining this noon, continuing this afternoon, and continuing . . . . Water too rough to go boating today. Fog thick as "pea soup" (served yellow pea soup for lunch). A glorious day to remain indoors, get acquainted with the host, Mr. LaFlamme, his wife and daughters, Denyse and Nicolle, lively little girls who speak French. They do not mingle with the guests. Some very interesting guests we met.

It is a lovely day for concentration and letter writing and also to address cards home and to friends. Some played, others learned card games. It is very quiet here except for the rain and the "Rain Drops on the Roof." A wonderful day for ducks — they haven't seen one yet!

Two members awoke at 5 a.m.. It really was 7 o'clock as their clock was inadvertently turned back in winding the night before. They just couldn't take time to check the wrist watch which was correct and on the dot. They turned over and slept on and on, until

a bang on the door and a caller stated it was 8 o'clock. No hardships were experienced, breakfast served until 9 o'clock.

Looking from the front bedroom windows while dressing, an exceptional view of the famous Perce Rock (Pierced Rock) and of adjacent rocks shrouded in fog was had. Some common gulls were flying nearby. Visibility was practically nil.

Discovered one toilet and one bathroom on each wing (there are two wings) of the Manoir for guests. The bath tubs were very long, wide and high; in fact, Paul Bunyan's son could bathe easily in them. Toilets were separate and apart from the bathrooms next to them. Maids kept everything neat and clean, washed floors on hands and knees.

Fain-wear and all wet-weather clothing came out of travel cases to brave the elements and to make tours of the shops and quaint places. Shopped for wooden nickels, but found instead, beautifully sculptured and painted birds, pictures, ornaments and fine cotton, linen, and wool hand-loomed articles and apparel, also numerous hand-knitted articles. Many hooked rugs and tapestries were on display and for sale. Wood carvings were of basswood, either hand-painted or left unpainted, and were on display all along the route in Gaspe peninsula. They have schools there to teach this type of work in order to keep it alive. This spot, being the only place where the group will stay for a spell and for many "Spots of Tea" there will be ample time to visit all the shops, and also "The Theatre".

When it rains here, it really rains, the sky opens up with a downpour. The water penetrates to the skin, one wouldn't be more wet if dipped in the ocean with all one's clothing on! Soaked to the skin, such showers may be the reason for the small number of bathrooms!

Some members made a tour of the cod-fish packing plant. This was exceedingly interesting as there is no fresh-water ice to be had on land. Snow is gathered and brought in and stored in the packing plant. This is to be used for packing fresh codfish for shipping all over the world. Much snow was still in the plant. The workers there said it would last until some time in September; then the frozen food plant would do the work until new snow falls. The snows come about October.

On the beach by this plant the tide drenched a number of persons and here the shore was covered with kelp (wrack) and kelp bladders. Nothing is more slippery than kelp.

Nothing, nothing, just nothing can beat the imaginations of the members of the Gaspe tour. Stones were likened to gannets, foxes, fishes, ships, trees, flowers, etc. (See Malick's pebbles.)

In the lobby of the Manoir were two very beautiful tapestries about five by six feet in size, one of Elaine's last voyage, the other of Lochinvar Comes out of the West (the coloring the best seen by many).

Still raining, seems there will be more and more of same — it may last days!

5:30 p.m. The group gathered in the lobby for the most unusual treat. An exhibition of art, the work of Chester Mayer, nationally known sculptor, illustrator, artist, who is also known as the "Flying Farmer" and a minister of the gospel. His present home is in Milwaukee, Wisconsin, but he is here for a months' work. He has had 30 years of experience in his various phases of art.

He displayed many of his originals, etchings and water colors. These were of interesting spots and people of this locality. His illustrations appear in many papers, magazines, and public places throughout the country and the U.S.A. A number of his paintings were for sale in the shops. He works fast and accurately; portraiture seems to be his next step.

This part of Canada, for the unusual,

for quaintness and beauty is a painter's and photographer's paradise, for everywhere one turns is an unusually beautiful picture, surroundings and backgrounds made to order.

One would have to remain some time here among the people to really know them. Most all speak only French and are carrying on the old family traditions of their great-great-great grandparents. No very old people were in evidence here. It appears to be a very rugged life on the peninsula.

Dinner, whole red lobsters served, the best tasted thus far in the northeast. Might be taken off the menu as so many were eaten. However, some did not eat them; there were many items listed.

The illustrious Boyd Lien, after attending the marvelous display of art by Mr. Mayer, tried his hand at illustrating, and by now, is the new embryonic artist of the Minneapolis Bird club. (See his sketches "Man with Umbrella" series. The result: . . . if it rains much longer only the tip of the handle will be visible).

Some daring adventurers went to a "Murder Trial" held in a small wooden building. Some 103 to 107 witnesses were to be questioned in both French and English. The climax: recipe for nightmare. (Some members had horrible dreams thereafter).

After dinner, enroute to the theatre, some took a side trip to the Normandie hotel for a glimpse of the hooked tapestries on the walls depicting local scenes. These were beautifully done and were for sale.

Next, on to "The Theatre", a frame structure of about 28x30 feet. It was blessed with an old log burning stove but there was no fire within. It had a fairly good screen for the movies. The lure: a showing of the outstanding sights of Gaspe, its people, and its various means of making a living. Also a comic was to be shown and the movie "Has Anyone Seen My Gal?"

The Birders wore hooded gear and many had donned white plastic rain shedders — looked like the arrival of the Ku Klux Klan. Another group of tourists came into the theatre garbed in the same fashion and started to talk to the "Birders" thinking they were a part of their party and vice versa — all were scattered all over the place; next the seats began to sway and rock, the boards in the floor creaked and groaned — perhaps such a large crowd was too much for them. But they held together, although some of the seats gave way under the impact. Then someone began to laugh at everything, soon everyone was laughing — and after the movie laughing was heard all the way back to the Manoir. It was an experience never to be forgotten, seeing a picture over two years old for fifty cents in an excuse for a movie house (more like a sailors' dive) and called "The Theatre."

Raining, still raining, so with the wet-blanket on for tomorrow, the next scribe will take over. If errors occur, corrections are in order; and that's thirty for today.

Friday, July 23 — at Perce, Co. Gaspe, Quebec, Canada — Our French interpreter, *Esther Jerabek,* is scribe for the day.

Rain and wind continue and the trip to Bonaventure Island to be postponed again. Those of the group who ventured out usually returned soaked to the skin. Soon the register in the lobby of Perce Manoir was covered with an assortment of shoes and slacks being dried. Most of the members gave up sightseeing after one or two soakings and were content to sit around the hotel lobby chattering or reading.

The afternoon was enlivened by an impromptu recital of vociferous French folk songs, self accompanied just as loudly by a chance tourist from Montreal. Mr. Laflamme remarked afterwards that it was fortunate Mr. Rosson had not been drinking before his performance.

In the evening several hardy souls

went to The Theatre to see "Mrs. Minniver." Some played cards with the help of interested kibitzers. This was probably the quietest day of the whole trip.

Saturday, July 24 — still at Perce, La Gaspesie. THE GREAT DAY ARRIVES. The trip to L'Ile Bonaventure, by *Frances Korista.*

Another gray morning, but at least not raining. Prospects for going to Bonaventure Island were very poor so we set out on other ventures. After breakfast several of us went to the art exhibit of Tomme, the Italian born artist who was painting at Perce. Some of his pictures were very interesting, but we did not agree as to which were the most choice, so we decided to go to the cliff opposite Perce Rock to watch the birds.

The climb was muddy, wet, and steep but we felt well rewarded. We saw several Gannets flying over the water, the Kittiwakes were plentiful and, after a long wait, some of us had a wonderful view of our first Black-backed Gull. The Black Guillemots fluttered over the water with their white-spotted wings like butterflies. We returned to our hotel with some feeling of satisfaction, because finally we did see some of the birds of the area, even if the weather had kept us from the island. With this in mind, those of us who had been careful of our diet in anticipation of a boat trip ordered lobster and settled down to a leisurely lunch. Just then the big announcement came: "At one-thirty we are leaving for Bonaventure Island in spite of the stormy sea."

So all but two of us climbed aboard the cabin cruiser to ride the waves. Thanks to our good pilot, the trip out was pleasant and as we approached the island the birds became more plentiful. First the Cormorants and the Guillemots, then the Gannets, and as we rounded the island and approached the cliffs on the south side the nesting birds were so numerous that the sight gave us a real thrill. The most plentiful and spectacular were the Gannets; the Murres and the Razor Billed Auks were lined up in large numbers. Most of the people also saw the Puffins. The high waves and rocking boat made it a little difficult to focus on the birds, but their numbers made up for this. As it was so very stormy we did not circumnavigate the island but returned by the same route we came.

Homeward bound, no longer in a state of high anticipation, we became more conscious of the waves. One after another the rosy wind-blown faces turned sallow and then greenish in color. But we even got Laura back home in such a good state that she was willing to take the boat to Basque Island at Trois Pistoles a few days later. Our mission was completed! We saw the birds of Bonaventure Island.

Sunday, July 25 — to Trois Pistoles a a la Riviere St-Laurent, after the usual counting of passengers, (Boyd: "Is anyone missing? If so, speak up.") by *Stella Adams.*

Before nine, after a bit of trouble with the battery of the bus, we started out again in the usual fog and rain. Later it cleared and we had fine weather. We left our Perce host, Mr. Laflamme, with the problem of getting our sheets washed and dried so he could rent our rooms. With four days of rain and with a broken drier, he had some 900 pieces of laundry to be done. Now I understand the need of the sentence in my French hand book: "These sheets are damp"

We left behind us (and the menus with their "toasts", "oats meal", and "smoke herang") our little French waitresses.

Our ride took us along the sea, Baie Des Chaleurs, the Causapscal river, and the St. Lawrence. Just after leaving St. Bonaventure on the Gaspe peninsula, we could see the province of New Brunswick across the Baie Des Chaleurs. The country was largely agricultural, the Shickshocks to our right were heavily wooded, and we saw many log floes.

It was good to see families all dressed in their Sunday best on their way to and from church, often walking on the highway.

We drove through the French villages with colorful fishing boats in the harbors. We'll remember the lobster pots, the drying racks, many covered with fishing nets, the seines in the bay, and the board walk along the water at Maria and Carleton.

From Mont Joli to Trois Pistoles we repeated our Wednesday trip and, no doubt, many of the washings hanging high were the same we had seen there before. Leone saw a Baltimore Oriole, a white Pigeon and a Flicker, and someone reported a Bluebird. We crossed the usual hundreds of railroad tracks, but only nine covered bridges, compared to Mr. Anderson's twelve. That cost your reporter an ice cream cone.

Oh, yes, there were incidents! Amy and Ethel ordered salad and soup but their checks charged them for the whole dinner. Then we almost lost Thyrza — one minute she was on one side of the fence (taking pictures with LaVern's and her cameras) and the next minute she disappeared under the fence, and there she was on the other side, somewhat the worse for her unintentional "sleight of hand." We got out and walked across a very narrow, winding, wooden bridge so that the bus could come across safely.

After a relaxing bath, Frances found herself locked in the bath room. Finally she was rescued by a strong man who forced the door open. Before she could get out, there he was working on the lock and hunting for the right key on his key ring. During his struggle with the repairs, Frances managed to slip out, but was no longer relaxed.

In the evening some of us went to the Exposition. Mr. LeClare saw us there and invited us out to his beach home. LaVern took us out in the bus. We had a very enjoyable hour there looking at their bird books and discussing with him and Mrs. LeClare (we saw the baby, too) birds and mushrooms, and places to shop in Quebec. A good day.

Monday, July 26 — Trois Pistoles. By our treasurer (the gal who handed out the money so we could eat) — *Amy Chambers.*

Lait Pur — We have had much of it. Fog in and out at 10:00 a.m. Still waiting to go to Basque Island. All kinds of noises: trains, bath, radio, and lobby. Ate lunch at 11:30 before taking off on boat trip to island.

Local Catholic church has 1000 lights in altar; oil paintings (14) around church walls; stained glass windows; extremely elaborate.

12:00 noon — bright sun and cloudless sky. Landed on Basque Island — two boat loads to get there. Mr. LeClare yodeled from boat to group who had landed on shore. The cook brought "a elp" (a helper) with her. Food provided by Hotel Victoria — table set with fruits (oranges, bananas, plums) inside, sandwiches (ham, cheese, chicken, tomato, lettuce, cucumbers) marshmallows, tea and coffee, strawberry squares (like our date squares).

Hiked around Island and saw many varieties of birds. (Common Eider, male, female, and young.) Eight White Whales blowing — Gray Seal; returned through woods and followed blazed trail. Low tide; had to be taken out to boat by small tender; ride home — clouds beautiful; tide out so water about 15 feet lower; had to climb up ladder when landing. Esther Ness couldn't make it so Warden and LaVern took her around to beach; Warden carried LaVern in (like a small child); Esther brought in, too.

Sunset beautiful over St. Lawrence river. Here it's 20 miles wide. Mr. LeClair was with us today.

Tuesday, July 27 — The "trippers" arrive at Auberge des 4 Chemins, Ancienne-Lorette, Quebec, "Capitale de la Province" by *Irene Bower.*

Trois Pistoles to Quebec — Mr. LeClare was our "good will passenger" and guide. He told us there are two houses in Trois Pistoles which were owned by the same family for over 200 years. Recently, when there were no male heirs, the properties were sold; when the estates were closed, the family records were given to the University of Montreal.

Our rest stop was in St. Jean-Port Joli. There we attended the industrial exposition of wood carving for the area. Mr. LeClare arranged for Leone to have a quick medical examination and treatment of her injured ankle in the hospital there.

After checking in at the motel, we were taken into Quebec and deposited in front of the parliament building, where the bus was parked for the afternoon. Different people then went their separate ways according to their individual interests. Some visited the historical museum to see the wax works with representations from Christopher Columbus to President Eisenhower. The original museum was erected in 1653. Many took tours of the city — some in taxicabs and some in horse-drawn carriages of various types. These visitors reported hordes of children came out of the nooks and crannies to hang on the sides of the vehicles, hoping for cash gifts. Those who happened to be in the lower city when the fire alarm sounded had the rare privilege (?) of seeing at least 100 children rush into the street, look where the fire apparatus was going, then dash up the street ahead of the fire engine. There were no police to control this group of curious children and the firemen did not appear concerned that the children reached the scene of the fire before they did.

When we reached the shopping center we found the place had been taken over by the United States Navy and its R.O.T.C men. The newspaper reported there were 14 naval vessels on a goodwill visit in port, "the largest group of foreign warships ever to call at a Canadian port in peacetime."

We saw our first "mountie" in Quebec walking on the wall of the fort above the courts where the Chile-Canadian Davis Cup tennis matches were being played. Others in the group saw "mounties" driving police cars.

Wednesday, July 28 — back to Montreal, metropole du Canada. By *Florence Messer.*

Inmates of cabin No. 15 at Auberge des 4 Chemins, Ancienne-Lorette, Quebec, wakened to the mellow song of the Song Sparrow several feet from our window. The motel is large and elaborate, a terrace with tables and umbrellas overlooks a swimming pool several hundred feet long, mostly used by tame ducks. Nary a bathing suit came out of suitcases during our brief stay. Breakfast was served by smartly uniformed waitresses, then the usual dash back to the cabins to squeeze the last purchases into suitcases, and we were off at 8:05 a.m. for Montreal. A sunny morning — temperature 65 and NO FOG at last. Looks as though there would be no gathering of the Ku Klux Klan this morning.

Today we travel on the north side of the St. Lawrence. An Indian settlement displayed wool blankets and socks, moccasins and sheep skins on lines strung between houses and sheds. We have left the miles and miles of split rail fences behind — the farms here seem larger and looks like a more prosperous area. A number of houses are still painted in the most startling color combinations, shocking pinks, violent reds, blues, yellows, sometimes three and four vivid colors in patch-work quilt effect or horizontal red and white stripes.

A rest stop at Three Rivers — and did you see what Laura bought? A head of lettuce — and several were helping her eat it. Surely looked good after Gaspe style lettuce marinated with drippings from fish or steak. We arrived in Montreal about 12:30 and were on our own for the afternoon. At 8:00 p.m.

the clan gathered in Dominion Square carrying packages of assorted sizes and shapes. Some had been sight-seeing via open air street car or bus, some by horse and buggy.

The trip to Mt. Royal was rewarding. The view over the city and across the countryside, where could be seen in the distance the green mountanis of Vermont and the Adirondacks of New York, was beautiful.

Leone and Amy reported seeing amusing signs: "Slow Restaurant" (maybe our speed?), "Hot Chocolate Ice Cream", "Closed for Business", "Isador Razomonzski — Ladies Tailor from Paris." (Other signs reported along the ways:) "Motel — Every room with 4-piece bath," "Stop Carving," "Swimming Pool, fully licensed," "Ice up while you gas up," "City Movers," "Although we own the joint, we serve everyone," "You've passed good eats," "Flush toilets running water in each room," "Pure sirop," "Please stay out from behind the counter unless you want to buy the place."

Thyrza, Eleanor and Laura rode up Mt. Royal in a buggy with a 63 year old Irish driver who kept them in stitches with his running comments on various subjects, not always pertaining to sightseeing. His 93 year old mother had raised seven boys and seven girls and still slept with one eye open as the three at home "didn't turn out so good." (He was one of them). Seems they don't always come home when the curfew rings. The whole family (all 16 of them) used to walk up Mt. Royal for a day's outing "back in the good old days." He told his passengers the birds in the park were mostly crows and "peasants." He also said it gets 90 degrees cold up there. (Believe it if you wish.)

After lunch at Eaton's Tea Rooms with some of us, Emma Fitch left us and was entertained by a niece who drove her around town and out to a bird sanctuary, then to her home for dinner. Lucky Emma! We're glad you had such a good time.

But listen, Ku Klux Klanners, to this tale told your reporter by none other than our esteemed and internationally known Martin Simpson. He and Grace not only met a relative today, but Martin as a vice president of Simpson's Department Stores found it necessary to attend a dinner and meeting of the board of directors. Now this is the big news we're being let in on before it is released to the press. Plans were completed yesterday to make Sears and Roebuck a subsidiary of Simpson's. Congratulations, Mr. Simpson. We are surely proud to have a member of the firm and his wife with us on this tour.

As usual, our dependable LaVern drove us safely to the Montreal West End Motel, where we stayed July 19 also. We were assigned the same cabins, and after the chilly days at Perce, we felt the 80 degree temperature a bit uncomfortable. Off to bed with instructions from Helen to be ready to leave at 7 a.m.

Thursday, July 29 — to North Bay, Ontario (where two trippers eating at the Garden Tea Room picked up a rumor from their waitress: that we were then nine miles from the Dionne home, that the home is heavily fenced, and guarded by two huge, vicious dogs that will attack anyone who as much as touches that fence; that Emilie had that week mysteriously disappeared from the convent and it was thought she left with her sister Marie and was now at home.) *Ina Holmes* reports the day's happenings.

Left West End motel at Montreal at 7:00 a.m. Warm, bright, sun-shining day until 7:50 ran into fog. Stopped at 8:20 for breakfast at Hawkesbury. On way there saw 11 passenger trains in 26 minutes going into Montreal. After leaving Hawkesbury they were repairing road so slowed us up a bit. The countryside along the way is very similar to Minnesota, so instead of sightseeing and picture taking we relaxed and some slept. Candy was passed around and refreshed us. We arrived at Ottawa at 10:25. We were conducted

through the capitol building. House of Commons was a fine room but the upper house was much more elaborate. The lower house members are elected for five years and the upper house for life. We went up into the tower and had a wonderful view of the whole city. The building was destroyed by fire in 1916, only the library was saved. The present capitol was started in 1917 and took five years to finish. The Duke of Edinburgh was in the building while we were there, but we did not see him.

We left Ottawa at 1:00 p.m., and can truthfully say that it is a city of flowers. At 3:15 we reached Pembroke and stopped for a 20 minute rest period. It was a warm walk up the hill, but about 4:30 we ran into one-half hour of rain which cooled it off. We drove along some beautiful scenery and arrived at the Belmont hotel shortly after six o'clock.

In the evening we all got together in the conference room of the hotel for a party. We played bingo and presented our driver, LaVern Hoff, with wood carved ash tray, our treasurer, Amy Chambers, with a brooch and earring set, and our leader, Helen Lien, with an auto robe. Our lunch consisted of tea, cookies, crackers and cheese, tarts and fruit. We want to thank Eleanor Dahl for promoting our evening's entertainment.

Friday, July 30 — Farewell to Canada — on to Sault Ste. Marie, Michigan. by *Martin G. Simpson* (ably assisted by his cub reporter, Grace).

Left Belmont hotel at 7:00 a m. and a few minutes later stopped for breakfast at Torbay's Chicken Bar, where a conveyor belt carried all orders and dishes from the kitchen to the dining room, a distance of about 40 feet. Left North Bay at 8:00 a.m. and shortly after saw a well with a long balancing pole and pole and weighted bucket at end of rope. As we rolled along the shores of Lake Nipissing, gorgeous scenery and many little falls were seen.

International Nickel Co., located at Copper Cliff, in the center of the Sudbury basin, four miles west of Sudbury, are the largest producers of nickel. Here they have the largest nickel refinery in Canada. Driving into the Inco yards, saw a sign ahead saying "Summer clearance 14 feet."

The Bird Club was escorted through this plant by guides, in groups of six or seven. These guides explained how the nickel and copper were separated from the ore in large furnaces. It might be interesting to know that the three large stacks in the yard are 210 feet high and are 45 feet in diameter at the top. "The Romance of Nickel", published by I. N. Co., was given to each member of the club and proved to be very interesting and informative reading.

Amy's episode: When a machine shop worker, acting as a guide, got into a discussion with Amy about the now famous Alger Hiss Prothonotary Warbler (which Amy described to him as "a canary with blue wings" — and he wrote the name on a match book) she told him we were 26 "Bird Watchers." He said he had always wanted to know what a bird watcher looked like. He told her they had a lot of "clock watchers" in the mine, but no bird watchers. After that, each time we passed a group of "men at work", he took delight in announcing his group as bird watchers.

The slag from the separation of the nickel and copper from the ore was poured into large kettles on trucks and taken out of the building by electric motors.

Leaving the refinery we stopped for luncheon at Cassio's Bar-B-Q French Buffet (in Mpls. — Smorgasbord).

Birds were conspicuous by their absence — only Blackbirds, Crows and Mourning Doves. Seventy miles west of Sudbury we were rolling along the shores of the north channel of Georgian bay to Blind river and Thessalon where a large number of various-colored pond lilies were seen.

Arriving at Sault Ste. Marie, Ont., as the bus was getting on the ferry, Stella

called out: "Be sure to get the back end of the bus on the ferry." She was in one of the rear seats. A few minutes later, as the ferry was docking at Soo, Mich., Alfreda asked: "How soon are we going across?"

Two members who had expressed parcels home forgot to have the necessary papers signed until the bus was two blocks past customs office and had to stop the bus while this detail was taken care of. However, this little delay enabled another member to mail a parcel she had been trying to mail for some time.

We proceeded to Park hotel, where rooms had been reserved, and found them large and roomy and, as Helen expressed it, "we slept in the wide open spaces."

After dinner the KKK (raincoats) were in evidence. All tried to view the boats and locks through the raindrops.

Saturday, July 31 — to Ironwood, Michigan, U.S.A., by *Ethel Slider*, scribe for the day.

Cloudy and cool to start and showers in the afternoon. We left Park hotel promptly at 8:00 a.m. after saying goodbye to Florence Messer, who left our group here. South on No. 2 to No. 28, then west. Along Sable state forest we saw a deer near the road, which watched us out of sight. The road was lined with spruce, poplar, maple, tamaracks and pines, and the trees stretched over the hills on both sides. Turned on No. 94 and at small building advertising five beefburgers for $1.00, we turned into a tree-lined road with branches meeting over the road.

This road led to Miners Castle, a spectacularly beautiful point on Lake Superior. The lake water was emerald green shading to blue and the whole scene was a thrill to us. It must have been so to Father Marquette when he stopped here to preach to the Indians who were gathered in canoes on the water below. Thyrza got a special thrill; as she was taking a picture, "a bee backed up and pushed." After group pictures we went back to the tree shaded road to No. 94 and on the Munising. Here we got No. 28.

We picked up three sailors from Kansas, Illinois and Michigan and took them as far as Marquette. Lunch at noon at Marquette on Lake Superior.

Ishpeming was holding a centennial celebration and we went slowly along in the traffic. Police made the end of the road one-way and we by-passed the town. At 3:00 we had a 10 minute rest period at Kenton, a small town with a pump. (We also noticed along here that "a little peptobismol here and there would help the general wear and tear.") Here we gained an hour, going on central time. We picked up No. 2 and passed through Wakefield and Bessemer to reach Ironwood at 3:30. Here we lost Helen Seymour, who wished to go directly to Duluth.

We stayed at Cloverland Court motel. Unit No. 7 was a housekeeping apartment with ice box and all necessary equipment, so part of the gang hurried downtown for food and the cooks pitched in. LaVern had offered to fry hamburgers but, at the last minute, backed out, so Boyd took over. We still don't know whether LaVern can fry hamburgers. Boyd made a very impressive chef with his apron (fashioned from a large paper bag). The apron was later loaned to Laura (one of the kitchen help) with the understanding it be returned in good condition, but was snatched away from her and used to wipe up the floor. Boyd shed a tear when he learned that it had come to a sad end in the garbage pail.

Twenty-one of us ate sumptuously at "The Club Cannet," better known as Unit No. 7 of the Cloverland Court motel, for 42 1/7 cents each. Each guest brought his or her own cup (paper) and /or chair. We guarantee that never before, and possibly never again, will Unit No. 7 accommodate such a large dinner party. The overflow ate on the patio (doorstep). Because of the shortage of dishes and spoons, some of the

group had to drink their fresh blueberries from a paper cup. Anyhow, it was fun.

Sunday, August 1 — Back home to Minneapolis, by *Leone Kaus.*

Well, here we are leaving Ironwood, Mich., on the home stretch at last. The day is perfect, but the battery isn't, so we had to walk to breakfast. The menu in Marco's Cafe, however, gave us quite a lift (mental, I mean.) A few "miles" after breakfast we were in Montreal, Wis. — the beautiful flowers and lawns reminded us of its namesake, Montreal, Canada. Lest we forget this is a Bird club, the common species in this town is the Robin — six were observed in one block.

As we drive on, this seems to be a truly rural area, for the bus waited while 18 cows strolled majestically across the highway. Detour six miles to Glidden, Wis. Mrs. Emma Fitch, a most genial member of the party, left us here to go to her summer home — the lucky lady — the rest of us must return to the heat of the city, Now our group is reduced to 23 — skidoo for Minneapolis, Minn.!

A few miles out of Glidden we entered Chiquamegon national forest a real land of Hiawatha because of its many gem-like lakes surrounded by beautiful evergreens and white birches. Temperature a perfect 70 degrees — weather ideal. Speed here too fast for birding — Old Dobbin knows he's heading for the home stable.

In Spooner, where we lunched, it was 85 degrees. There's never a dull moment on the stops of this trip. Says Mrs. Simpson: "I go to bed with Cedric Adams every night." Screamed the party: "Oh where is Mr. Simpson!"

Next we detoured via Sarona to Hunt Hill, the sight which has recently been given to the Audubon Society for a new camp. A bluebird flew across the road as we entered Hunt Hill road. After an hour of birding on the grounds of the new sanctuary, we resumed our trip to Nos. 63 and 8 through Cumberland, Taylors Falls, and New Brighton in Minneapolis.

Thus ends the eventful Gaspe Trip of 3600 miles. Au Revoir to all. Writing this last chapter of this log is, in a way, like having the last word. A big day — breakfast in Michigan, lunch in Wisconsin, dinner in Minnesota.

Our heartfelt thanks go to Helen for the many hours spent planning the trip that gave us so much enjoyment.

And thanks, nice people for giving us a day from your notes, to make possible the "GASPE TRIP DIARY."

Laura

Albert Anderson
Dorothea Anderson
Stella Adams
Irene Bower
Laura Brenner
Amy Chambers
Eleanor Dahl
Emma Fitch
Geneva Heath
Ina Holmes
Esther Jerabek
Alfreda Johnson
Leone Kaus
Evie Kelley
Frances Korista
Boyd Lien
Helen Lien
Lillian Malick
Florence Messer
Esther Ness
Helen Seymour
Grace Simpson
Martin Simpson
Ethel Slider
Thyrza Tyrell
LaVerne Hoff, Bus Driver
Abby Purcell
Pat Kiesz

Check List July 17 to August 1, 1954

Gannet
Kittiwake
Black-backed Gull
Puffin
Common Murre
Razor-billed Auk
Black Guillemot
American Eider
Loon
Pied-Billed Grebe
Double-crested Cormorant
Great Blue Heron
American Merganser
Marsh Hawk
Osprey
Ring-necked Pheasant
Killdeer
Herring Gull
Common Tern
Black Tern
Mourning Dove
Nighthawk
Chimney Swift
Flicker
Pileated Woodpecker
Red-headed Woodpecker
Downy Woodpecker
Kingbird
Phoebe
Horned Lark
Tree Swallow
Bank Swallow

Barn Swallow	Bluebird	Eastern Meadowlark	Indigo Bunting
Cliff Swallow	Cedar Waxwing	Red-winged Blackbird	Purple Finch
Purple Martin	Starling	Baltimore Oriole	Goldfinch
Blue Jay	Myrtle Warbler	Bronzed Grackle	Vesper Sparrow
Crow	Blackburnian Warbler	Cowbird	Tree Sparrow
Catbird	English Sparrow		Song Sparrow
Robin			

MINNESOTA ORNITHOLOGISTS' UNION FIELD TRIPS FOR 1955

On May 14 and 15, 1955, the Minnesota Bird Club extends a cordial invitation to all members and friends of the Minnesota Ornithologists' Union to meet with them at the Old Frontenac Point Methodist campus, Frontenac, Minnesota.

This is an excellent birding area and it is possible to see well over a hundred species of birds. Warblers, shore birds, waterfowl or gulls may be seen. Views of the rare Blue Gray Gnatcatcher and the Prothonotary Warblers are almost certain.

Registrations will begin at 1:00 p.m., Saturday, May 14, 1955, at the hotel on the Old Frontenac Point Methodist Campus, Frontenac, Minnesota. Those who wish to arrive early to bird may do so. Bring a picnic lunch and we will meet Saturday noon (12:00) as a group on the Methodist campus. We will have sleeping accommodations at the Old Frontenac Inn and will be served Saturday evening dinner, Sunday breakfast and dinner Sunday noon.

Reservations must be made not later than Wednesday, May 4, 1955. If you fail to make reservations bring a lunch as no food is available except in Red Wing or Lake City.

RESERVATIONS

PLEASE NOTE: NO FOOD OR LODGING WILL BE AVAILABLE UNLESS RESERVATIONS ARE MADE.

Make the following reservations for me. (Check on the dotted line)

Saturday lodging .....$1.50 Sunday breakfast ..... $.65

Saturday dinner ..... 1.10 Sunday dinner 1.10

A check or draft made to the order of the Minneapolis Bird Club for the ENTIRE AMOUNT of the reservations must be sent to Mrs. Boyd M. Lien at 5148 - 29th Ave. South, Minneapolis 17, Minn., not later than Wednesday, May 4, 1955. If checks are drawn on other than Twin Cities banks please add 10 cents for bank exchange. When you register at the hotel, you will be handed an envelope containing tickets for each item that you have reserved.

Name ..... Address .....

Bird Nests in the Itasca State Park Area, 1954

by

Joseph J. Hickey, Pershing B. Hofslund and Horace F. Borchert

This paper is a preliminary report on the nesting birds of the Itasca State Park area in Becker, Clearwater and Hubbard counties, Minnesota; more specifically, it is a summary of the bird nests found there in 1954.

In 1954, the University of Minnesota operated its summer Biological Station at the Park from June 14 to July 17. These dates departed from the custom of former years when a Freshman Forestry camp took up the early part of the summer, and the Biological Station itself was operated late in July and in August. The new schedule obviously lends itself to long-range studies of the breeding birds of this region. Among these are opportunities to determine the mean clutch size of each nesting species, the mean number of young successfully fledged, the kinds of trees used, nest heights, nest measurements and so on. The present paper is simply a start in this direction.

METHODS — This study was run as a general inquiry to which 31 persons at the Biological Station contributed. Students and staff were asked to record nests on lists that were posted on three bulletin boards on the campus. This information was sometimes supplemented by personal interviews. In addition, Borchert visited the nests on the campus and subjected the more accessible of these to systematic observation and direct measurements; these are reported elsewhere. (Campus nests of the Phoebe were more intensively studied by Sister M. Emilene and T. D. Cotton; those of the Chipping Sparrow were left to W. D. Stull.) A mirror attached to an 8-foot pole was used to inspect some nests, and an Abney level (kindly furnished by the Forest Ranger's office) was used to obtain heights of nests and nesting trees on the campus.

RESULTS—A total of 126 individual nests (representing 41 species) was reported in this survey (Table I). Three colonial species were reported in less detail. The only Bank Swallow colony within the park contained 10 holes, another near the Lake Itasca post office contained about 140 holes. The latter was one of the largest in the area adjacent to the Park. In both cases the number of holes actually used in 1954 was unknown, but the 140 were found in a rapidly eroding bank and had every appearance of recency. As Bank Swallows seem to take advantage of every small road cut in this region, their two nest sites cited in our list have a token significance only. Two other colonial species were listed in this survey: the Great Blue Heron (roughly 100 nests) and the Purple Martin (4 colonies with an unknown number of pairs in each). The total number of species was 44, and the total number of nests exclusive of martins 376.

TABLE I. GENERAL LIST OF BIRD NESTS

(C/10=clutch of 10 eggs; Y/2 = brood of 2 young; Y/? = young being fed; dates in square brackets are calculated)

Vernacular names of birds here follow those used in R. T. Peterson's *A Field Guide To the Birds* (1947)

Station — Species — When Found — Contents — Location — Observer

105 Great Blue Heron; 7/12, 100 nests; S. of Nicollet Cabin; L. L. Darrow

7 Mallard; 6/18, C/10; Nicollet Creek; Galati, Nelson

50 Bald Eagle; 6/21, Y/2; Sw. corner W. Arm Itasca; N. Zaczkowski

130 Osprey; 7/5, Empty, ad. bird on nest; Bohall Lake; L. L. Darrow

116 Ruffed Grouse; 6/27 or 28, C/9 hatched; 0.3 mi. N. on 71, Aspen; M. B. and J. J. Hickey

95 Ruffed Grouse; 6/29, Y/out; ½ mile S. on 71; J. S. Regenfuss

80 Black Tern; 6/29, C/3; 17½ miles N. Itasca P.O.; C. J. Shontz

81 Black Tern; 6/29, C/3; 17½ miles N. Itasca P. O.; C. J. Shontz

82 Black Tern; 6/29, C/3; 17½ miles N. Itasca P.O.; C. J. Shontz

83 Black Tern; 6/29, C/2; 6/30, hatched; 17½ miles N. Itasca P.O.; C. J. Shontz

125 Black Tern; 7/1, C/3; Pond nr. E. entrance Park; C. J. Shontz

126 Black Tern; 7/2, C/2, Clutch completed; E. entrance Park; C. J. Shontz

127 Black Tern; 7/2, C/2, Clutch completed; E. entrance Park; C. J. Shontz

128 Black Tern; 7/3, C/3, Clutch completed; E. entrance Park; C. J. Shontz

129 Black Tern; 7/11, C/3, Clutch completed; E. entrance Park; C. J. Shontz

8 Ruby-throated Hummingbird; 6/16, C/?; Birch W. of ice house; L. L. Darrow

8 Ruby-throated Hummingbird; 7/13, Y/2 fledged; Birch W. of ice house; J. J. Hickey

49 Belted Kingfisher; 6/19, "Nesting"; Sw. side N. Arm Itasca; N. Zaczkowski

2 Yellow-bellied Sapsucker; 6/15, Y/?; Lind Saddle Trail, aspen 10' up; J. J. and M. B. Hickey

47 Yellow-bellied Sapsucker; 6/21, Y/?; Back of labs, birch; P. B. Hofslund

74 Yellow-bellied Sapsucker; 6/29, Y/?; Birch E. old mess hall; Sister M. Emilene

112 Yellowbellied Sapsucker; 7/15, Y/?; Aspen N. buffalo pen 6' up; J. J. Hickey

3 Arctic 3-toed Woodpecker; 6/16, Y/?; 7/2, fledged by Dead red pine, 50' up Lind Saddle Trail; J. J. and M. B. Hickey

62 E. Kingbird; 6/24, Ad. brooding; Schoolcraft Island; E. W. Orr

102 E. Kingbird; 6/25, Y/2; Tamarack stub, W. Arm L. Itasca; W. F. Classon, N. Zaczkowski

44 Crested Flycatcher; 6/20, Active nest; Ash snag near dump, 20' up; P. B. Hofslund

12 Phoebe; 6/15, Y/5; Stn. boat house; Guy Marshall

12 Phoebe; 6/30, 5 banded (later found dead); M. B. Hickey

13 Phoebe; 6/18, Y/?; Ornith. Lab.; P. B. Hofslund

19 Phoebe; 6/18, C/1, Y/4; Headwaters refreshment stand; Ornith. Class

19 Phoebe; 6/22, Y/3 banded, C/1 present; Headwaters refreshment stand, M. B. Hickey

Station — Species — When Found — Contents — Location — Observer

24 Phoebe; 6/21, Y/5 banded; Oldtimer's Cabin; G. G. Robinson, M. B. Hickey

29 Phoebe; 6/22, C/1; Old Park Hdq.; M. B. Hickey

31 Phoebe; 6/22, Y/2; 6/28, 2 banded; St. Hdq. garage; M. B. Hickey

32 Phoebe; 6/22, Y/5; 6/20, Y/5 fledged; Bathing beach; M. B. Hickey

33 Phoebe; 6/22, C/5; 7/11, Y/5 present; Park Museum; M. B. Hickey

38 Phoebe; 6/23, Y/5; "Bert's Cabins"; M. B. Hickey

38 Phoebe; 7/2, 5 fledged; "Bert's Cabins"; R. Haber

39 Phoebe; 6/28, C/3 (+ 1 egg smashed on ground); Ranger Stn.; M. B. Hickey

40 Phoebe; 6/23, Y/5 banded; Forest Inn; M. B. Hickey

41 Phoebe; 6/16, Y/5; Old mess hall; P. B. Hofslund

41 Phoebe; 6/16 to 20, fledged; Old mess hall; T. D. Cotton

64 Phoebe; 6/23, Y/5 fledged; Cabin 23; M. Dean

66 Phoebe; 6/29, C/4; Ladies wash rm.; M. Dean

68 Phoebe; 6/30, C/4; Cabin 50; M. E. Boys, Sister M. Emilene

69 Phoebe; 6/26, C/4, 2nd clutch; Old Mess Hall; Sister M. Emilene

70 Phoebe; 7/3, C/4, completed; Ornith Lab.; Sister M. Emilene

75 Phoebe; 6/23, C/1, Y/4, 2nd clutch; Parkview Lodge; M. B. Hickey

118 Phoebe; 6/22, Y/4, banded; Serv. shed No. 64; J. J. Hickey

119 Phoebe; 7/6, C/4, 2nd clutch; Serv. shed No. 64; Sister M. Emilene

120 Phoebe; 6/21, C/4; 7/7, Y/4, banded; Doug. Lodge Employees' Quart.; M. B. Hickey

5 Wood Pewee; 6/17, Building nest; Red pine, 40' up, Lind Saddle Trail; J. J. Hickey

20 Wood Pewee; 6/15, Active nest; White pine, fork to shop; Ornith. Class

45 Wood Pewee; 6/21, Ad. brooding; by 7/4 destroyed; Aspen, 35' up, LaSalle Trail; P. B. Hofslund

121 Purple Martin; 6/13; Junction 71 and 92, Under a porch!; J. J. Hickey

122 Purple Martin; 6/13, Martin box; Headwaters Inn; M. B. Hickey

123 Purple Martin; 6/23, Martin box; Douglas Lodge; J. J. Hickey

124 Purple Martin; 7/11, Martin box; Parkview Lodge; J. J. Hickey

111 Tree Swallow; 7/5, Active; Stump, S. Elk Lake; W. F. Classon, N. Zaczkowski

63 Bank Swallow; 6/29, ca. 140 holes; ¼ mile N. Itasca P.O.; G. G. Robinson

71 Bank Swallow; 6/30, ca. 10 holes; LaSalle Trail E. of 92; J. J. and M. B. Hickey

36 Rough-winged Swallow; 7/13, 6 fledged; E. bank by boathouse; T. D. Cotton

65 Cliff Swallow; 6/26, Y/5 (ready to leave nest); Miss. R. bridge No. 92; P. H. Monson

43 Black-capped Chickadee; 6/19, Y/?; 16' up, dead elm, Bear Paw Point Trail; P. B. Hofslund

10 Red-breasted Nuthatch; 6/16, Y/?; 12' up, red pine at Station dump; P. B. Hofslund

10 Red-breasted Nuthatch; 6/28, fledged; 12' up, red pine at Station dump; H. F. Borchert

9 House Wren; 6/18, C/? (Aband.); Service Building 64; P. B. Hofslund

Station — Species — When Found — Contents — Location — Observer

14 House Wren; 6/18, Active; Stn. electric meter box; G. Marshall

113 Short-billed Marsh Wren; 6/24, "New" nest; Field-marsh N. Park; J. E. Knapp and A. C. Ahlquist

53 Catbird; 6/24, C/3; by 6/29, Destroyed; Cattail-sedge marsh; A. C. Ahlquist and J. E. Knapp

60 Catbird; 6/27, Y/4; 7/3, fledged; Parkview Resort; H. F. Borchert

107 Catbird; 7/7, Building; Schoolcraft Island; E. W. Orr

6 Robin; 6/16, Y/3 + —; S. Campground Road; J. H. Shutts

17 Robin; 6/18, fledged by Caretaker's house; W. Nelson

27 Robin; 6/21, Being built; Spruce NW Campus circle; T. D. Cotton

28 Robin; 6/22, C/4; Old park headquarters; J. J. and M. B. Hickey

30 Robin; 6/22, C/4; 6/30, C/2 Y/2; Park headquarter garage; J. J. and M. B. Hickey

67 Robin; 6/22, Y/4; Inside building No. 63; G. G. Robinson *et al.*

23 Veery; 6/27, C/4; White pine-hardwoods; J. H. Shutts

35 Veery; 6/23, C/4; White pine-hardwoods; J. H. Shutts

76 Veery; 6/19, C/4; White pine-hardwoods; E. Bellis

76 Veery; 6/23, Hatching; White pine-hardwoods; J. H. Shutts

76 Veery; 7/1, Y/4, banded; White pine-hardwoods; M. B. Hickey

34 Golden-crowned Kinglet; 6;23, C/9; Entrance Rd., campus; R. Galati

16 Blue-headed Vireo; 6/15, C/2; N. Cabin 34; F. Willis

16 Blue-headed Vireo; 6/27, Abandoned; N. Cabin 34; J. H. Shutts

18 Red-eyed Vireo; 6/19, C/1 (Cowbird); S. end of campus; P. B. Hofslund

27 Red-eyed Vireo; 6/22, C/4; E. park office; white oak, 8' up; M. B. Hickey

42 Red-eyed Vireo; 6/19, C/1 (new); Near Cabin 5; J. J. Hickey

61 Red-eyed Vireo; 6/29, C/4; Front of Cabin 20; E. W. Orr

72 Red-eyed Vireo; 6/27, C/2+1 (Cowbird); Basswood N. boathouse road; Bro. Robert Staub

89 Red-eyed Vireo; 7/3, C/3; Fir W. of shop; W. D. Stull

93 Red-eyed Vireo; 6/26, C/3; Basswood S. icehouse; P. B. Hofslund

96 Red-eyed Vireo; 7/5, C/1 Y/3; Bohall Trail 4' up, hazel; A. C. Ahlquist and J. E. Knapp

106 Red-eyed Vireo; 7/8, Building; Schoolcraft Island; E. W. Orr

115 Red-eyed Vireo; 6/26, C/2; Lind Saddle Trail, 11.5' up, 3' out; J. J. Hickey

110 Red-eyed Vireo; 6/30, Y/4; 6' up, spruce, Jack-pine area; A. C. Ahlquist and J. E. Knapp

79 Golden-winged Warbler; 6/29, Y/4; LaSalle Trail; E. W. Orr

25 Nashville Warbler; 6/21, C/5; LaSalle Trail, tamarack bog; H. Menke

78 Nashville Warbler; 6/29, C/1 (cowbird), Y/1 (cowbird); LaSalle Trail; E. W. Orr

134 Yellow Warbler; 6/23, C/4; Easy St. .7 mi. N. 72; B. O. Krogstad

84 Yellow Warbler; 6/30, C/1; Squaw Lake Area; W. F. Classon and N. Zaczkowski

94 Myrtle Warbler; 7/2, Y/?; S. mess hall; F. Willis, H. Menke

Station — Species — When Found — Contents — Location — Observer

4 Oven-bird; 6/16, C/5; Red Pine Forest; J. J. Hickey

77 Oven-bird; 6/20, C/3+2 (cowbird); Bellis' study area; E. Bellis

92 Oven-bird; 7/5, C/2; Lind Saddle Trail; J. J. Hickey

117 Mourning Warbler; 7/5, Y/1+1 (cowbird), yg. left nest; Bear Paw Pt. Trail; P. B. Hofslund

48 Yellow-throat; 6/14, C/5; Robert's Trail; P. B. Hofslund

85 Yellow-throat; 7/1, C/4; Spruce-Tamarack; A. C. Ahlquist and J. E. Knapp

86 Yellow-throat; 7/1, C/4, by 7/4, Destroyed; Field, N. part Park; A. C. Ahlquist and J. E. Knapp

97 Yellow-throat; 6/25, C/1 Y/3; Jack pine, E. of 92; A. C. Ahlquist and J. E. Knapp

104 Yellow-throat; 7/12, Y/2 fledged; N. boundary road; P. B. Hofslund

73 Redstart; 6/29, Y/3; Birch E. old mess hall; Sister M. Emilene

109 Redstart; 7/13, C/1 Y/3; Cut-over area; J. E. Knapp and A. C. Ahlquist

26 Red-wing; 6/19, Y/4; Marsh, E. Squaw Lake; R. D. Nelson

51 Red-wing; 6/24, C/4; Sedge-cattail swamp, LaSalle Trail; A. C. Ahlquist and J. E. Knapp

52 Red-wing; 6/28, Y/4, downy; LaSalle Trail; A. C. Ahlquist and J. E. Knapp

57 Red-wing; 6/28, Y/3 ½ gr., 6/28, 2 N. empty; LaSalle Trail; A. C. Ahlquist and J. E. Knapp

103 Red-wing; 7/5, Y/3; Stevens Pond; Algae class

131 Red-wing; 6/30, C/1 Y/3 new, 5 N. empty; LaSalle Trail; A. C. Ahlquist and J. E. Knapp

132 Red-wing; 7/9, Y/4, 1 wk.; LaSalle Trail; A. C. Ahlquist and J. E. Knapp

87 Rose-breasted Grosbeak; 6/26, Y/4; by 7/9, Empty; Red Pine Area, Bohall Trail; A. C. Ahlquist and J. E. Knapp

101 Towhee; 7/13, C/1 Y/3; Jack Pine, E. of 92; A. C. Ahlquist and J. E. Knapp

46 Junco; 6/24, Y/4; Lind Saddle Trail, on ground; P. B. Hofslund

1 Chipping Sparrow; 6/14, C/2; 6/20, hatched; N. Cabin 5; M. B. Hickey

11 Chipping Sparrow; 6/16, C/2 Y/2; Sw. of Service Bldgs.; P. B. Hofslund

11 Chipping Sparrow; 6/20, Destroyed; Sw. of Service Bldgs.; J. J. Hickey

15 Chipping Sparrow; 6/18, C/1 (abandoned); E. of labs.; Susan Hickey

21 Chipping Sparrow; 6/19, C/3; 6/21, Emptied; Se. parking lot; R. O. Nelson

37 Chipping Sparrow; 6/21, C/4; Nr. boathouse; W. F. Classon

55 Chipping Sparrow; 6/24, C/4; S. of path to Nelson's; W. D. Stull

56 Chipping Sparrow; 6/22, Y/4; N. of parking lot; W. D. Stull

58 Chipping Sparrow; 6/26, Young; Front of labs.; M. B. Hickey

59 Chipping Sparrow; 6/28, C/4; Nw. corn. circle; W. D. Stull

88 Chipping Sparrow; 6/30, C/4; Se. of parking lot; M. B. Hickey

90 Chipping Sparrow; 7/3, C/4; S. of old mess hall; W. D. Stull

91 Chipping Sparrow; 7/3, C/2; E. end circle; W. D. Stull

114 Chipping Sparrow; 7/4, Y/4; Headwaters Inn; J. R. Young

54 Clay-colored Sparrow; 6/25, C/4; by 7/8, Destroyed; Cut-over Jack pine; A. C. Ahlquist and J. E. Knapp

Station — Species — When Found — Contents — Location — Observer

98 Clay-colored Sparrow; 6/25, C/1 (abandoned); Jack pine, E. of 92; A. C. Ahlquist and J. E. Knapp

100 Clay-colored Sparrow; 7/8, C/5; Jack pine, E. of 92; A. C. Ahlquist and J. E. Knapp

99 Song Sparrow; 7/5, C/3; Schoolcraft Island; E. W. Orr

108 Song Sparrow; 7/9, Y/4; Schoolcraft Island; E. W. Orr

DISCUSSION — In an initial survey of this sort, it is hardly possible for us to comment on the earliness or lateness of 1954 as a nesting season. Among the nests which we regarded as rather late was a clutch of 10 Mallard eggs hatching after July 2 and a clutch of 9 Ruffed Grouse eggs which hatched either on June 27 or 28. With additional experience in this type of investigation, members of the Biological Station will need to fix their attention on certain species which lend their nesting activities to an index of this type.

One need scarcely add that the number of nests for a given species in Table I generally reflects its conspicuousness and its readiness to nest on the station campus where our observations tended to be concentrated. This is particularly noticeable in the case of the Chipping Sparrow and the Phoebe. Both species were the subject of intensive studies by others.

Two colonial species, the Bank and Cliff Swallow, were, however, extremely conspicuous just outside the Park but received proportionately little attention in this survey.

Another bias in Table I lies in the absence of species whch fledged their young before the Station personnel became very active in the field. This would of course include such early nesters as the Canada Jay and the Great Horned Owl (neither of these are, however, common birds in Itasca State Park).

With these limitations in mind, we feel at least justified in pointing out that the Yellow-bellied Sapsucker was the most commonly reported woodpecker in the Park, that Red-eyed Vireo nests outnumbered Blue-headed Vireo's ten to one, and that (in addition to the Chipping Sparrow which W. D. Stull plans to continue to study) the Phoebe, Bank Swallow and Red-eyed Vireo represent promising opportunities for students of nesting behavior in this region.

SUMMARY — In a cooperative survey of the breeding birds in the Itasca State Park area, some 373 nests of 42 species are reported here in varying detail. Bank Swallows (chiefly outside the Park boundaries) were the commonest colonial bird. The Yellow-bellied Sapsucker was the commonest woodpecker. Red-eyed Vireos outnumbered Blue-headed Vireos ten to one.

University of Minnesota Biological Station
Itasca State Park

Banding Bank Swa

By Walter

Nesting sites are selected in clay banks, gravel pits or sand stone cliffs. The swallows perforate these up to two feet — lay as many as five eggs.

For selective specie banding, a "hair net" trap is placed over the entrance. The birds usually come out after one waits with patience.

Here a "bank net" made of metal conduit and curtain netting is moved along quickly trapping many birds in one operation.

llows in Minnesota

A. Jiracek

The individuals are carefuly removed and examined, data taken and a very small aluminum band attached to the tarsus.

The Bank Swallow is released after the data is recorded and checked. Often times the bird will lie contented in the hand for a few seconds before flying off.

Unharmed, the Bank Swallows gather in the evenings. Results of banding have revealed that these birds winter in Peru or Brazil and return to us each year.

Report on 1954 M. O. U. Field Trips

by

Lewis Barrett

About 185 species of birds were seen by bird watchers who participated in the four field trips sponsored by the Minnesota Ornithologists' Union during 1954. A considerable variety of birdlife was observed on these jaunts, including five species of geese, 20 species of ducks, 26 species of shore birds and 15 species of hawks. Many ornithological treats were experienced on these excursions including the finding of such uncommon species as the Snowy Egret, Sandhill Crane, Old Squaw, Northern Phalarope, Avocet, Snowy Owl, Burrowing Owl, Duck Hawk, Golden Eagle and Lark Bunting.

Approximately 300 bird watchers from Minnesota, North Dakota, South Dakota, Wisconsin, Illinois, Missouri. Nebraska, Washington, Canada and Sweden participated in these excursions. In February about 100 observers took part in the North Shore trip. In April 45 birders travelled to Sand lake, South Dakota to see the spring waterfowl migration. Memorial day week end 11 hardy bird enthusiasts journeyed on an ornithological trek to the grassland formation of North Dakota to study the shore bird migration, breeding waterfowl and nesting prairie song birds. In September about 145 observers climbed the Duluth bluffs to watch the fall hawk migration.

This series of field trips was planned and conducted by the M.O.U. field trip committee with the cooperation of the affiliated societies. Members of the committee included the chairman Lewis L. Barrett, John Futcher, Bill Pieper and Vera Sparkes of Minneapolis; Doris and Joel Bronoel, P. B. Hofslund and Evelyn Putnam of Duluth, Robert Hanlon of Mankato and O. A. Rustad of St. Paul.

On February 19 and 20 the trip to the North Shore of Lake Superior provided an opportunity to see such boreal species as Glaucous Gulls, Old Squaw, Canada Jays, Ravens and others. Although there were fewer Old Squaws, Golden-eyes and American Mergansers than usual, some unusual wintering ducks were observed, such as, Buffleheads, Greater Scaups and Mallards. A half dozen Glaucous Gulls were found in the flocks of Herring Gulls which were the most common water birds seen on Lake Superior.

Along the North Shore in winter one usually finds some of Minnesota's most scenic views. When food is abundant the snow clad coniferous forest attracts an abundance of wildlife. White-tailed deer were abundant on February 20, 1954 as indicated in a count of 37 deer observed between Two Harbors and Grand Marais. Winter birds, such as Evening Grosbeak, Pine Grosbeak, Redpoll, Black-capped Chickadee, Blue Jay, Downy and Hairy Woodpeckers, Ruffed Grouse and Rough-legged Hawks were seen in about the usual numbers. However, the absence of certain wintering species, such as Red-breasted Nuthatch, Hudsonian Chickadee, Slate-colored Junco, Purple Finch, Goldfinch, Pine Siskin, Northern Shrike, Pileated Woodpecker and Bald Eagle was especially noticeable. A flock of crows was an uncommon sight in winter on the North Shore.

One of the highlights of this midwinter outing was the annual dinner meeting held on Saturday evening at Pigeon river where 55 Americans from Minnesota and about a like number of

Canadians dined together in a fine example of international cooperation between bird watchers of these two nations.

The second field trip was held the week end of April 9 to 11 when 33 bird watchers journeyed to Fergus Falls, Minnesota and later were joined by 12 additional travellers at Sand Lake Refuge in South Dakota. Friday night we stayed at Fergus Falls, and early the next morning drove with Norman Ordahl of Fergus Falls to Rothsay, Minnesota to see and hear Prairie Chickens on their booming grounds. One of the main objectives of this trip was to see Sandhill Cranes. We found Prairie Chickens, Sandhill Cranes, Whistling Swans, Snowy Owls, and flocks of migrating Lapland Longspurs, Flickers and Horned Larks. We counted 106 Sandhill Cranes in the fields, dancing in their nuptial performance, and these big waders could be viewed to advantage when they flew overhead at close range trumpeting melodiously.

Our itinerary included stops at Mud lake and Lake Traverse in western Minnesota where we saw several thousand Canada Geese, about 30,000 Blue and Snow Geese and flocks of White Pelicans and Whistling Swans. Between Traverse and Sand lake we saw eight Snowy Owls.

Sand Lake Refuge in South Dakota is well known for its tremendous flights of geese in early April and we were not disappointed as there were an estimated 300,000 Lesser Snow and Blue Geese in the refuge at the time of our visit. As we watched from the highway, tremendous clouds of geese rose from the marshes until the sky was literally filled with phalanxes of Wavies. All afternoon flights of honking geese flew overhead, including Canada Geese, Lesser Canada Geese and White-fronted Geese.

The Lesser Scaup was the most common duck seen at Sand lake. Other divers using the refuge were the Redhead, Canvasback, Ring-neck, Goldeneye, Buffle-head, Ruddy Duck, American Merganser and Red-breasted Merganser. Mallards and Pintails were the most common surface feeding ducks, while Baldpates, Gadwalls, Blue-wing and Green-wing Teal and Shovelers occurred in smaller numbers. The White Pelican, Whistling Swan, Cormorant, Pied-billed Grebe, Great Blue Heron, Coot, Herring Gull, Ring-billed Gull and Franklin's Gull were other water birds that inhabited the refuge.

Some early migrating shore birds were seen on this trip, such as Avocet, Greater and Lesser Yellowlegs, Pectoral Sandpiper, Baird's Sandpiper, Semi-palmated Sandpiper, Wilson's Snipe and Killdeer. The Marsh and Sparrow Hawks were the most commonly observed birds of prey, while the Red-tailed and Rough-legged Hawks were next in order of abundance. The Golden Eagle, Bald Eagle and Swainson's Hawk were uncommon. Two Burrowing Owls were found at Sand Lake Refuge, and we watched two Short-eared Owls in a hay field near Aberdeen, South Dakota. One of the highlights of the trip was the recording of 12 Snowy Owls some of which could be studied at close range. Of the song birds, the American Pipit, Red-shafted Flicker, Snow Bunting, Lapland Longspur, McCown's Longspur, and Chestnut-collared Longspur attracted particular attention. A list of 82 species of birds was compiled on this trip.

Memorial day week end, May 29 to 31, found 11 enthusiastic bird students making a round trip of about 1200 miles to the grasslands of North Dakota. In addition to stops in Minnesota our itinerary included Lidgerwood, Oakes, Wishek, Napoleon, Devils Lake and Grand Forks in North Dakota.

Birding was excellent at Lake Traverse where we found the Cormorant, White Pelican, Least Bittern, Green-winged Teal, Gadwall, Baldpate, Lesser Scaup, Redhead, Willet, Wilson's Phalarope, Franklin's Gull, Yellow-headed Blackbird and Alder Flycatcher. A migration of Eastern and Western King-

birds and Nighthawks were observed in this area. A deciduous woodland on the east side of Lake Traverse contained Black-billed and Yellow-billed Cuckoos, Scarlet Tanagers, Baltimore and Orchard Orioles, Rose-breasted Grosbeak, Crested and Least Flycatchers, Veery, Bluebird, Wood Peewee and Red-headed Woodpecker.

A short visit was made to Sand Lake Refuge in South Dakota where we observed Western Grebes, White Pelicans, Canvas-backs, Ruddy Turnstones, Long-billed Dowitchers, Western Willets and White-rumped Sandpipers. A Piping Plover was incubating four eggs in a nest lined with tiny pebbles. Ducks nesting in the area were Mallard, Pintail, Gadwall, Baldpate, Blue-wing Teal, Shoveler and Ruddy Duck. The Pied-billed Grebe, American Bittern, Black-crowned Night Heron, Coot, Forster's Tern, Black Tern, Long-billed Marsh Wren and Yellow-headed Blackbird were summer residents nesting in the marshes of the refuge. The Blue Goose and Snow Goose still lingered in this area at this late date as a few geese were seen along the James river just north of the refuge.

Birds are found in great abundance on the plains of North Dakota in spring. Late May is an excellent time to visit the marshes and prairies of the Flickertail state to observe birds. North Dakota is one of the top-notch places in the United States for studying nesting water birds. In a year when precipitation is normal there is a large breeding population of breeding waterfowl in eastern North Dakota. Most of the potholes and marshes are inhabited by nesting ducks. From the roadside one can observe ducks at very close range.

Lidgerwood Slough was one of our first stops in North Dakota, and here we saw the Western Grebe, Eared Grebe, Redhead, Pintail, Shoveler, Ruddy Duck, Willet, Wilson's Phalarope, Red-backed Sandpiper, Semi-palmated Plover, Franklin's Gull, Common Tern, Black Tern, Northern Yellow-throat, Yellow-headed Blackbird and Bobolink. Near Cogswell we found Canada Geese, Blue Geese, White Pelicans and European Partridge.

The town of Oakes is located in an excellent birding area, and we found the Oakes golf course particularly interesting for bird watching. One of the prize finds of our trip was a Snowy Egret observed feeding in the company of Black-crowned Night Herons on the James river near the Oakes golf course. In the same vicinity we saw an American Merganser. The short grass prairie in this area was inhabited by Marbled Godwit, Western Willet, Upland Plover, Chestnut-collared Longspur, Horned Lark, Western Meadowlark, Western Kingbird, Vesper Sparrow, Savannah Sparrow, Marsh Hawk and Short-eared Owl. At dusk we watched Burrowing Owls hunting mice.

Shore birds were one of the major objectives of the expedition to North Dakota. On the mud flats of the numerous shallow prairie marshes and potholes we found an abundance of breeding waders and flocks of migrating shore birds enroute to their Arctic breeding grounds. We saw about 90 Avocets, and it is probably the most attractive summer resident frequenting the alkaline ponds of the Flickertail state. Western Willet, Marbled Godwit, Wilson's Phalarope, Piping Plover, Upland Plover, Killdeer and Spotted Sandpiper also nest in the prairie pothole country. The Hudsonian Godwit was the rarest shore bird seen on the trip. The flocks of migrating shore birds consisted of Ruddy Turnstone, Semi-palmated Plover, Black-bellied Plover, Sanderling, Long-billed Dowitcher, Northern Phalarope, Greater and Lesser Yellowlegs, White-rumped Sandpiper, Red backed Sandpiper, Pectoral Sandpiper, Semi-palmated Sandpiper, Baird's Sandpiper and Least Sandpiper.

One of the most productive spots for water birds was a lake located about a mile northwest of Napoleon where the highway traversed a neck of land that

separated the deeper lake from a large marsh. Many shore birds were seen here. This lake also attracted the Common Loon, Western Grebe, California Gull, White Pelican, Cormorant, Canvasback, Herring Gull, Ring-billed Gull, Franklin's Gull, Common Tern, Black Tern, Gadwall and Pintail.

Devil's lake was another choice spot for water birds. There was an estimated 5000 shore birds observed at vantage points on this extensive lake as well as flocks of Redhead, Lesser Scaup and other ducks. About 500 Northern Phalaropes were seen feeding in a single flock. The commonest shore birds were Baird's Sandpiper, Semi-palmated and Least Sandpipers. California Gulls, Sanderlings, Semi-palmated Plovers, Yellow-bellied Flycatcher and Swainson's Hawk were found in this area, as well as nesting Red-tailed Hawks.

The song birds of the grassland formation were of special interest to those of us who were accustomed to seeing woodland species. Some western species characterize the birdlife of the rolling plains. As we travelled the wide stretches of prairie we observed on telephone wires and posts the Sparrow Hawk, Migrant Shrike, Western and Eastern Kingbirds, Chestnut-collared Longspur, Brewer's Blackbird, Western Meadowlark, Horned Lark, Savannah Sparrow and Vesper Sparrow. Colonies of Cliff Swallows nested in the concrete culverts and under bridges. Occasional Red-tailed or Swainson's Hawks were seen soaring over the treeless horizons of the rolling plains. One of the most fascinating birds of the high rolling prairie was the gaily attired Lark Bunting. This bird is characterized by a butterfly-like flight. The Lark Bunting was especially common near Wishek and Napoleon where we recorded 63 individuals in a single afternoon. Most of these were singing males, although we did see a few plainly garbed females.

Not only does North Dakota possess an abundant avifauna, but it also has an attractive population of mammals. We had opportunity to view the following mammals: Richardson's ground squirrel or flickertail, striped ground squirrel, pocket gopher, muskrat, jack rabbit, badger, red fox and white-tailed deer.

The final field trip in the series was conducted the week end of September 18 and 19 when the bird watchers visited the rocky bluffs of Duluth. This area has become a mecca for bird students who wish to observe hawks, and Duluth is gaining a reputation as one of the best places in the United States for visiting the fall migration of the birds of prey.

Saturday it rained and the weather was unfavorable for the flight. Sunday the weather cleared and a fine flight of hawks developed during the morning. In the four hour period between nine and one o'clock 1400 hawks were tallied, while a total of 2400 hawks were counted during the day. At Duluth in one day in the fall one can usually see more hawks than could be observed during an entire year at any other station in this state.

Twelve species of hawks were seen at Duluth on September 19. The Sharp-shinned and Broad-winged Hawks were the most abundant species. Hawks seen in moderate numbers were the Sparrow Hawk, Cooper's Hawk, Marsh Hawk, Red-tailed Hawk, Osprey and Pigeon Hawk. The Turkey Vulture, Goshawk, Bald Eagle and Duck Hawk were the least common. In addition to the birds of prey, other fall migrants were observed at Duluth, such as Golden Plover, Black-bellied Plover, Sanderling, Horned Grebe, Olive-sided Flycatcher, Philadelphia Vireo, Nashville Warbler, Myrtle Warbler, Black-throated Green Warbler, Palm Warbler and Pine Siskin.

It is interesting that a few birds, such as the Ring-necked Pheasant, American Merganser, Herring Gull, Crow and Blue Jay were recorded on all four excursions. Just as certain species of birds showed up on the check list on every field trip, four bird watchers,

Evelyn Putnam of Duluth, Mrs. E. R. Selnes of Glenwood, Miriam and Lewis L. Barrett of Minneapolis went on all four of the field excursions. A great many of the birders participated in three of the four outings. The majority of participating observers came from Minneapolis, Duluth and St. Paul. Other Minnesota towns that were represented included Chisholm, Excelsior, Hopkins, Glenwood, McGregor, Northfield, Owatonna, Robbinsdale, White Bear and Worthington. Needless to say the cooperation and paticipation of the M.O.U. members and affiliated societies helped to make this first series of field trips sponsored by the M.O.U. a marked success. — *Minneapolis, Minnesota.*

PROGRESS REPORT ON MEMBERSHIP

MOU members were informed (President's Page, June 1954) of the change in publication procedure and of the resulting financial crisis through which we have been passing in the last few months. We set up an ambitious goal of 750 members for our membership committee. To date, this goal has not been reached. Although we are definitely optimistic about reaching it within a reasonable time, we must at the same time warn all our members not to sit back and relax thinking that we are "over the hump". We are not. Our treasurer, Mrs. Mary Lupient, reports that our membership as of March 8, 1955 is about 600. This is an increase of 175 since starting our membership drive — certainly a commendable increase. Our membership committee under Robert Hanlon's leadership is to be congratulated, but, at the same time, they must be helped to finish the job.

It will interest you to know that our 600 members come from as far away as Maryland to the east, California to the west, Texas to the south and latest reports are that 14 Canadians take *The Flicker*. Mrs. Lupient reports that many of our new memberships are coming in from persons not solicited directly, but who have seen or heard of the magazine through friends. This is a very healthy indication that the magazine is selling itself, which is exactly what your publications committee had hoped, and it was on this basis that your policy committee decided to undertake the whole project of improvement of the magazine. This emphasizes the fact that you need only to show *The Flicker* to a friend to add another subscriber. So please, take a few minutes now and then to do just that, and, with only a little help from everyone, we will soon have our membership up to the point where its continued publication will be assured.

We appreciate all the help that members have given to this campaign and especially we want to single out for commendation those who have started our list of sustaining members with contributions of $5.00 instead of the usual $2.00 required for active membership: E. Floyd Bell, Merrill Claridge, Dorothy Heegaard, I. S. Lindquist and W. R. Luwe. We hope these will be the first of a long list of sustaining members.

Publications Committee
Mrs. Mary Lupient
Dr. Dwain Warner
Dr. W. J. Breckenridge, Chairman

Ornithologists' Union Winter Paper Session

The first winter paper session of the M.O.U. was held in the Museum of Natural History, University of Minnesota, on Saturday, December 4, 1954.

Over 100 members and visitors registered for the meeting and much interest was shown in the many fine papers that occupied most of the day. A reception was held in the museum at the close of the afternoon meeting. The evening session consisted of a movie entitled "Yours for a Song" and an illustrated lecture by president Lewis L. Barrett entitled "Along Nature's Highways Via Maine and the Gaspe."

At the business meeting starting at 2:00 p.m., the following amendments to the constitution were unanimously approved:

Article IV of the consittution pertaining to annual dues be amended to read:

1. Active Member, $2.00
2. Sustaining, $5.00
3. Honorary Member, No Dues
4. Life Member, $50.00 (for life)
5. Patron, $100.00 or more
6. Affiliating Member Club — 25 members or less, $5.00; 26 to 100 members, $10.00, over 100 members $15.00

Article VI relating to the Policy Committee be amended as follows: "The Policy Committee shall be composed of the immediate past president, the five officers of the Union, a representative appointed by each affiliated Bird Club and the chairman of all standing committees."

That that portion of *Article VII* relating to Standing Committees be omitted: "The chairman of each standing committee shall be selected from membership of the policy committee."

Article VIII, paragraph 1 be amended to read as follows: "The official publication of the union shall be known as *The Flicker*. The editor, an officer of the Union, will be responsible for the publication of *The Flicker*. Assisting him will be two associate editors to be appointed by the editor."

Mrs. Mary Lupient made the following report of the financial status of the Union:

Cash on hand as of May 1, 1954	$1440.11	
Receipts — memberships	196.00	
Total available		$1636.11
Disbursements:		
National Audubon Society	100.00	
Printing and mailing expense	78.30	
Total disbursements		178.30
Cash on hand as of December 4, 1954		$1457.81

Outstanding bill of $71.00 for printing March issue of *The Flicker*.

The president stated that this was a crucial period in the history of the M.O.U. and with the increased cost of publishing *The Flicker*, it was necessary to increase the dues to the union and it would be the duty of every member to secure additional memberships to meet our obligations.

J. K. Bronoel, Secretary

Resolutions

To: Honorable Orville L. Freeman, Governor-elect of the State of Minnesota:

Be it resolved that the members of the Minnesota Ornithologists' Union, recognizing that conservation of natural resources is basically a problem in science, hereby go on record urging the appointment of competent administrators for the Minnesota Conservation Department. It is imperative that the appointees be men of professional training and experience in resource management or executives aware of and sympathetic toward the basic principles of conservation and apart from partisan politics.

Be it resolved that the Minnesota Ornithologists' Union expresses its sincere thanks to the Minnesota Bird Club, the museum staff, and the participating speakers in appreciation for their successful efforts in preparing this winter meeting.

Resolutions Committee:
Orwin A. Rustad, Chairman
Dwain W. Warner
Dana Struthers
Wm. H. Longley

PROGRAM

MINNESOTA ORNITHOLOGISTS' UNION WINTER MEETING
MUSEUM OF NATURAL HISTORY, UNIVERSITY OF MINNESOTA
DECEMBER 4, 1954

9:30 a.m.

Opening Address — Mr. Lewis L. Barrett, President, M.O.U.

Papers Session

1. *Harry H. Goehring, Saint Cloud Teachers College — 15 min.
   "Picture Window Bird Mortality"
   "Tufted Titmouse Nesting at Saint Cloud"
2. *Gerald Robinson, University of Minnesota — 10 min.
   "Preliminary Survey of Cliff Swallow Colonies in Minnesota"
3. *Robert Hanlon, Mankato High School — 15 min.
   "Bird Watching in the Bahamas"
4. James R. Beer, University of Minnesota — 15 min.
   "Space Requirements of the Song Sparrow, Yellow Warbler and Red-eyed Vireo"
5. *Max Partch, Saint Cloud Teachers College — 10 min.
   "A Prairie Chicken Remnant in Morrison County"
6. *W. J. Breckenridge, University of Minnesota — 20 min.
   "Measuring the Habitat of the Least Flycatcher"
7. *Ben Fawver, Mankato Teachers College — 20 min.
   "Bird Populations of the Coniferous Forest Types of the Southern Appalachians"
8. Theodore Olson, University of Minnesota — 15 min.
   "Studies of Algae Poisoning"
9. *Dwain W. Warner, University of Minnesota — 15 min.
   "Winter Quarters of Some Northern Migrants"
10. P. B. Hofslund, University of Minnesota, Duluth — 15 min.
    "Hawk Migration and the Weather at Duluth"

Lunch

2:00 p.m.

11. L. D. Frenzel and William H. Marshall, University of Minnesota — 15 min.
"Some Observations on the Effect of the May 1954 Storm on Birds in Northern Minnesota"

Business Session

12. *James Kimball, U. S. Fish and Wildlife Service, Minneapolis — 20 min.
"Effect of Drainage on Waterfowl"

13. Richard J. Dorer, Minnesota Department of Conservation — 20 min.
"Minnesota's Wetland Program"

14. *Gerald Bue, Minnesota Department of Conservation — 20 min.
"Pheasant Studies on a Township Basis"

15. *Arnold Peterson, Saint Olaf College — 15 min.
"Egg Laying and Incubation of the Bank Swallow"

Reception — 4:00 p.m.

Evening Session

8:00 p.m.

*"Along Nature's Highways Via Maine and the Gaspe" by Lewis L. Barrett
"Yours for a Song" — Movie
*Illustrated

ANNOUNCEMENT

A short business meeting will be held either Saturday or Sunday evening during the spring field trip to Itasca Park. At this time officers of the M.O.U. will be elected for 1955-56.

CORRECTION

The title of the cover picture for the December, 1954 issue should have read A *Captive* Snowy Owl.

PROGRAM

1955 Spring Meeting Minnesota Ornithologists' Union
Lake Itasca Forestry and Biological Station
Itasca Park, Minnesota
May 28-30, 1955

Headquarters — The University of Minnesota Lake Itasca Forestry and Biological Station which is 5½ miles north of the main park entrance on the lakeshore drive. (The station entrance is marked by two large posts inscribed with "U. of M." on the west side of the road.)

Location — Itasca park entrance may be reached by U. S. No. 71 from Bemidji on the east or Park Rapids on the south.

Accommodations — Lodging will be in student cabins with bunk beds. Men and women will be in separate cabins. (If there is room, families may be accommodated as a unit.) Bedding will be provided. There will be group shower and toilet facilities available with hot water. The women's cabins have wash basin and toilet facilities.

Meals will be served in the mess hall but volunteer kitchen police and waiters will be called for.

Meetings will be in the assembly hall adjacent to the mess hall.

Costs — Cost for lodging and five meals will be $9.00 per person payable on checking in for bedding.

Reservations — Mail your requests for reservations to Dr. William H. Marshall, 300 Coffey Hall, University of Minnesota, St. Paul 1, before May 1. Reservations will be for the entire meetings.

PROGRAM

May 28 — Registration: 2 to 5 p.m. Saturday at the assembly hall. Pick your bunks and get settled down during this period.

Dinner: 6:00 p.m. — mess hall.

Preview of field trips: 8:00 p.m. — assembly hall
Welcome — Andy Peterson, Superintendent Itasca State Park.
The Biology Station — Dr. T. Schantz-Hansen
The Fertile Sand Dunes — Lewis L. Barrett
The Mud Lake Refuge — W. H. Marshall
Birds of Itasca Park — P. B. Hofslund.

May 29 — Breakfast: 7:00 a.m. — mess hall.

Field Trips: 8:00 a.m.

(1) Fertile Sand Dunes — Leader: Lewis Barrett
A 160 mile round trip west from the park on State Highway 113 (gravel) through Waubun to State Highway 32 thence north to the Polk county line and the Sand Dune area two miles southwest of Fertile. Return via State Highway 31 through Mahnomen and Roy Lake to State Highway 92, 15 miles north of the park. Box lunch in the field (bring thermos jugs).

On this trip you will see:
a. A virgin stand of maple-basswood

b. The spectacular break from the forests to the prairies of the Red River Valley
c. Productive pothole areas of unplowed high prairie
d. A "Mima Mound" area — exact origin unknown
e. The Fertile sand dunes with an open savannah type of vegetation and many western grasses and flowers. A striking example of sand dune stabilization by creeping juniper. Western and eastern song birds breed here in considerable numbers.

(2) Mud Lake Waterfowl Refuge — Leader: P. B. Hofslund.
A 250 mile round trip north on State Highway 92 to Bagley, west on U. S. No. 2 to Erskine, north on U. S. No. 59 to Thief River Falls, north on State Highway No. 32 to Holt, east on county road E (gravel) 17 miles to the refuge headquarters. Box lunch in the field (bring thermos jugs). Return by the same route.

At the refuge you will be able to drive to some of the dikes which afford excellent chances to observe a wide variety of marsh birds and waterfowl. The refuge management program will be explained by refuge personnel.

(3) Birding in Itasca Park
If you desire you can remain in the park and visit the many habitats available there all through the day. Box lunch in the field.

Dinner: 6:30 p.m. — mess hall

Evening: No special program. The fireplace in the assembly hall may serve as a gathering point.

May 30 — Early morning bird trips on the campus may be organized informally.

Bring your own alarm clocks or ear plugs as the case may be.

Breakfast: 7:30 a.m. — mess hall

Field trips:

(1) Lake Drive Caravan — Leader: Donald K. Lewis.
The 17 mile park drive provides many excellent birding opportunities.

(2) Informal bird trips in the park — Leader: P. B. Hofslund.
Habitats of special interest may be visited.

Lunch: 12:00 noon — mess hall.

Check out: After lunch bedding will be checked out and the return home begun at your convenience.

Prior to the meetings more detailed itineraries, plant, and bird lists will be prepared and distributed to the member clubs.

Remember, all reservations indicating the number of persons (age and sex) who will attend, *should be in by May 1.* We will try to accommodate families by units. If you are forced to cancel, please notify W. H. Marshall immediately.

Local Arrangements Committee,
D. K. Lewis
P. B. Hofslund
W. H. Marshall.

Seasonal Report

by

Mary Lupient

The longest period of above zero weather since the Weather Bureau began keeping records 64 years ago occurred this season. Temperatures dropped to the below zero mark for the first time, January 16. Minneapolis lakes were still partially open the first week in January, and one Coot and several Mallards were seen on Calhoun. The Mississippi river was open in the Twin Cities and the Minnesota river was open at Cedar avenue. In fact, these rivers were not entirely frozen over at any time during the whole winter. When cold weather did arrive it was sudden and severe. In Minneapolis, January 27, a strong north wind dropped the temperature from 10 above zero to 20 below in 12 hours. At International Falls it was 36 below. The weather moderated, but February 9 the cold returned and except for brief respites it remained through February. At times blizzards blocked roads in western and northern Minnesota, and storms of rain, sleet, and snow occurred in the east and south. At Warroad, February 24, the temperature dropped below 52° which was the lowest figure on the thermometers. The average temperature in February was five degrees below normal. Travel on icy streets and highways was hazardous.

A large flock of at least 500 Canada Geese and hundreds of Mallards wintered again in Rochester. Mallards, Black Ducks, American Golden-eyes and a few American Mergansers lived through the winter on the Mississippi and Minnesota rivers. On their Christmas census the Duluth Bird Club reported 194 American Golden-eyes. Participants on the North Shore trip, February 22, found the lake frozen as far as Grand Marais so observation of ducks was necessarily limited. Dr. D. G. Mahle took a Christmas census from Plainview to Kellogg including the Mississippi river in that locality. He saw 39 American Golden-eyes, two Ring-necked Ducks and two American Pintails. He also recorded a Red-shouldered Hawk in his report. Only three records of Red-tailed Hawks and two records of Goshawks were received. A few Sparrow Hawks were seen. One with an injured wing was brought to the Museum of Natural History where it is still living at time of this writing March 1. It has become very tame and will rest on the shoulders and hands of members of the staff. Sometimes it leaves them to fly to a perch and look back at them and utter its "killy, killy, killy" cry.

During the last week of January and the first few days of February the snow had melted leaving the ground bare in many places. Ring-necked Pheasants concentrated in these areas. The largest number seen by this writer was in the vicinity of New Brighton where approximately 100 fed in the fields, January 31. About 60 per cent of them were hens. Mathilde Henkel made a survey in Goodhue county, December 28 and reported six Hungarian Partridges. In his report Dr. Mahle recorded eight Bob-white Quail near Plainview.

A few Wilson's Snipes and Belted Kingfishers wintered near the Twin Cities and along spring-fed streams flowing into rivers. Killdeers were seen in a slough near Prairie Island, January 2, by Tim Knopp.

Three Glaucous Gulls and 584 Herring Gulls were recorded January 2 at Duluth by the Duluth Bird Club.

Only a few Mourning Doves were

reported as having remained in Minnesota this winter and only two records of Flickers were received. Strangely enough a number of Red-headed Woodpeckers braved the winter. Nine were reported from various sections, the most northerly being Cedar forest where three were recorded by the Minnesota Bird Club on the Christmas census. An Arctic Three-toed Woodpecker was seen at Cedar forest by Mrs. Donald B. Lawrence. On the same date in Cedar forest, Mrs. Cora Corniea observed a Canada or Grey Jay.

Red-breasted Nuthatches were unusually abundant around the Twin Cities, notably in Vadnais forest, St. Paul. They occurred also in other sections of the state. Black-capped Chickadees roamed in flocks and were unusually numerous at feeders. Several Tufted Titmice were noted at feeders and many Purple Finches patronized them also. A few Brown Creepers and Golden-crowned Kinglets lived in sheltered areas.

There was an influx of Bohemian Waxwings in the south half of the state. They occurred in large flocks, larger than normal. Flocks came several times to the yard at the home of Mrs. Anna Dodge, Wayzata. One flock numbered 78. A flock of approximately 150 was reported by R. E. Cole, February 5. They fed on crabapples in Sunset Memorial cemetery for several days. Four Robins and a male Evening Grosbeak accompanied them. David Merry saw a small flock of Bohemian Waxwings near Anoka, January 7, and Mrs. C. E. Peterson, Madison, stated one came to her yard, January 11.

Several reports of Meadow-larks came in from southern and eastern Minnesota. A few Bronzed Grackles also remained. Two were recorded on the Duluth Christmas count, and six were seen by the St. Paul Audubon Society near the Mendota bridge, Minneapolis, on their census. They saw three Brewer's Blackbirds in the same area.

About 50 Pine Grosbeaks lived during the first part of January at the Hill Farm near St. Paul. There were at least two flocks. A few lived at Vadnais forest too, along with a few Evening Grosbeaks. Mrs. William Davidson reported a flock of Evening Grosbeaks that spent some time at a feeder in St. Paul. At Duluth 154 Pine Grosbeaks and 160 Evening Grosbeaks were counted January 2. P. B. Hofslund stated that to date a large percentage of them is still there.

Tree Sparrows and Redpolls roamed the country-side in large flocks, some flocks numbering hundreds. No reports were received from the northwestern or southwestern sections, but they appeared everywhere else. Slate-colored Juncos were abundant and there were several records of the Oregon Junco. Dr. W. J. Breckenridge had two at his feeder all winter.

The vanguard of the Horned Lark migration had reached the outskirts of Minneapolis by January 30, an unusually early date. By the end of February their tinkling song could be heard from snow covered fields everywhere in spite of the cold weather.

A Hawk Owl that had been shot at Blackduck was brought to the Museum of Natural History, February 15, by Leo Manthei.

A late report from Mrs. C. .E. Peterson, Madison, stated that she observed a Spotted Towhee, October 15, 1954. — *Minneapolis, Minn.*

The Canadian Lakehead

Edited by
A. E. Allin

This has been a mild winter. Although the Lakehead suffered a severe storm on November 1, with a 10-inch snowfall, the weather remained mild throughout the remainder of the month which closed with another heavy snowfall on November 27-28. The temperature fell to —10° on December 6 and —15.2° on December 19. The mean temperature of 16.1° was well above the long term average of 6.7°. Although inland lakes and rivers were frozen in November there was little ice on the local harbors on Lake Superior until the end of December and it was mid-January before the ice extended much beyond the breakwater. The region received nine inches of snow on January 12 and severe cold spells occurred about the middle of the month and again at the end. A low of —29° was registered on January 29. At the end of January there was only 50 per cent as much snow present at outside points as a year ago. This should be of great benefit to our deer herds which have suffered severely from the deep snows of recent years.

Few unusual records were reported during the winter months. On December 24, we saw five Black Ducks and two Mallards in the Harbour. It is only during recent winters that these pond ducks have been reported. An occasional American Golden-eye was also seen. It is peculiar more ducks do not remain as long as there is open water since there is plenty of available food. The situation is in marked contrast to that of Grand Marais where ducks remain in numbers. Large flocks of gulls also remain at Grand Marais but few are seen at the Canadian Lakehead from early January until mid-March. A Ring-necked Pheasant was reported at Kakabeka Falls on December 26, the first seen in many years. This is undoubtedly one of the birds recently released as reported in our last contribution. Two Slate-coloured Juncos and three Purple Finches were also seen on December 26. These two species rarely winter here. Completely unexpected was an Eastern Bluebird seen by S. Robb in Chippewa park on December 30 and a Mourning Dove which I saw feeding beneath a grain-car on December 26. Both are new winter records. David Allin reported a Pigeon Hawk on January 25, the second winter record for this little falcon.

There is no apparent means of anticipating the number of Robins which may winter at the Lakehead. Several years ago they remained in numbers. This was attributed to a heavy crop of Rowan berries but a few years later the latter food supply was particularly abundant and few, if any, Robins were reported. This year the Rowans were again loaded with fruit, but only the occasional Robin has been reported in the cities. On December 26, however, 107 were seen on the Christmas census, the majority by Mrs. C. Rydholm who found them in the sheltered valley of the Kaministiquia river.

The American Rough-legged Hawk has been conspicuous by its absence. More Northern Shrikes have been reported than usual but they are less common than they were a year ago. Snowy Owls have occurred regularly, but the intrusion has not been particularly heavy. The Raven has appeared

in its usual numbers. They are occasionally seen in rural areas, but are more common about the cities where they replace the Herring Gull as a winter scavenger.

The Cedar Waxwing rarely winters at the Canadian Lakehead, although they have been reported in increasing numbers in the past decade. Usually these strays have been bedraggled-looking individuals when compared with their usual sleek appearance. This winter however they have remained in great numbers and appear to be healthy birds. C. E. Garton reported four on December 7. During the month they were seen in increasing numbers and 167 were recorded on December 26 in the Lakehead-Kakabeka Falls area. Large flocks were still present in early February. They have directly competed with Pine Grosbeaks and Starlings for food. At first the three species fed on Rowan berries, but when the supply of these was exhausted in mid-January, all species tured to the fruit of the Siberian crabapple. Bohemian Waxwings were first reported on November 7 (Dorothy Allin) and more were seen during November and December, but the expected invasion of these nomads had not materialized.

Although Pine Siskins and Redpolls have been uncommon, White-winged Crossbills, Pine Grosbeaks, and Evening Grosbeaks have been most abundant. The occasional White-winged Crossbill had been reported in September, but since November they have occurred in increasing numbers. In February they appeared in city parks where they fed on the cones of black spruce and white spruce. Pine Grosbeak usually appear in October but last fall they were first reported on November 7. By Christmas great flocks were present, not only in the cities but throughout the surrounding forests. No less than 838 were reported in the Audubon census area on December 26. At first they fed almost entirely on the Rowan seeds. By mid-January the supply of the latter was exhausted and they turned their attention to the seeds of the Persian lilac, a common shrub in Fort William. Soon this supply of food was also exhausted and the majority of the birds disappeared. The remainder then depended on the hard, frozen Siberian crabapples for sustenance. There is a poor crop of samaras on the green ash. In the past Pine Grosbeaks have used them as an apparent last resort but this has not been noticed this winter. Evening Grosbeaks appeared in numbers in mid-January and subsequently flocks consisting of up to 25 individuals have been seen daily. Their favorite food-tree is the Manitoba maple, and fortunately there is a heavy crop of keys on these trees. For the first time a few have been reported feeding on the green ash. In early February a male and two females commenced feeding on the hard, dry, frozen seeds of two Cotoneaster shrubs which grow on either side of our doorstep. Last winter a small flock completely stripped these bushes although we had not previously observed any winter birds utilizing these seeds for food.

The Thunder Bay Field Naturalists' club held its fifteenth Christmas census on December 26. In the early years we covered an area considerably greater than permitted by the Audubon rules. This year the same large area was again covered for comparison although a separate census was kept of a seven-and-one-half mile radius area for the purposes of the Audubon report. 4,122 individuals of 31 species were seen by 27 observers in 13 parties who travelled 25 miles on foot and 289 miles by auto. This compares with a previous total of 3786 individuals in 1953 and 29 species in 1947.

The following is a complete list of the species seen, together with the number of individuals: 2 Mallards, 5 Black Ducks, 7 American Golden-eyes, 3 Ruffed Grouse, 3 Hungarian Partridge, 1 Ring-necked Pheasant, 199 Herrings Gulls, 592 Rock Doves, 1 Mourning Dove, 14

Hairy Woodpeckers, 5 Downy Woodpeckers, 3 Canada Jays, 28 Blue Jays, 53 Ravens, 3 Crows, 125 Black-capped Chickadees, 2 Brown-headed Chickadees, 5 Red-breasted Nuthatches, 107 Robins, 5 Bohemian Waxwings, 167 Cedar Waxwings, 1 Northern Shrike, 323 Starlings, 1200 House Sparrows, 77 Evening Grosbeaks, 930 Pine Grosbeaks, 3 Purple Finches, 247 Common Redpolls, 4 Pine Siskins, 5 White-winged Crossbills, and 2 Slate-coloured Juncos. Three species, the Ring-necked Pheasant, Bohemian Waxwing and Slate-coloured Junco, were seen in the larger region, but not discovered in the official census area. The Ring-necked Pheasant and Mourning Dove were new species for our census lists. The Hairy Woodpecker, Raven, Black-capped Chickadee, Robin, Cedar Waxwing, Starling and Pine Grosbeak were reported in greater numbers than on any previous census.

Few banded birds have been recovered at the Lakehead, but reports of two have recently come to our notice. On October 29, 1953, R. Humphreys shot a Lesser Scaup in Fort William which had been banded on July 31, 1953, at Wilkie, Saskatchewan. On May 9, 1954, John Cavar found a Slate-coloured Junco dead in Neebing township, a victim of the severe storms of that period. This bird had been banded on March 7, 1953, by Mr. and Mrs. Maffitt, Gary, Indiana.

Various accounts have appeared of gulls dropping clams on hard surfaces to break the shells so that access might be had to the contents. Former members of the Thunder Bay Field Naturalists' club, Mr. and Mrs. C. Philpott, now residing in Victoria, British Columbia, recently told us of observing this phenomenon on the Pacific Coast. They also reported crows dropping walnuts from tops of telephone poles to obtain the meat. They added it was frequently necessary for the birds to drop the nuts many times before the shells were broken.

The Kaministiquia reporter for the Fort William Daily Times-Journal appears to be a keen observer and reports many interesting nature observations. On November 9, 1954, he described the activities of a pair of Blue Jays. A farmer dug his potatoes during the last two weeks of September. It was estimated each of the 1500 hills held one small potato. All of these were left on or in the ground. The jays carried all these potatoes away into the neighboring woods, extricating with their bills those potatoes which were only half-exposed.

To me, the Raven is our most interesting bird. Some years ago it had become quite rare probably because it was a ready victim of the strychnine placed in deer carcasses for the purpose of poisoning wolves. Today this rarely occurs and the Raven has rapidly increased and is a common winter sight. Usually single birds are seen, but occasionally they have occurred in numbers about mink farms and along the waterfront where they obtain food thrown to them from the elevators. The largest concentration we have had reported was a flock of about 150 seen in October, 1944, by T. A. Dunkin. They were feeding on the carcass of a deer which had been wounded by a hunting party two days earlier.

In the winter one knows it as a relatively silent bird flying noiselessly over fields and woods, or occasionally, uttering its hoarse croak. It is even more common in the cities where, in winter, it replaces the Herring Gull as a scavenger. By the end of March the Ravens pair off and they may occasionally be seen putting on their mating display. One March day, lying on my back in the snow, I attracted the attention of a pair which flew closer and closer until they were finally very close above me. Had I excited their curiosity or had they mistaken me for an injured animal? It was also on a spring day that I watched a Raven flying high in the air, with the ease of a Vulture. Suddenly it plunged hundreds of feet

downward and I wondered whether I had actually been watching a Peregrine. Then it turned over and again rose slowly to its original elevation and disappeared over the hills. At this period they tend to compete with the Crows now arriving from the south. On one occasion only, we observed an aerial combat between a Crow and a Raven, but were unable to determine which was victor.

By April, the Ravens have left the Lakehead and are nesting in our hinterlands. In July, 1941, a nest was found near Ignace, 100 miles west of Fort William. It was at an elevation of 25 feet in a balsam. On June 27, 1943, I found young Ravens scarcely able to fly at the mouth of the Kama river, 100 miles northeast of Port Arthur. It is said to breed in April on the high cliffs of the border lakes. Later in the summer in these forested areas Ravens regularly patrol the highways, feeding on the animals killed by speeding cars. They seem equally interested whether the victims are birds or hares, squirrels, or large insects. Much has been written of the Vulture's ability to find food. In the summer of 1954 we observed the same skill in a pair of Ravens and were convinced in this instance that it was based upon sense of smell rather than keen sight. Ravens were regularly seen flying near Black Sturgeon lake, north of Kenora, but we had never seen them attempt to come close to the camp in the many years we had holidayed in the area. This day, however, a pair kept close to the cabins for hours and it was evident they would have come to the dock area if people had not been constantly present. After a good deal of searching, I found a decaying medium-sized rock bass, half-buried in the sand.

In December, the Ravens return to their winter haunts although a few have reached Whitefish lake by early October. Tramping through the autumn woods after grouse, or huddled in a duck-blind on the lake we watch their tireless soaring flight above the high cliffs. Frequently their hoarse croak is the only sound to disturb the silence apart from the call of the Blue Jay or tapping of woodpeckers in the forest or the whistling wings of circling ducks or splash of breeding whitefish.

The Thunder Bay Field Naturalists' club held its annual meeting on January 31 and the following officers were elected for 1955: Col. L. S. Dear, honorary president; Dr. A. E. Allin, past-president; Keith Denis, president; Jack Murie, treasurer and Joan Hebden, secretary. The president reported on the highlights of the club's activities during 1954. These included Audubon screen tour, the joint meeting in February with members of the M.O.U. and a fall field trip to inspect a new nature trail recently opened by the Ontario Department of Lands and Forests in Sibley park. Six newsletters were published for a total of 35 pages. 205 species of birds were reported locally by club members during the year. Of these, the Arkansas Kingbird seen by D. Beckett on May 24 and the Caspian Tern seen by C. E. Garton on May 23, were additions to the local list. Of interest to anglers and ichthyologists was the report of maskinonge being taken at the mouth of the Pic river, northeast of the Lakehead on August 22. On August 13, an adult male carp weighing eight pounds was taken by William Legault at Rossport according to John Budd. On September 18, I caught an 82 mm. carp in Fort William harbour. These constitute the first two reports of this undescribable species in the western waters of Lake Superior, and also established the fact they are successfully breeding there. A few carp had been previously taken in the Nipigon watershed where it is believed they had been introduced as live bait. Similarly the smelt is now present in Walker's lake near Schreiber. This is an excellent trout lake and the possible effects of this introduction are awaited with some concern. These are two further examples of man's interference with nature. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

Notes of Interest

BANDED BALD EAGLE RECOVERED IN MINNESOTA — Daniel D. Berger banded an immature Bald Eagle at his trapping station at Cedar Grove, Sheboygan county, Wisconsin, on October 29, 1954. Mr. Berger believes this eagle was one which was in the area for at least several days before it was caught. Before releasing the eagle he double banded it. The first band was of the conventional type; the second band, an experimental type, was a long thin strip of metal with flanges which were bent around the strip where it overlapped so that the eagle could not remove it.

On December 2, 1954, Game Warden Fordyce Jensen contacted Game Biologist Maynard N. Nelson concerning an eagle which a trapper had caught south of Fairmont, Minnesota. When the trapper approached the slough there were three eagles on the ice eating dead fish which he had put out for bait. Two of the eagles flew off, but the third, being unable to fly, was easily caught by the trapper. Mr. Nelson notified the Bureau of Wildlife Development of the Minnesota Conservation Department and Robert A. Widmeier and I went down to Fairmont to get the eagle.

The eagle was in a shed when we first saw him. He made a grunting sound when approached that sounded very much like a pig. This was the only noise he made while in captivity. The eagle had a bruised or strained left wing, and one of its tail feathers was broken. There was some ice on the wings and the tips of the tail feathers had small chunks of ice on them. At some time between October 19 and December 2 the eagle had removed the conventional band and only the experimental one remained. This experimental band had been distended by the eagle so that it was now tear-shaped and the edges were somewhat crushed at the point of the tear.

Mr. Widmeier brought the eagle home, put jesses and a leash on him, and put him on a perch in his yard to recuperate. At first the eagle just sat and drooped his wings, but as his health improved he became wild again and was constantly trying to fly away. During this period the eagle was fed horsemeat. It was believed that it would be better if the eagle were released at a place where there was open water and less chance of being shot than in the suburbs of Minneapolis. On December 19, 17 days after the eagle was recovered, he was released on the bluffs along the St. Croix river near Stillwater. When it came time to release him we found that the experimental band was missing, so we put on another of the conventional type and hoped that he would not take this one off. The eagle was placed on the ground where it sat for a minute before he flew up onto a billboard. When Mr. Widmeier approached the eagle, he flew up river and was off on another mission for the Fish and Wildlife Service. — *Dana R. Struthers, Minnesota Division of Game and Fish, St. Paul.*

* * *

RECENT OBSERVATIONS OF BURROWING OWLS IN LYON AND YELLOW MEDICINE COUNTIES, MINNESOTA — On June 9, 1954, D. R. Clark of Porter, Minnesota, told me of seeing two Burrowing Owls on several occasions during the previous two weeks in Section 13, Township 114 North, Range 45 West, Yellow Medicine county. He stated that the two birds were located near the same alfalfa field every time he visited the area, which indicated that they probably were a mated pair.

I checked the area later that afternoon and readily located one Burrowing Owl which seemed very reluctant to leave the alfalfa field. During the time I cruised a small part of the field in search of an active burrow, the one owl kept close by, alternating its perch from fence posts to power poles to a rock pile in the middle of the field. At times I was able to approach as close as fifteen yards from the bird before it flew.

Several mounds of dirt and shallow burrows were located, all of which showed signs of having been inspected by the owls, but none was found which appeared to be used for nesting.

On two later dates, July 13 and July 23, the area was again visited and on both occasions two Burrowing Owls were observed. On the first of these two dates one owl was photographed from the roadside ditch while it sat on the powerline almost directly overhead. Pellets were also found on the mound by a burrow. No young or other positive sign of successful nesting was observed.

While searching for suitable sloughs in the vicinity of Milroy, Minnesota, on which to trap and band waterfowl in the company of Forrest B. Lee (Game Biologist, Minnesota Division of Game and Fish) late in the afternoon of July 18, 1954, two adult and three immature Burrowing Owls were observed in a pasture (Section 13, Township 111 North, Range 40 West, Lyon county). The two adults flew nervously from fence post to fence post or telephone pole as we watched from the car. One of the immature owls was at the entrance of a burrow rather close to the gravel road, and the other two were on a mound before a different burrow some one hundred yards from the same road. Eventually, the single young owl took flight and flew to join the other two. The three birds disappeared inside the burrow.

Two weeks later, late in the afternoon of August 1, this same family of owls was again observed. On this visit the two adults were perched at a distance on convenient fence posts, and two young were observed at the entrance to the more distant burrow. As I continued along the road the dried and flattened remains of the third immature owl were found on the roadside.

On September 7 I traveled the gravel road past this pasture again and as I drove by, one owl was observed. A final check of this area in October revealed that the temporary pasture which had been grazed to the grass roots was now plowed and all evidence of the family of owls had been obliterated. — *Gerald T. Bue, Minnesota Division of Game and Fish, Marshall, Minnesota.*

* * *

COMMON REDPOLL IN OTTER TAIL COUNTY — On December 28, 1954, Raymond Duenow and I were driving near Vergas in Otter Tail county, Minnesota, when we disturbed a flock of small birds on the roadside. In flight they behaved like Pine Siskins or Longspurs, though they seemed smaller than the latter. We stopped and watched them circle and wheel and finally settle down on a slanting roadside bank covered with weeds and small bushes. We found they were Common Redpolls, in number better than 75. Although we used the binoculars on them for more than half an hour, watching them feed and chase each other in the air and on the ground, we saw none of that whitish appearance which might indicate the Hoary Redpoll. We heard the usual "chut-chut-chut" notes and an occasional Siskin-like "bee-uu". The first notes are usually described as flight notes but here they were uttered while feeding. — *Herbert Krause, Augustana College, Sioux Falls, South Dakota.*

MAGPIE AT ROCHESTER, MINNESOTA — Received your letter yesterday in which you requested information about the Magpie Mr. Saari spoke or wrote about. It is quite true and the bird is authentic.

I saw a pair of Magpies 25 years ago on the Minnesota river bottoms near Mankato, Minnesota, and I have seen hundreds of the birds while deer hunting in Montana.

We first observed this single Magpie last fall during the migration of the Bronze Grackle. The Magpie stayed and was seen almost daily.

He (I presume) seemed lonely and on occasion would come at the same time a large rooster pheasant came for his feeding. The Magpie was playful and seemed to enjoy trying to get hold of the pheasant's tail. He tried the same trick with our squirrels too. Sometimes he came to our front porch which is covered overhead to eat peanut butter and suet we put out for Nuthatch, Downys, Chickadees, etc. Of course the goody-filled pine cone was out of his reach so we put out extra rations for him. We were gone for a week at Christmas time. I talked with Mr. Saari after Christmas. We saw the Magpie January 10, 1955. He followed the Blue Jays and hasn't been back so far as we know, although we watch for him. We could have taken excellent close-up pictures but I didn't consider it important and now I'm sorry I didn't. I shall endeavor to get a picture if the bird comes back. — *Ralph Hayes, Rochester, Minnesota. Editor's Note: The above letter was written to Arnold B. Erickson by Mr. Hayes. A second letter to Mr. Erickson dated January 22, 1955, states that the Magpie returned to Mr. Hayes' feeding station on January 16, 1955. Mr. Hayes was able to get seven photographs of the Magpie at that time.*

* * *

WHITE-WINGED CROSSBILL IN ITASCA PARK — The nest of the White-winged Crossbill has not been found in Minnesota. There seems to be little doubt, however, that it does breed in the coniferous regions of the state as there are occasional reports during the summer of family groups. On July 8, 1954 an adult male and three presumably immature birds were observed on the campus of the University of Minnesota Forestry and Biological station at Itasca state park. They were first seen in the morning by Hofslund, and were discovered again in the evening by Marshall. In the evening the four birds were observed by many members of the camp as they fed on the cones of white spruce that grew near the faculty cabins. — *P. B. Hofslund and Guy Marshall, University of Minnesota Forestry and Biological Station, Lake Itasca, Minn.*

PINE AND EVENING GROSBEAKS IN OTTER TAIL AND BECKER COUNTIES — On December 23, 1954, Roger Kolle, Marlo and Dale Krause and I discovered and identified a Pine Grosbeak feeding in an ash tree on the Otter Tail river in Friberg township, north of Fergus Falls. Although this apparently is not seen often in southern Otter Tail county, the grayish body, the dull yellowish head and rump, and the white bars on the darkish wings as well as the heavy bill clearly indicated the female of this species. We had a five-minute observation, watching it eat ash seeds before it flew. We watched the deeply undulating flight and heard a call, "Tee-er," repeated several times. It cracked ash seeds much as a Purple Finch does. On December 27, 1954, Raymond Duenow and I identified five Pine Grosbeaks in a park in Detroit Lakes, Becker county. We observed three females, one immature male (its reddish-colored rump suggested this) and one male in full plumage. The breast and head of this male were much more brilliantly red than plates of this species usually show. We heard neither calls nor notes. Those five individuals were feeding in ash trees.

On December 28, 1954, Duenow and I were driving along the shore of Loon lake, southwest of Vergas, in Otter Tail county, when we saw a chunky-looking bird flying in an undulating fashion and alighting in a tree. We investigated and found three Evening Grosbeaks, two males and a female, in a hackberry tree, eating the fruit. With them was a chilled-looking Robin and six Common Redpolls. We heard no calls or notes from the grosbeaks. The temperature was not far from zero that morning. — *Herbert Krause, Augustana College, Sioux Falls, South Dakota.*

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THE FLICKER

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THE COVER

The Showy Lady's-slipper — Courtesy of Olga Lakela

THE PRESIDENT'S PAGE

Editor's Note: The following letter was received from Burton Guttman, vice president of the Avifaunal club. It came too late to stimulate any concerted effort before the present legislature, but because Minnesota presents a somewhat unique position, particularly in regard to hawks, it is printed here with the thought of interesting the M.O.U. in a discussion of our present laws regarding predators, and to introduce at least one pattern of thought from which others may arise with regard to establishing a conservation program for the M.O.U. **P. B. H.**

In 1945, apparently exclusively through the efforts of the Minnesota Ornithologists' Union, protection was secured for all species of hawks and owls in the state of Minnesota, with the exception of the three Common Accipiters and the Great Horned Owl.

At that time, the MOU was perfectly willing to accept a law excluding these four species and, indeed, "admitted" the "destructive" nature of these birds, as in the release of the Bird Protection committee of the MOU dated 12 March 1945. It must be remembered that ecology, still today a very young science, was ten years younger then. Enough evidence had been built up to prove to you MOU members that most of our hawks and owls were actually valuable to the farmer in killing rodents, etc., but not enough to prove to very many that the so-called destructive ones were actually exercising a great deal of constructive force within natural populations and that no part of a community could be destroyed without serious repercussions.

If biology has advanced at all in the past decade, it has advanced certainly in ecology. It is impossible and unnecessary to list here the many papers and books now in our libraries expressing the modern viewpoint on this subject. It is enough to say that the value of all species of wildlife has been proven.

This is a legislative year and a new administration has just taken office. Therefore, the Avifaunal club proposes an all-out campaign by the MOU to secure the adoption of a model law protecting all hawks and owls in the state. The statute might read:

> It is unlawful anywhere in the State of Minnesota to molest or kill any species of hawk, owl, or eagle, including the following: (listing of common and technical names of all species of hawks and owls occurring in the state), or to remove or destroy the nests, eggs or young of any species of hawk, owl, or eagle; with the exception that a farmer may destroy those on the land he occupies when they are doing actual damage to livestock.

The adoption of such a law will certainly not stop killing of these birds; but it will give us some legal ground to stand on in our future efforts at education, and it will give us legal backing in our statement that there is no such thing as a "good" species or a "bad" species.

The fight will not be an easy one. It will require the enlistment of many people and the expenditure of much time. It may require speaking before public groups to explain our purpose; it will certainly require lobbying in the legislature. The aid of the press will be necessary. But most important we will have to conquer public opinion, which has many times proved itself opposed to such conservation; recently a short battle between the Avifaunal club and a few citizens in the Minneapolis Star over this subject brought this out.

Carried out correctly, the battle can be won; the end certainly deserves the effort that must be put into achieving it. And after this first effort there is more to be done: bounties must be eliminated, mammals such as the wolves, lynx and bobcats must be protected, and, most important, conservation policies must be divorced from politics and the pressures of special interest groups and the ignorant; but right now we are ready only for the first phase of this work.

We would like to hear opinions and suggestions from MOU members. But we emphasize that the time to act is right now.

Orchids of St. Louis County, Minnesota[1]

by

Olga Lakela

Among flowering plants, orchids perhaps more than other flowers, appeal to human interest. Orchid, the word itself, brings to mind illusions of luxury, subtle elegance, coveted beauty with glimpses of distant places of tropical splendor. Their irresistible charm with extravagant floral patterns arouse emotions and pique the imagination. Although creative nature denied some orchids the brilliant hues and the embellished petal, she lavished on all of them mystery and intrigue in the symmetry of the flower, the column, and the tell-tale lip as tokens of identity.

Orchids have a wide general distribution from the tropics to boreal regions. Those growing in St. Louis county present a representative assemblage of northern species in the interior of North America. In the heart of the continent, the county, covering more than 7000 square miles of land and water, extends from Lake Superior to the Canadian boundary. The northern half embracing in part the Superior National Forest, includes the westernmost extension of what is known as the Quetico-Superior Wilderness area. The vast forested area with bogs, lakes and stream banks provide many habitats suitable for orchid flora. Of the some 40 species occurring in Minnesota, 28 have been found in St. Louis county.

Orchids are perennial herbs of variable habits of growth. With the exception of a few saprophytes lacking chlorophyll, they are green plants capable of manufacturing their food. The erect stems grow from slender or tuberous rhizomes, bulbs, corms, or coralloid rhizomes as in Coral-root orchids. The roots are fibrous, cord-like or thickened in clusters; the parallel veined leaves are alternate, usually with sheathing bases, but sometimes they are reduced to non-green scales.

Vegetatively, orchids and lilies are similar plants, but their flowers are very different. The orchid flower is irregular in symmetry with a three-carpellate inferior ovary. Attached to its summit is the six-parted perianth. The three outermost segments are the sepals, similar in form, and usually colored like the petals; sometimes the two lateral sepals are fused together, wholly or partly, beneath the lip, as in lady's slipper orchids. The three inner perianth segments are the petals, two of which are alike; the third lowermost petal is the lip, variously modified and sometimes prolonged into a spur at its base; it is really the uppermost petal in the flower, but during development, the flower bud turns 180 degrees on its axis inverting the floral organs and causing the familiar twisted look of the ovary. Such a flower is resupinate; some orchid flowers are non-resupinate. The column at the center of the flower declining toward the lip is peculiar to orchids. It is formed by the fusion of the style and the stamens. In higher orchids there is only one anther in a cavity (clinandrium) near the summit of the column; in lady's slippers there are two anthers borne laterally on the column a short distance below its summit; the petaloid staminode, the remnant of the third stamen, on the upper side. The three stigmas are situated on the ventral side in front of the anthers; one of them in higher orchids forms the rostellum to

1. Credit for figures should go to Miss Ardis Peterson for figure 1 and to Miss Elizabeth Jerabek for figures 2 to 15. Miss Barbara Amyotte lettered the figures.

aid in pollinations. Stigmas are sticky usually, but in lady's slippers they are papillate. Pollen occuring in masses, pollinia, may be waxy or granular. Fruit is usually a dry one-celled capsule with many small seeds, with immature embryos at the time of dispersal.

Orchids are insect pollinated. The stigmas and the anther on the column are so located that the insect seeking nectar comes in contact with the stigmas upon which it leaves the pollenmass it may be carrying; as the insect leaves the flower it contacts the anther, carrying the pollen mass to another flower. Orchid flowers have evolved intricate devices for alluring insects to ensure pollination. Without pollination, fertilization does not occur and hence, no seeds.

A Key to the Genera of Orchids Growing in St. Louis County.

The orchids of the world are almost as divergent and dissimilar in form as they are many in number. On the following page will be found a key to this large and colorful plant family. Although taking various colorings and forms, there are some basic similarities which may be noted. If the reader is making

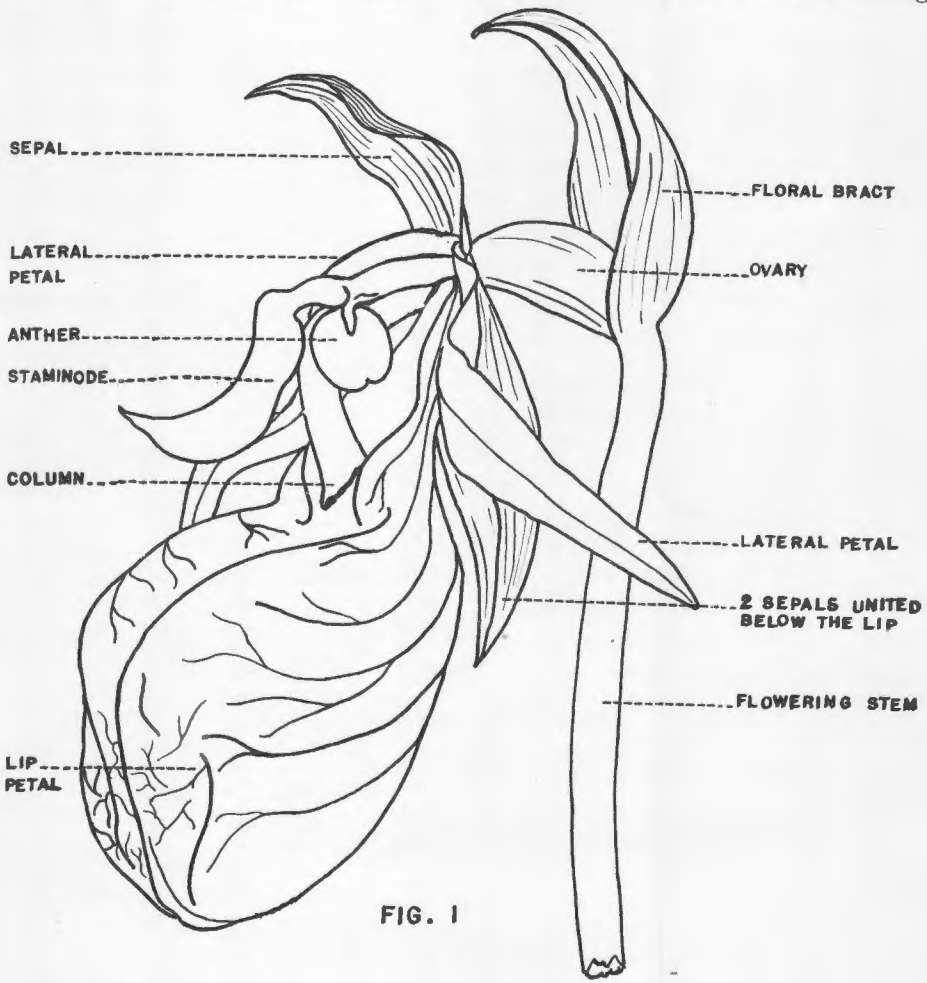


FIG. 1

his first visit to the land of orchids, he will find it profitable to study the diagram of a Stemless Lady's-slipper. Names of the parts used in this drawing are interchangeable among many of the orchids described in this booklet. The names will be used frequently in listing the characteristics of each orchid.

1. Anthers 2, lip slipper-like, inflated — 1. *Cypripedium* (Lady's-slipper) p. 49

2. Anther 1, lip not inflated
   (1) Flowers solitary or in clusters of 2-3
      a. Plants growing from corms
         (a) Leaf basal, ovate, lip showy, pendent, with a double spur at apex, column entirely winged — 2. *Calypso* (Fairy Slipper) p. 53
         (b) Leaf cauline, linear, column winged at arching apex, petaloid
            m. Flowers usually 2-3, bright pink, lip uppermost, leaf present during flowering — 3. *Calopogon* (Grass-pink) p. 55
            n. Flowers solitary, lip lowermost, arching, recurved, leaves absent during flowering — 4. *Arethusa* (Swamp-pink) p. 56
      b. Plants growing from fibrous rootstocks, leaf elliptical near mid-stem, lip and column coarsely toothed. — 5. *Pogonia* (Rose Pogonia) p. 58
   (2) Flowers in racemose to spicate clusters
      a. Flowers with spur
         (a) Lip 3-lobed spotted with magenta, roots cord-like — 6. *Orchis* p. 58
         (b) Lip variously modified, unspotted flowers greenish-yellow, rarely pink or white, lip not spotted, roots thickened — 7. *Habenaria* (Rein orchid) p. 59
      b. Flowers without spur
         (a) Plants leafless, chlorophyll lacking, rhizomes coralloid — 8. *Corallorhiza* (Coral-root) p. 65
         (b) Plants with green leaves
            m. Plants growing from corms
               (n) Lip entire, lowermost leaves two, basal shiny — 9. *Liparis* (Twayblade) p. 67
               (m) Lip cleft, uppermost leaf solitary, at mid-stem — 10. *Malaxis* (Green Malaxis) p. 69
            n. Plants growing from elongate or fleshy fascicled roots
               (m) Flowers yellowish-green, leaves 2, cauline, near the mid-stem — 11. *Listera* (Lister's Twayblade) p. 72

(n)	Flowers white, leaves several, mostly basal, roots tuberous in clusters	
	(x) Lip saccate, leaves reticulate with white lines, inflorescence secund or loosely spiral	12. *Goodyera* (Lattice-leaf) p. 74
	(y) Lip ovate to oblong, leaves without reticulations, inflorescence conspicuously twisted.	13. *Spiranthes* (Ladies' Tresses) p. 76

1. Cypripedium. Lady's-slipper

Lady's-slipper are perhaps the most showy and better known native orchids in northern vegetation. They are named for the foot of the goddess of love and beauty. (*Cypripedium* meaning, foot of Cypris-Venus.) Shoes so ethereal as the flowers of lady's-slipper afford befitting adornments for celestial feet. The plants are pubescent (hairy); their stems bearing alternate prominently veined leaves, grow from short rhizomes and strong cord-like roots. The terminal flowers, usually one to three, are distinguished by their inflated lip petals opposed by the declining column with two lateral anthers and the petaloid staminode above it.

In lieu of nectaries, the lady's-slipper orchids allure pollen carriers through scent and color appeal. Contrary to the human senses, those of insects may detect fragrance in the apparently scentless ones. Bees, wasps, and wood-boring beetles may be encountered in lip petals. An insect enters into the lip at the orifice from which colorful veins spread out converging toward its base. In the opalescent interior, lined with toothsome hairs for hunger appeal as well as for snug comfort, the insect following the bright guidelines is further attracted by light beams above it through the two openings, one on each side of the column. To reach either opening, the insect must force its way under the declining column where the roughened stigmas remove from its body the pollen it may be carrying from another flower. An anther conveniently blocks the opening; as the insect struggles, pollen from anthers contacts the back of the golden-winged carrier where it is carried to another flower. For effective pollination and for mutual benefit, the insect's body must fit and conform to the parts of the flower. An over-sized insect failing to make a proper departure is doomed to perish amidst the transitory delights of its rainbow sepulchre.

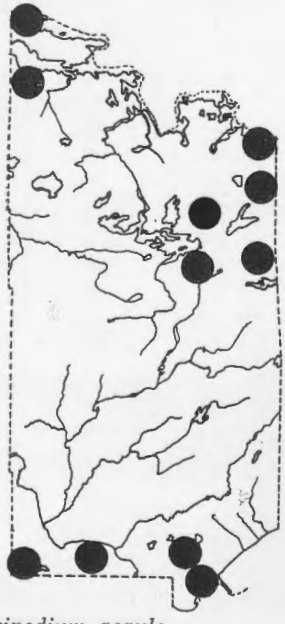
Lady's-slippers growing in the area may be recognized by the following differences:

1. Stems appearing leafless, the 2 leaves basal lip saccate, inflated, pink, rarely white	1. *C. acaule* (Moccasin flower)
2. Stems leafy throughout	
(1) Sepals and petals white except the lip which is spotted and suffused with red	2. *C. Reginae* (Pink and white lady's-slipper)
(2) Sepals greenish-yellow to purple	
a. Stems up to 25 in. high, sepals greenish-yellow	3. *C. Calceolus* var. *pupescens* (Yellow lady's-slipper)
b. Stems usually less than 20 in. high, sepals purple	var *parviflorum* (Small yellow lady's-slipper)

1 a. Cypripedium acaule Ait. Moccasin Flower, Stemless Lady's-slipper

To a layman, all lady's-slipper orchids are moccasin flowers. However the Moccasin flower traditionally by established usage is the preferred name for the so-called stemless lady's-slipper. Perhaps the loosely saccate lip is more suggestive of a moccasin than a slipper.

The plants are softly pubescent (hairy). The stem usually less than 18 inches high grows from a short rhizome held fast to the soil by strong, firm roots, at its base close to the ground level arise two yellow-green leaves, oblong-ovate in shape. The solitary flower, rarely two, at the apex of the naked stem is subtended by a leaf-like eliptical bract. The roseate pendant lip with tracery of bright veins, cleft nearly to the base, forms a fissure between the unfolded margins. The two lateral petals are lanceolate, greenish-purple in color, like the sepals two of which have united together beneath the lip. The petaloid rhombic staminode well covers the broad abruptly ending column with an upward turn of its margin.



• *Cypripedium acaule*

Forma *albiflorum*, referring to a flower with a white lip, is rarely encountered.

Moccasin flowers blooming from late May to past midsummer thrive under wilderness conditions from the wooded borders of sphagnum bogs through the rocky pine forests of the north. Upon ascending ledges of granite overlooking the wilderness waters where pillowy mosses glisten in summer showers, the clustering plants each year renew and enhance the beauty of their environment with their full-blown blossoms.

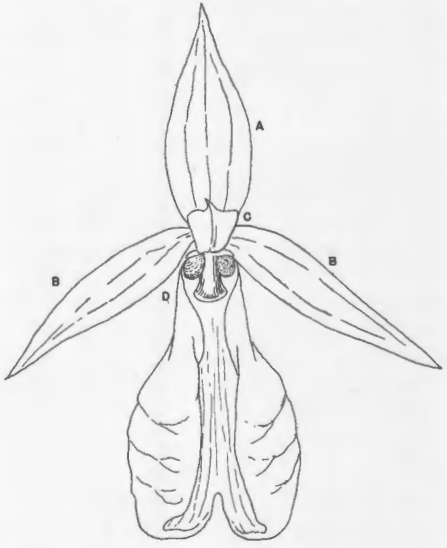


FIG. 2

Fig. 2 *Cypripedium acaule.* Face view of flower to show the cleft lip (a. top sepal, b. lateral petals, c. staminode lifted up to show the underlying parts, d. column flanked by anthers).

1 b. Cypripedium reginae Walt. Pink and White Lady's-slipper

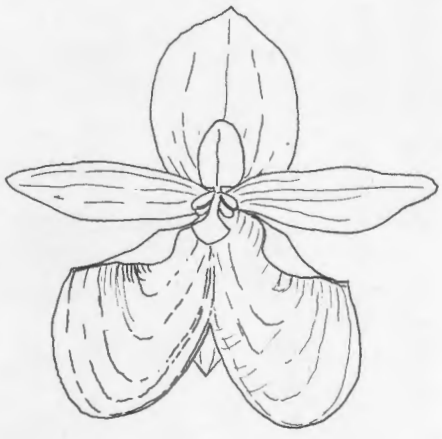
The Pink and White Lady's-slipper is the state flower of Minnesota. This regal orchid, the tallest of the lady's-slippers with stems over 24 inches high, flowers from late June through July. The plants are pubescent, with several leaves along the stem. The terminal flowers, one to two, rarely more, are

subtended by leafy bracts. The sepals are pure white, the uppermost broadly ovate, the two lateral ones are united beneath the lip. The lateral petals, broadly lanceolate, are also white, but the lip petal, longer than the other perianth segments, is suffused with crimson, spotted and striped with madder purple. The lip is pouch-like with an orifice (opening) on the upper side, with lobed folded-in margins toward the narrow base below the column. The broadly ovate, crimson-spotted staminode with a bluntly semi-circular fan-shaped apex and the two prominent anthers, each on a divergent short filament covers the column.

It is profoundly satisfying to slip into some open glade of a spruce-tamarack bog to find these glorious plants in flower. They rim the dark pools of the earth's peaty reservoirs with glimmering heavens in their hold. They cluster in the far reaching vistas where Hermit Thrushes sing with ancient gladness and where earthly essences mingle with resin scent of the conifers. Rapturous bees among beckoning flowers ful-

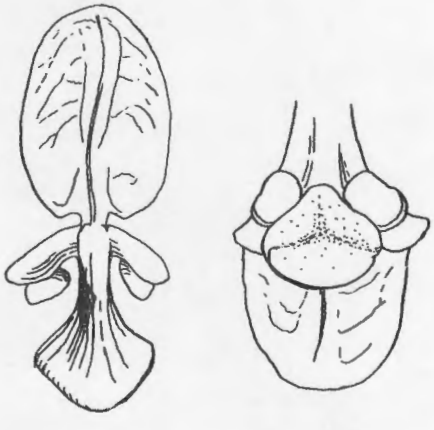
• *C. reginae*

Fig. 3 *Cypripedium reginae.* Upper part of plant in flower.



3A

Fig. 3A. Lip cut open to show folded-in margins.

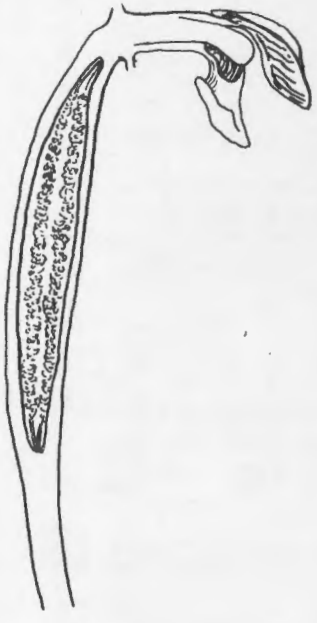


3B 3C

Fig. 3B. Staminodium, (petaloid third stamen) lifted up to show the column and anthers, fan chaped column apex, upper side.

Fig. 3C. Underside of column with staminodium to show the three united stigmas.

fill their mission as they regale themselves with nectar. Petal upon petal unfurls in the budded flowers of the queenly slippers, each whiter than the floating cloud against the serene sky. Their threading roots in the layering mosses and the living green of their leaves, through a miracle of creation, crown with life the inanimate earth. For its continuance, the crimson petals afford rewarding treasures to purposeful pollinators. An age-old fraternity so precisely timed to the rythmic flow of life is a part of the primeval nature. In such primitive wildernesses along will survive the surpassingly beautiful Pink and White Lady's-slipper, the state flower of Minnesota.



3D

Fig. 3D. Capsule beaked by the column and flower remnants.

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1 c. Cypripedium Calceolus L. Yellow Lady's-slipper

C. Calceolus, meaning a little shoe, has a wide distribution in northern Europe and Asia. One of the American varie-

ties is *C. Calceolus* var. *pubescens*, the large Yellow Lady's-slipper.

Its pubescent stem attaining the height of more than 24 inches bears 4-5 sheathing leaves. The flowers, one to two, are stalked in the axils of the floral bracts. The uppermost sepal is lanceolate with undulate margins and prolonged to a tapering apex. The sepal underneath the lip is cleft at the apex. The lateral petals, narrowly linear and twisted like the sepals, are greenish purple in color. The golden lip extending out nearly horizontally from the summit of the arching ovary is variegated with madder purple, the darker lines converging toward the base. The stalked, purple-dotted staminode with a heart-shaped base conceals the wedge-like column bearing the two anthers on short but prominently diverging filaments.

The small Yellow Lady's-slipper var. *parviflorum*, differs from the larger variety by its smaller flowers, shorter stems and fewer leaves, usually two to three, and by the purple color of its sepals. Golden slipper orchids, another vernacular name, are fragrant. The beauty of these graceful plants is enhanced by the streamer-like, spiralling petals which are longer than the lip. They flower in June along swampy borders of bogs, and in their northern limits they are frequently found associated with Pink and White Lady's-slippers. Sometimes they thrive in mixed hardwood forests of conifers and hardwood. Like others they thrive and perpetuate only under wilderness conditions. On the distribution map var. *pubescens* is indicated by a black circle; var. *parviflorum* by a black triangle.

C. Calceolus
● var. *pubescens*
▲ var. *parviflorum*

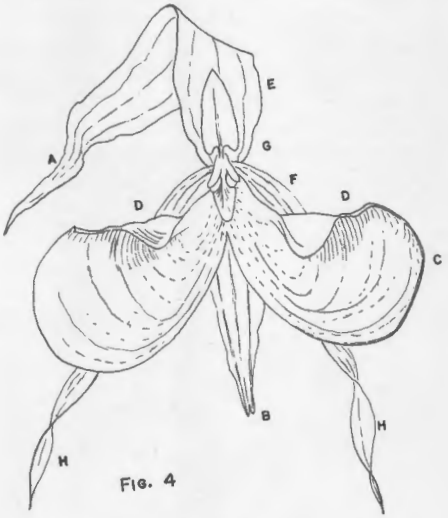

FIG. 4

Fig. 4. *Cypripedium Calceolus* var. *pubescens*. Flower cut open to show its interior (a. top sepal, b. cleft apex of the 2 united lateral sepals, c. lip with interior guide lines, d. folded-in margins of orifice, e. staminodium, f. wedge-shaped column, g. stalked anthers, h. twisted lateral petals).

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2. Calypso bulbosa (L.) Oakes. Fairy Slipper

Calypso outrivals northern orchids in sheer beauty. The plant, growing to a height usually less than seven inches, arises from an ovoid to depressed corm with a few delicate roots and clusters of

coralloid rhizomes. From another bud of the same corm, a single leaf develops in later summer, it persists through the winter, but withers soon after flowering. Its petiole usually as long as the blade, widens out to a grooved apex from which the ovate blade, bluish-green with undulate margins, expands abruptly and terminates in a tapering tip. The scapose stem with two basal sheaths usually suffused with purple bears the solitary flower in the axil of a delicate floral bract. In the nodding flower the upward pointing sepals and the two median petals are similar in form and in color, varying from deep to pale purple, or rarely pure white. The scuff-like lip, striped and variegated with madder purple, shading to yellow, is prolonged in twin spurs overlaid with an everted marginal fold. The sheer overlapping fold is adorned with three tufts of yellow hairs, each with clustering studs of madder purple.

Calypso, a flower of secluded haunts, is a name with imagination befitting of its elfin-look. In wilderness areas it still flowers abundantly from May through June. Whether in numbers or alone, Calypso's singular beauty quickens the senses with living wonders of nature. In canopied aisles of a white cedar forest, where unseen rivulets spring within the pillowy mosses, Fairy Slippers, caught in the searching light rays, transcend above reality. The sweet earth holding them in embrace, veils

• *Calypso*

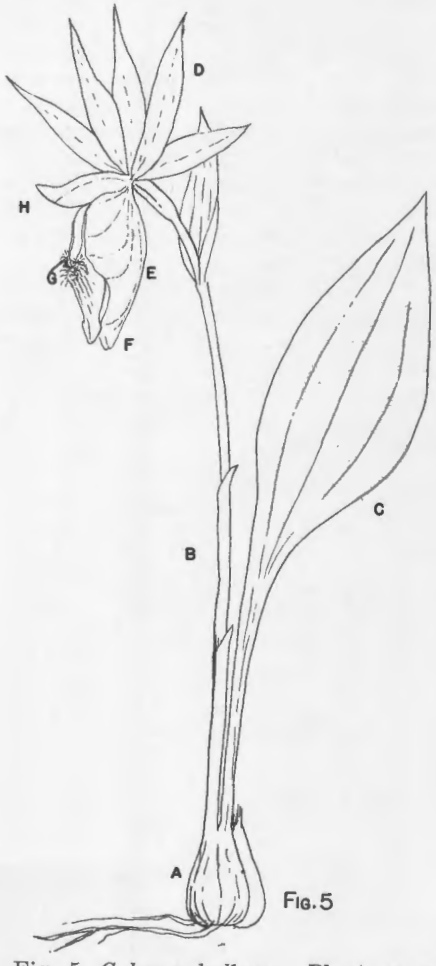
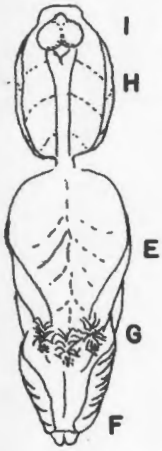


Fig. 5. *Calypso bulbosa.* Plant as a whole (a. corm, b. scape (flowering stem), c. leaf, d. upright sepals and lateral petals, e. lip, f. bifid spur of lip, g. tufts of hair, h. column, i. anther with 2 pollen masses).

the verdure with cosmic sheen in the myriad dew drops, lest one Fairy Slipper, the transmuted sublimity of her own substance, on its poised wings should float into etherial realms.



5 A

Fig. 5A. Column lifted above lip to show underside.

• *Calopogon*

3. Calopogon pulchellus (*Salisb.*) *R. Br.*
Grass-pink

Grass-pink, usually less than 24 inches tall, grows from a bulbous corm with slender roots. The solitary basal leaf is grass-like. The raceme of 1-4 flowers, sometimes more, open successively. The spreading sepals and petals are brilliant rose-purple and similar in shape. The lip is three-lobed; the elongate, arching middle lobe, with fan-shaped apex, gradually narrows to a stalk and expands abruptly to form two small lateral lobes at its base. Its finely-velvety upper surface is embellished with three parallel crests, or fringes of hairs, gradually passing from long to shorter filaments. Likewise, their clavate ends, like tips of flame, shade through the entire gamut of colors from purple to white, yellow, orange and crimson. The thin-edged arching column, dilating to a double-winged apex, rose-mauve in color, bears at its tip a lidded anther with granular pollen masses. Below it is the stigma.

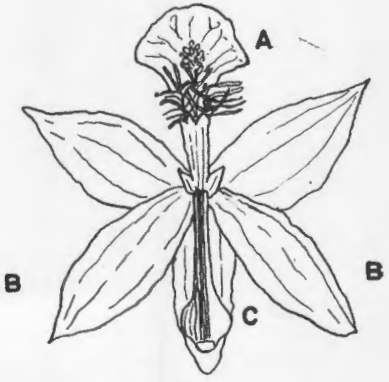
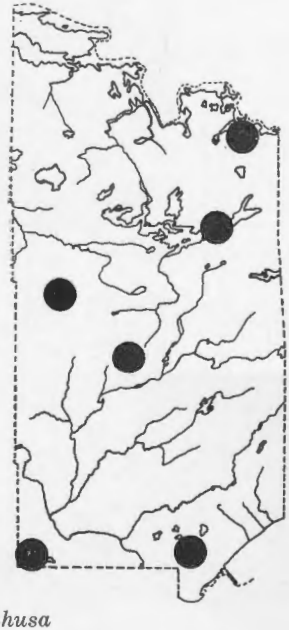


FIG. 6

Fig. 6. *Calopogon pulchellus.* Nonresupinate flower, lip uppermost (a. lip, fan-shaped middle lobe, short basal lobes, b. lateral petals, c. column in front of the top sepal).

4. Arethusa bulbosa L. Swamp-pink

Swamp-pink, 12 inches high, arises from a rooted corm. The leafless stem at the time of flowering is clothed with 2-3 sheaths; the grass-like, solitary leaf develops in the axil of the uppermost sheath after flowering. The showy, solitary, rose-purple flower terminates the stem, sometimes so short that the flower is barely elevated above a bed of deep mosses. The sepals and petals, united at their bases, are ascending and erect. The uppermost sepals with lateral petals incurve hood-fashion; over the column with recurved lip with somewhat crenulate, wavy margins is striped abruptly and spotted with purple, white and yellow, with three parallel crests of yellow fringes with purple tips. The narrowly-winged column, adhering to the base of the lip, widens to a lacerate fan-shaped apex with a lidded anther and a protruding stigma.



• *Arethusa*

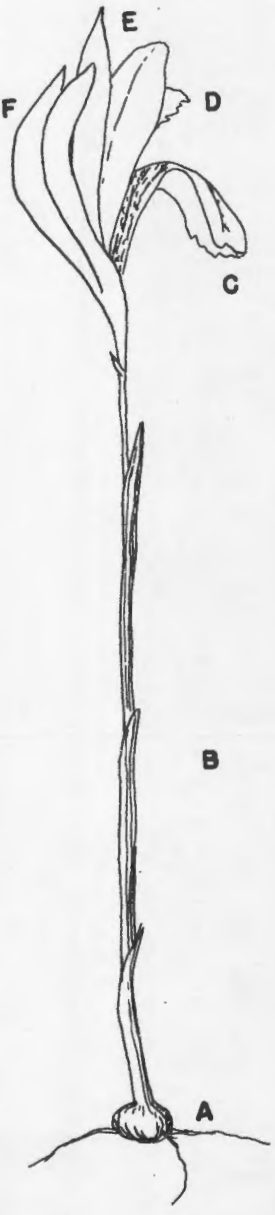
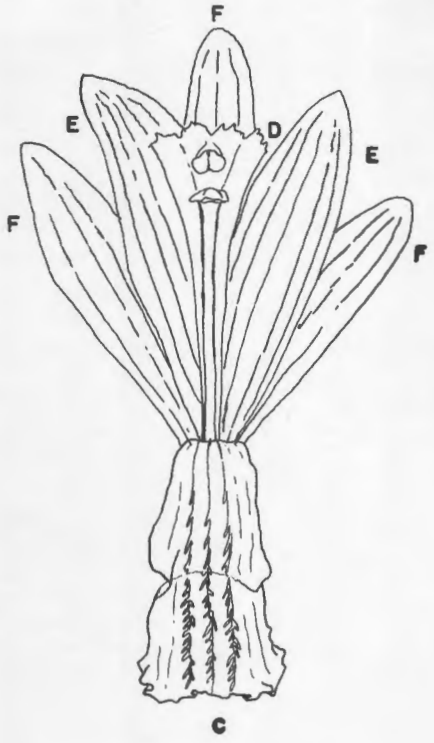


FIG. 7

Fig. 7. *Arethusa bulbosa.* Plant as a whole (a. corm, b. bladeless leaf

sheaths, c. recurved lip, d. column with lidded anther, e. lateral petals, f. sepals).



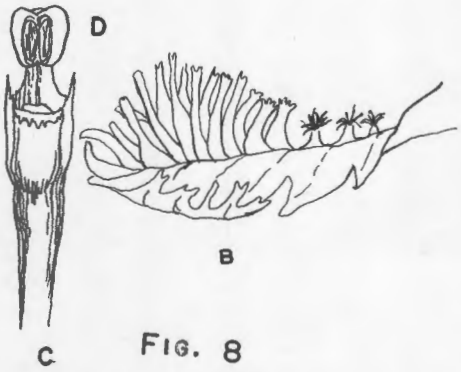


FIG. 8

Fig. 8. *Pogonia ophioglossoides*. Flower with subtending bract (a. lip, b. lip showing one of the 3 rows of fleshy colorful hairs passing into studs toward the base, c. column with terminal anther cavity, with movable anther, d. anther lifted up from its cavity at the tip of column).

• *Pogonia*

5. Pogonia ophioglossoides (L.) Ker.
Rose Pogonia

Rose Pogonia, less than 20 inches tall, grows from slender roots threaded in mosses. Near the middle of the stem is usually a single elliptical leaf; petioled leaves from the spreading underground parts are distinct from the stems. The flower, usually solitary, rarely more, is subtended by a floral bract. The sepals and petals, from pale to deeper pink, are similar and spreading. The spatulate lip is densely bearded with three rows of yellow to brownish hairs, thick and fleshy, almost like tentacles passing into shorter hairs, with fimbriate tips toward the basal half of the lip. The club-shaped column contains the terminal anther cavity with lacerate margins and the movable anther with granular pollen masses, below it is the ovate stigmatic area.

In northern wilderness the July sun dispells the rising mists from limpid lakes, centered within the sedge mats with the widening radii of the open bogs gradually merging into a spruce-tamarack forest. Cradled in wet mosses around their mirror-brinks, rising and sinking beneath precarious footsteps, the three bog orchids, *Calopogan, Arethusa* and *Pogonia* in unrivalled gaiety hold forth their bursting blooms. In the full sun their brilliant flowers of rose-purple and pink of rainbow transparency climax the gloriously beautiful summer growth of bogs, those vanishing remnants of primeval nature.

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6. Orchis rotundifolia Banks. Round-leaf Orchid

The generic name *Orchis* comes from antiquity. From it is derived the family name, *Orchidaceae*. The genus is represented in northeastern Minnesota by the Round-leaf Orchid.

The plant, usually less than 10 inches high, wholly smooth, arises from slender spreading rhizomes. The stem, bearing 1-2 sheaths below the orbicular to broadly elliptical basal leaf just above the ground level, terminates in a bracted raceme of several flowers. Among

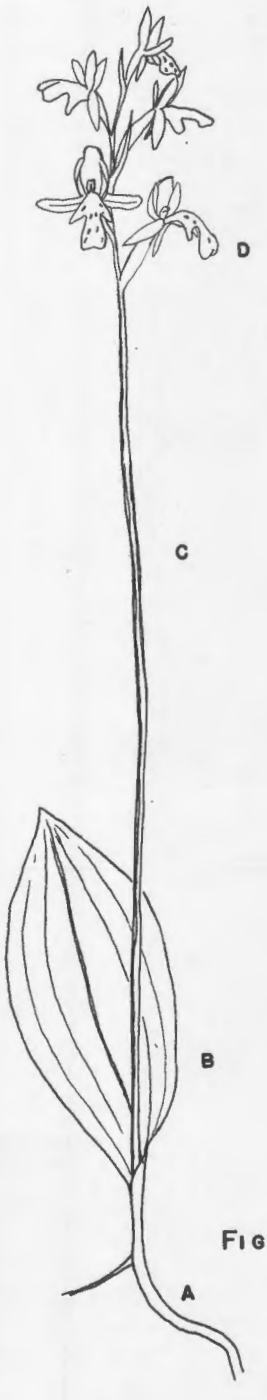
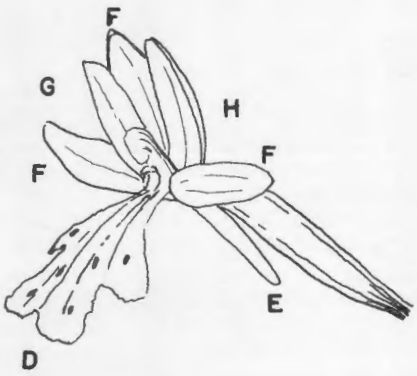


FIG. 9

the lush mosses of shadowy bogs the spurred flowers present a striking appearance. The sepals, larger than the median petals with which the uppermost sepal form a hood, are delicately suffused with rose-mauve. The white, flat, velvety lip, prolonged in a spur at its base, is three-lobed; the notched apical lobe distant from the two-winged lateral lobes are conspicuously spotted with purple. Just above the spur orifice on the short column is the sticky stigma; above it is the anther with parallel locules, each containing a granular pollen mass enmeshed in webby threads. The stalk of each pollinium has a terminal disc in a lidded pouch. A sucking insect reaching for nectar ruptures the pouch bursting out the discs which become attached to its head. Then streaking into another flower, the insect with a stalked pollinium on each cheek contacts the sticky stigma below the pouch. As the winged-bearer regales itself with nectar, another load of pollen becomes transferred on its head to be carried away in assurance of cross-pollination.

The rare Round-leaf Orchid flowers in July. Its graceful blooms of subdued charm, blended into intimate harmony among nature's manifold delights within the sunlit aisles of spruce-tamarack bogs.



9 A

Fig. 9. *Orchis rotundifolia.* Plant as a whole (a. rhizome, b. leaf, c. flowering stem, d. spotted lip).

Fig. 9A. Flower (e. spur of lip, f. sepals, g. lateral petals, h. column in center with a lidded pouch).

9 B

Fig. 9B. Stalked pollen masses each with a disc for attachment to pollen carrier.

• *Orchis*

7. Habenaria (Rein Orchid)

Eight different kinds of Rein Orchids may be found in northeastern Minnesota. Some grow in swamps, others in rocky

woods, lakes and stream banks.

Rein Orchids are smooth plants with fleshy, tuberous roots. The stems are scapose or leafy. The spurred flowers are born in racemose clusters. The flowers are hooded by the incurved top sepal, and the erect lateral petals. The spatulate, lobed or fringed lip is prolonged in a spur. The column bears the anther with stalked pollen masses with exposed discs. The stigmas are usually papillate; the capsule cylindrical. The species may be identified by the following characteristics:

1. Lip lobed or fringed
   - (1) Flowers bright pink, lip shallowly fringed — 1. *H. psycodes* (Fringed pink orchid)
   - (2) Flowers greenish-yellow
     - a. Stem leafy throughout, flowers long bracted, lip 2-lobed — 2. *H. viridis* (Bracted green orchid)
     - b. Stem usually with one well developed leaf near the middle, spurs clavate, lip 3-lobed — 3. *H. clavellata* (Little Club-Spur orchid)
2. Lip entire, flower white to greenish-yellow
   - (1) Flowers, fragrant in loose racemes, lip dilated at base — 4. *H. dilatata* (White bog orchid)
   - (2) Flowers greenish-yellow
     - a. Stems leafy throughout, lip spatulate, floral bracts not conspicuous — 5. *H. hyperborea* (Northern rein orchid)
     - b. Leaves basal
       - (a) Leaves 2, usually flat on the ground
         - m. Flowering stem with a leaf-like bract near the midstem, flowers spreading, leaves orbicular or nearly so — 6. *H. orbiculata* (Round-leaved rein orchid)
         - n. Flowering stem without bract, leaves elliptical, flowers ascending — 7. *H. Hookeri* (Hooker's orchid)
       - (b) Leaf 1, lip as long as the spur — 8. *H. obtusata* (Small bog orchid)

7 a. Habenaria psycodes (L.) Spreng.
Fringed Pink-orchid

Plants up to 28 inches high from thickened, fleshy roots. Leaves 4-5, sheathing the stem, and passing to 3-4 linear bracts below the inflorescence; flowers numerous in a cylindrical raceme, their subtending bracts long and conspicuous. Flowers pediceled, lavendar pink, sepals ovate-elliptic; the lateral petals, somewhat longer than the sepals, are denticulate on the margins; the lip, longer than the other petals, is cleft into three fan-shaped lobes, each tipped with a short fringe, or sometimes irregularly lacerate; the slender spur is arching, twice as long as the ovary. Above the spur orifice is the papillate stigma; the column apex bears two vertical pollen masses with exposed stalks and discs.

The Pink-fringed Orchid is found throughout the area, growing luxuriantly on wooded creek banks, meadow borders and lake terraces. For attraction of insects, the spurs of their showy flowers are nectar filled. Butterfly orchid, another name, is probably derived from the resemblance of their floral pattern to butterfly wings. Their torch-like flower clusters bring brilliant contrasts among later summer blossoms often in surprising abundance. Distribution indicated on map by black circles. The following species *H. viridis* is indicated by black triangles.

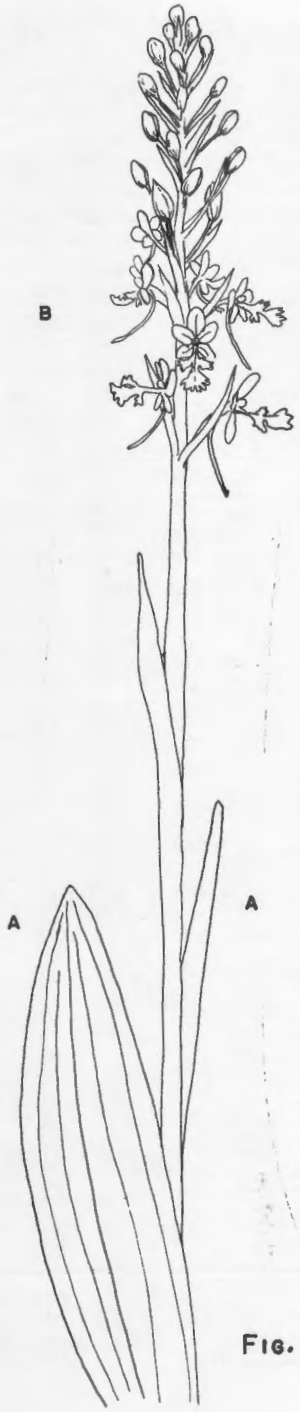
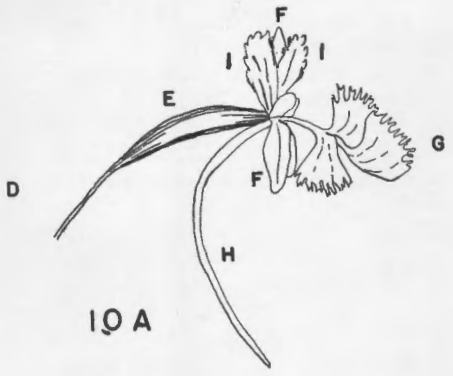


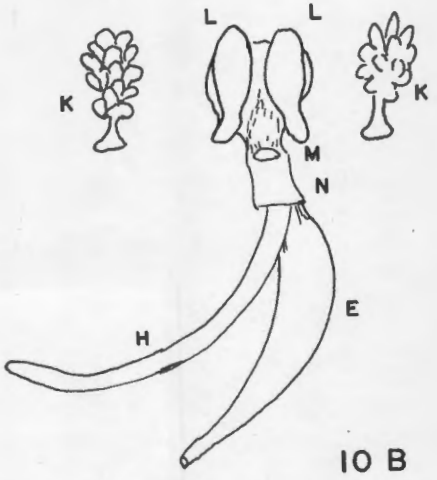
FIG. 10

Fig. 10. *Habenaria psycodes.* Upper part of plant (a. leaf, b. flower cluster).



10 A

Fig 10A. Flower enlarged (d. pedicel, e. ovary, f. sepals, g. fringed lip, h. spur, i. lateral petals).



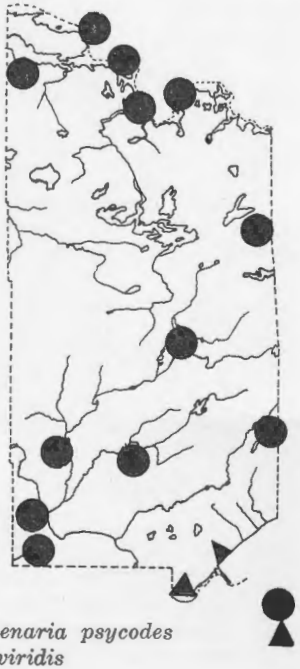
10 B

Fig. 10B. Column with exposed pollen masses (k. stalked masses of granular pollen, l. glands subtending the pollen masses on column, m. spur orifice, n. base of lip removed).

7 b. Habenaria viridis (L.) R. Br. var. bractetata (Muhl.) Gray. Long-bracted Green Orchid

Plants up to 20 inches tall from clusters of thickened roots. The stem with 1-2 basal bracts, bear 4-5 ovate leaves with sheathing bases, their blades successively smaller, the lowermost being the broadest; the internodes shorter than their blades. Raceme loose, of many flowers each subtended by a prominent green bract longer than the flowers. The uppermost sepal ovate, cupped to form a hood, with the narrow lateral petals; the lateral sepals oblique, erect. The oblong tip with two blunt tooth-like lobes at its apex is prolonged at its base in a short saccate spur. The petals and the spur are yellowish in contrast to the green sepals.

The Long-bracted Orchid has been found only in the Duluth area, growing in mixed coniferous-hardwood stands on the rocky slopes.



• *Habenaria psycodes*
▲ *H. viridis*

7 c. Habenaria clavellata (Michx.) Spreng. Little Club-spur Orchid

Plants usually less than 18 inches tall from slender, somewhat thickened roots. The slender stem is clothed with 2-3 basal sheaths and usually a single oblanceolate leaf near midstem succeeded by 1-3 foliar bracts toward the spicate raceme. Flowers, few almost sessile, in axils of small greenish-yellow bracts. The uppermost sepal is ovate, the lateral are oblique. Petals ovate with dendiculate margins; the lip is shallowly three-lobed or dentate. The arching spur is twice or more as long as the ovary with a clavate apex. The elliptical capsule is beaked by the floral remnants. Contrary to other Rein Orchids, this species is self-pollinated. The slender orchid, inconspicuous by its size and habit, may be found in spruce-tamarack forest and on margins of floating bogs.

• *H. clavellata*

7 d. Habenaria dilatata (Pursh) Gray. White Bog-Orchid

Plants slender to robust up to three feet tall, from thickened roots. Stems clothed with 5-7 leaves with elongate-

oblong blades and sheathing bases, passing to foliar bracts up to the raceme. Racemes loose to dense, of many white flowers subtended by lanceolate floral bracts. The top sepal ovate-lanceolate with an incurved apex, forming a hood with the crescent-like lateral petals; the lateral sepals broadly oblique spread above the spatulate lip, usually dilated at base. The clavate spur is longer than the lip.

The White-Bog Orchid by its delightful fragrance brings an added note of interest into spruce-tamarack bogs and swampy forest borders where it flowers in July.

• *H. dilatata*

7 e. Habenaria hyperborea (L.) *R. Br. Northern Green Orchid*

Plants up to 28 inches high with thickened roots and leafy stems. Leaves 3-6, oblong-elongate sheathing the stem and passing into a few foliar bracts up to the flower clusters. The greenish-yellow flowers subtended by lanceolate floral bracts are borne in loose or in crowded spicate racemes. Sepals and petals similar, the top sepal incurved to form a hood with slightly narrower lateral petals. The lateral sepals are spreading and the spatulate recurved lip is somewhat longer than the spur. The thick wide column bears the exposed pollen masses. Capsules are plump, and cylindrical.

The Northern Green Orchid occurs widely in swampy forest borders, sphagnum bogs, rocky banks of lakes and rivers. Unobtrusively, it has carried on its pattern of life with culminating success as seen by its wide distribution in the northern hemisphere.

• *H. hyperborea*

7 f. Habenaria orbiculata (*Pursh*) *Torr. Round-leaved Rein Orchid*

Plant more than 12 inches high, from thickened roots. Stem scapose, with two nearly orbicular leaves flat on the ground and a small leaf-like bract near midstem. The dark-green blades are lustrous above, with sheen of silver beneath. The many greenish-white flowers are pediceled and spreading in a cylindrical raceme, each subtended by a linear floral bract. Upper sepal nearly suborbicular, the lateral sepals oblique,

lanceolate, larger than the petals. Lip tongue-shaped, surpassed in length by the clavate spur. Column apex rounded with lateral wing-like edges; capsules ascending, cylindrical. The sepals and petals are roughened on the upper side with white papillate hairs, drying flat, covering most densely the lateral sepals.

The Round-leaved Rein Orchid grows in rich mixed forest, in wilderness area. The finding of this handsome plant in full bloom, its flowers with a soft white-blue cast, is a delightful experience. Distribution indicated by a black circle on the map. The following species *H. Hookeri* is indicated by a black triangle.

● *H. orbiculata*
▲ *H. Hookeri*

7 g. Habenaria Hookeri Torr. Hooker's Orchid

Hooker's Orchid is similar to the preceding kind. Its two leaves are broadly ovate to elliptical and sometimes almost orbicular; the stem is unbracted, and the raceme seems narrower with ascending yellowish-green flowers. The triangular-elongate uppermost sepal with narrow curved erect petals form the hood. The lateral sepals are reflexed. The spatulate lip recurving at apex is prolonged to a tapering spur. Column conspicuous with a central tubercle bears the prominently stalked pollen masses. The cylindrical capsules become appressed along the axis.

The Round-leaved Rein Orchid and Hooker's Orchid grow in rich mixed forest of the wilderness area. Their broad, nearly circular leaves, dark green above with sheen of silver beneath are attractive against the mossy forest floor. The flowers of the Round-leaved Orchid have a white-blue coat in contrast to the yellow-green of the other. These handsome plants add intrigue and enjoyment to their primitive environment.

● *H. obtusata*

7 h. Habenaria obtusata (Pursh) Richards. Small Bog-Orchid

This smallest Rein Orchid, usually less than 10 inches tall, arises from slender fleshy roots. The single oblanceolate leaf is basal, rarely succeeded by a leafy bract below the inflorescence. The raceme is slender from a few to several white or yellow-green flowers. The sepals and petals are delicate, the uppermost sepal orbicular and the lateral lancelolate with reflexed tips. The lateral petals are sickle-form erect, narrowing to wide bases. From the loculate base, the lip gradually narrows to a blunt tongue-like apex; its base is prolonged to a spur about as long as the lip, with a crest-like callus at the mouth of the orifice. The concave column with lateral appendages bears the two prominent anther sacs. The erect to ascending capsule is a slender cylinder.

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8. Corallorhiza (Coral-root Orchids)

Plants, non-green saprophytes growing from coralloid clusters of a branching rhizome. The stems, devoid of green leaves, are clothed with 3-4 tubular sheaths. Flowers borne in a terminal raceme are slightly saccate from the fusion of the lateral sepals with the lip. The column uniting with the lip base bears the terminal anther with waxy pollinia. The three species of Coral-root Orchids crowing in the area may be identified by the following key:

1. Plants yellow, flowers spreading, sepals 1-nerved — 1. *C. trifida* (Early Coral-root)
2. Plants brown-purple (rarely yellow)
   (1) Lip 3-lobed spotted, (rarely unspotted) with purple, flowers ascending — 2. *C. maculata* (Spotted Coral-root)
   (2) Lip not lobed, striped with purple, flowers pendent — 3. *C. striata* (Striped Coral-root)

8 a. Corallorhiza trifida Chat. var. verna (Nutt.) Fern. Early Coral-root

Plants less than 10 inches tall, grow from loosely branched coralloid rhizome. The slender stem clothed with 3-4 tubular sheaths terminates with a few-flowered raceme. Flowers short pediceled, the erect top sepal and petals forming a hood, the lateral sepals adhering with the lip to form a saccate swelling; the white wavy margined lip with a rounded middle lobe with two parallel ribs or folds, has a short narrow lateral lobe at its base, each side. The curved column tip bears the terminal anther. The drooping capsules are elliptical. The Early Coral-root flowering from late spring to early summer, comes up in luminous clusters before the overhead

• *Corallorhiza trifida*

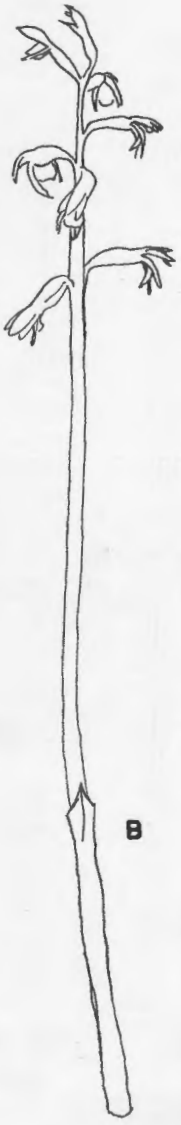
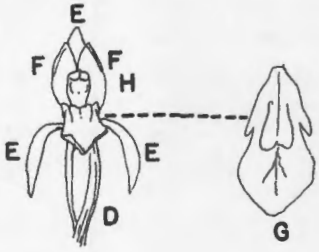


FIG. 11A

Fig. 11A. *Corallorhiza trifida.* Plant as a whole (b. non-green scale).

foliage is fully expanded. Whether in spruce-tamarack bogs or in mixed hardwood forests, their occurrence provokes interest and admiration because of their high specialization among orchids.



11 B

Fig. 11B. Flower (d. ovary, e. sepals, f. lateral petals, g. lip, large middle lobe, 2 short lateral lobes, h. column).

8 b. Corallorhiza maculata Raf., Spotted Coral-root

Plants madder-purple usually about 12 inches high from a compacted branching rhizome. Stems with 3-4 tubular sheaths frequently purple spotted bears a raceme of ascending flowers. The erect perianth parts are three-nerved; the united lateral sepals with the lip form a swelling; the recurving white lip with crenulate margin and median crests, spotted with magenta, bears two narrow lateral lobes at its base. The arching column is yellow with magenta spots. The plump elliptical capsules droop at maturity.

Growing and flowering with the typical variety, or alone, is a yellow variety known as var. *flavida.* These plants are wholly deep yellow or orange. The white lip petal is immaculate. The larger size, deeper yellow color, the erect flowers and a later flowering period near midsummer, differentiate this variety from the Early Yellow Coral-root.

Spotted Coral-root Orchids have a wide distribution in the wilderness area, occurring in thick clumps on rocky slopes of mixed coniferous or hardwoods.

A colony of any Coral-root Orchid may disappear from a particular site after a few years of growth, probably because of the exhaustion of soil nutrients. However, nearby, new colonies may have started from seed.

• *C. maculata*

8 c. Corallorhiza striata Lindl. Striped Coral-root

Plants brownish-purple about 10 inches high from a densely clustered rhizome. Stems clothed with 3-4 tubular striate sheaths passing into a few floral bracts below the racemes. Flowers pediceled, pendent, the perianth parts about equal in length; the sepals oblong elongate and conspicuously striped with madder purple; like the obovate petals; the lip ovate-orbicular concave with incurved margins and crested base, striped with madder purple; column elongate, arching dilated toward base; capsules elliptical, reflexed.

The Striped Coral-root is infrequent in the county, found only in southern and northwestern sections where it grows in mixed conifer and hardwood forest.

• *C. striata*

• *Liparis*

9. Liparis. Twayblade

Liparis Loeselii (L.) Rich. Loesel's Twayblade, a scapose plant less than 10

inches tall arising from a thick corm, with slender roots. The stem base below the two keeled lustrous, yellow-green oblong-ovate leaves is clothed with 2-3 sheaths. The flowers in a loose raceme are greenish-yellow on ascending pedicels, subtended by small bracts. The oblong-obtuse sepals are borne tripod-fashion, like the very narrow linear petals and the obovate lip. The lip with crenulate margins is strongly veined and concave at apex. The arching column is clavate with a terminal lidded anther, containing the waxy pollen masses. The capsules are ascending obovoid in shape.

In this area, Loesel's Twayblade grows on sandbars, and in the west sandy soil of road cuts and lake shores. Sometimes the plants are diminutive with 1-2 flowers. It appears to fruit in abundance, judging from the plump capsules of seed, in later summer and fall. Its warm lustrous-green leaves and yellow-

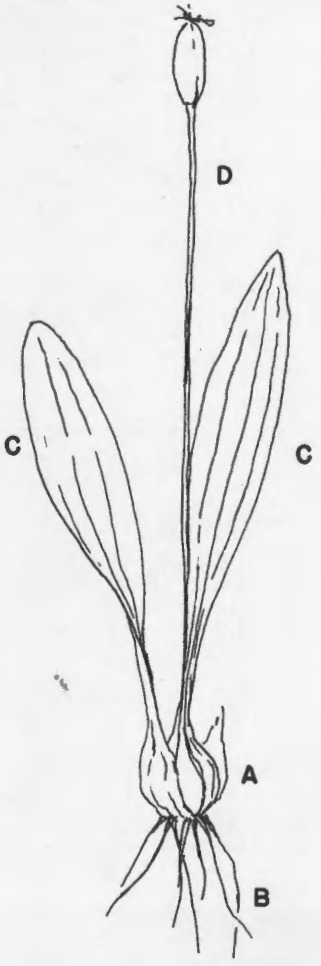
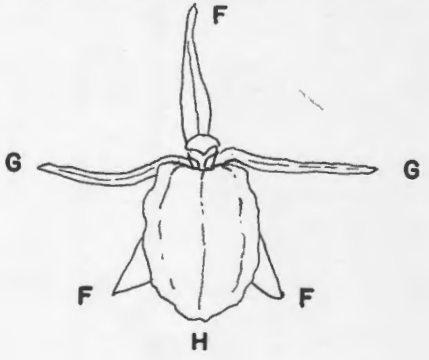


FIG. 12

Fig. 12. *Liparis Loeselii.* Plant as a whole (a. corm, b. roots, s. leaves, d. flowering stem with capsule).



12 A

Fig. 12A. Flower (f. sepals, g. lateral petals, h. lip).

12 B

Fig. 12B. Ovary with column (i. column with terminal anther, j. ovary).

ish flowers make the plant conspicuous in a pioneer plant community.

FIG. 13

10. Malaxis. Green Malaxis

Malaxis unifolia Michx. Green Malaxis grows from a sheathed corm with few slender roots and is usually less than eight inches tall. The solitary ovate leaf with sheathing base near the mid-stem is conspicuously reticulate-veined. The raceme of minute flowers on horizontally spreading filiform pedicels is dense and cylindrical. The uppermost sepal is oblong-obtuse, the lateral are ovate, spreading; the filiform petals are reflexed or curled; the lip is three-lobed and auricled at base, the middle lobe being the smaller; the column small notched and tipped with the terminal anther containing the waxy pollinia. Capsules sub-globose, spreading.

The finding of Green Malaxis in dry lichen and moss mats on high cliffs is always a surprise. The numerous tiny flowers on thread-like pedicels make up in numbers what they lack in size and colors. Of the many flowers only a few succeed to mature fruits and seeds.

• *Malaxis*

Fig. 13. *Malaxis unifolia.* Plant as a whole (a. corm, b. roots, c. leaf, d. flower cluster).

(Continued on page 72)

DUCK BANDING

With a Minnesota Conservation Department Crew

by Forrest B. Lee and Dana R. Struthers

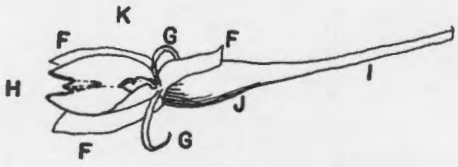
Local sloughs are looked over for broods.

The trap is set up with one lead going up on the shore and the other extending out into the slough. The flightless young ducks are then herded into the trap.

A Blue-winged Teal with a wing missing — a victim of a mowing machine.

Blood samples are taken to be examined for possible parasites.

The band is put on, the required information recorded and the duck, in this case a young Blue-winged Teal, is released.



13A

Fig. 13A. Flower, horizontal at tip of pedicel (f. sepals, g. petals, h. lip, 3 lobed, lowermost in age, i. pedicel, j. ovary, k. column, (center)

---

11. Listera. Lister's Twayblade

Small, delicate plants with fibrous roots, two opposite leaves at the middle of the stem. Racemes terminal of small yellow-green or purplish flowers. Sepals and petals are similar, the lip petal cleft, and the column with a dorsal anther. Capsules globose to oblong. The two species occurring in the area are keyed out as follows:

1. Lip apex with V-shaped cleft, its base crested with a pair of ribbon-like tips	1. *L cordata* (Heartleaf Twayblade)
2. Lip apex with a shallow U-shaped cleft, its base with rounded lobes (auricles) without marginal crests	2. *L. auriculata* (Auricled Twayblade)

---

11 a. Listera cordata (L.) R. Br. Heartleaf Twayblade

Stems slender usually less than 10 inches tall with two opposite ovate-cordate leaves near mid-stem and 1-2 sheaths below at stem base. The stem, minutely pubescent upward, bears the raceme of pale green flowers suffused with purple. The short pediceled flowers are ascending in axils of delicate bracts. The spreading sepals and petals are narrowly ovate; the lip more than twice the length of the sepals is deeply cleft into attenuate lobes, like an

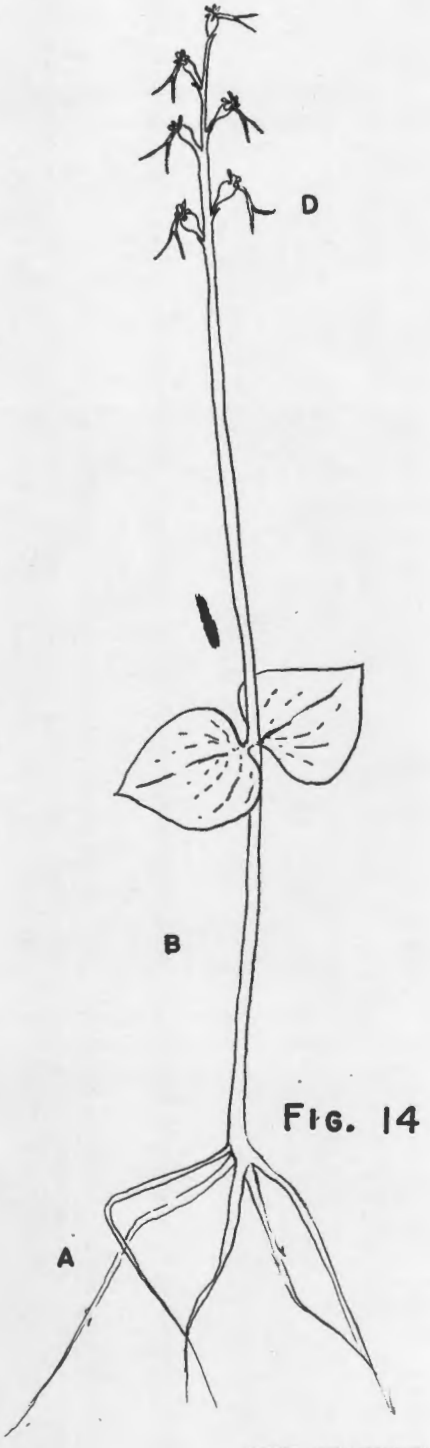
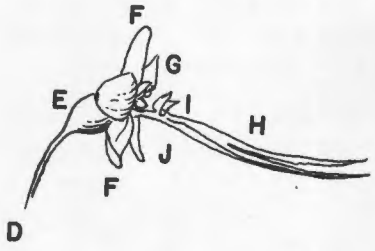


FIG. 14

inverted Y; the narrowing base of the lip bears a small rounded crest from which rise laterally two wing-like tips papillated around the more convex margin. The short column bears the anther with powdery pollen on the upper side.

Fig. 14. *Listera cordata.* Plant as a whole (a. roots, b. stem with 2 heart-shaped leaves).



14 A

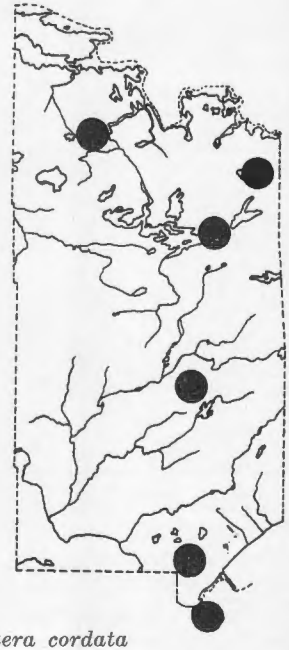
Fig. 14A. Flower cluster (d. flower, e. ovary, f. sepals, g. lateral petals, h. lip, cleft, i. wing-tip crest, j. column in center).

14 B

Fig 14B. Cleft lip, enlarged.

The ovary matures into a globose-oblong capsule.

Heart-leaf Twayblade grows in moist mosses of shady spruce-tamarack forests. Despite their inconspicuous flowers the plants are readily noticeable by their habit of growth, the slender almost translucent stem terminating in a raceme of puzzling small flowers above the two heart-shaped leaves. The finding of even a dozen individuals in a colony is a pleasant and rewarding experience.



• *Listera cordata*

11b. Listera auriculata Wieg. Auricled Twayblade, is similar to the Hart-leaf Twayblade in habit of growth. The raceme of larger yellow-green flowers are closer to the two leaves. Sepals and petals are reflexed. The oblong lip with ciliate margins with a U-shaped notch at apex bears rounded auriculate (ear-like) lobes at its base. The arching column is longer than the ovary.

So rare an orchid is a precious addition to the area flora. It is known in St. Louis county only from Duluth where it grows on a wooded bank of a rocky stream. The only other locality in the state is in Cook county.

○ *L. auriculata*

12 a. Goodyera repens (L.) R. Br. var. *ophioides* Fern., Small Lattice-leaf, is a stoloniferous plant less than eight inches high. The lanceolate elliptical leaves in basal rosettes, each with white reticulations in lattice-fashion, pass into cauline bracts 4-5 up to the raceme. The white softly pubescent flowers are subtended by floral bracts. Sepals and petals one-nerved, the uppermost fused with the lateral petals to form a hood. The petals slightly narrow lunate with denticulate margins. The pouched-shaped lip narrows to a grooved, recurved apex. The column short, with a dorsal anther at its forked tip. Capsule cylindrical, with 3-6 strong ribs.

○ *Goodyera repens*
● *G. tesselata*

12. Goodyera. Lattice-leaf

Pubescent plants from creeping underground stems, roots thickened and fleshy. Leaves mostly basal, white reticulate on the veins; flowers in racemose clusters. Uppermost sepal and lateral petals forming a hood above the saccate lip. The another on the upper side of the column contains two pollen masses attached to a narrow gland at the cleft of the beak terminating the column. The two species in the area are keyed as follows:

1. Lip pointed, recurving, the lattice-like penciling on leaves white, raceme one-sided	1. *Goodyera repens* var. *ophioides* (Small Lattice-leaf)
2. Lip apex not recurving, the lattice-like penciling on leaves greenish-white, raceme with spirals	2. *Goodyera tesselata* (Large Lattice-leaf)

12 b. Goodyera tesselata Lodd., the Large Lattice-leaf, up to 10 inches high is similar to the smaller species, except the greenish reticulation of its leaves, and the loosely spiralled raceme. The saccate lip petal is narrowed to a straight apex.

The Lattice-leaf Orchids may be found in northern coniferous forest usually in moist mosses covering the rocky slopes. In the late August sunshine their fragrant white flower clusters bring the last note of summer to their wilderness haunts.

15 A

Fig. 15A. Flower (f. ovary, g. sepals, h. lateral petals, i. lip).

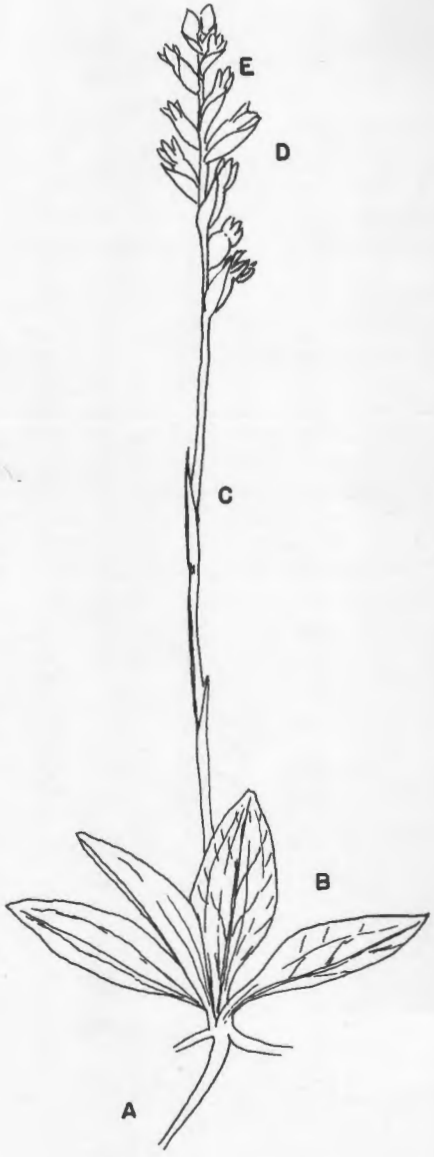


FIG. 15

Fig. 15. *Goodyera tesselata.* Plant as a whole (a. roots, b. leaves, c. bracted stem, d. flower cluster).

o *Spiranthes lacera*

13. Spiranthes. Ladies' tresses

Plants pubescent at least above; roots fleshy, thick, with mostly basal leaves. Flowers ringent (constricted palate-fashion), white, in spiral spikes. The three species in the area may be recognized by the following key.

1. Leaves lanceolate to elliptic, flowers in a single spiral row — 1. *Spiranthes lacera* (Slender Ladies' Tresses)
2. Leaves linear, flowers in more than one spiral row
   (1) Lateral sepals free, not joined with upper sepal and petals to form a hood, lip gradually tapering toward base — 2. *Spiranthes cernua* (Nodding Ladies' Tresses)
   (2) Lateral sepals joined with upper sepal and petals to form a hood, lip petal abruptly contracted at base. — 3. *Spiranthes Romanzoffinana* (Northern Ladies' Tresses)

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13 a. Spiranthes lacera Raf. Slender Ladies' Tresses. The slender stems sometimes more than 12 inches high, slightly pubescent above, arise from a cluster of fleshy roots. The lanceolate basal leaves prominently net-veined, pass into 5-8 cauline bracts up to the slender spiral spicate flower cluster. Flowers white, apparently tubular, the lip ovate with wavy margins, rounded basal lobes and two callus-like thickenings near the base.

The graceful Slender Ladies' Tresses flower in later summer in dry coniferous forest and among lichens and mosses in vegetation mats on high granitic cliffs.

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13 b. *Spiranthes cernua* (L.) Richards, Nodding Ladies' Tresses. Generally pubescent, plants usually less than 12 inches high arising from elongate thick fleshy roots. Leaves linear, mostly basal, passing into 4-5 cauline bracts up to the inflorescence. Flowers white in dense spikes, downward arching. The uppermost sepal with the petals forming a hood, the lateral sepals free, all three-nerved. The lip oblong-rounded with strongly crisped wavy margin with two prominent callus-like projections near its base.

Nodding Ladies' Tresses flower in later summer on wet sandy shores and thickets. On sandbar islands their white flowering spikes form a delightful contrast with blue gentians and purple Gerardia, all growing together in mixed colonies in wet sand. Indicated on the distribution map by black circles. The following species. *S. Romanzoffiana*, is indicated by black triangles.

● *S. cernua*
▲ *S. Romanzoffiana*

13 c. Spiranthes Romanzoffiana Cham. Northern Ladies' Tresses differs from the preceding species by a thicker spike, longer floral bracts and the union of the lateral sepals in forming the hood. The lip with wavy crisped margins is fiddle-shaped abruptly narrowing near the apex and gradually widening toward the bilobed base with callus-like projections.

The Northern Ladies' Tresses also flowers in later summer. Its white fragrant flower spikes are attractive in crevices of shore rocks of the northern lakes. It also grows in wet forest borders, and thickets. — *Biology Dept., University of Minnesota, Duluth.*

Fig. 16. *Spiranthes cernua.* Plant as a whole (a. roots, b. leaf, c. bracted stem, d. spiral flower cluster, e. flower cluster, f. floral bract, g. sepals, h. petal, i. lip, j. column in center).

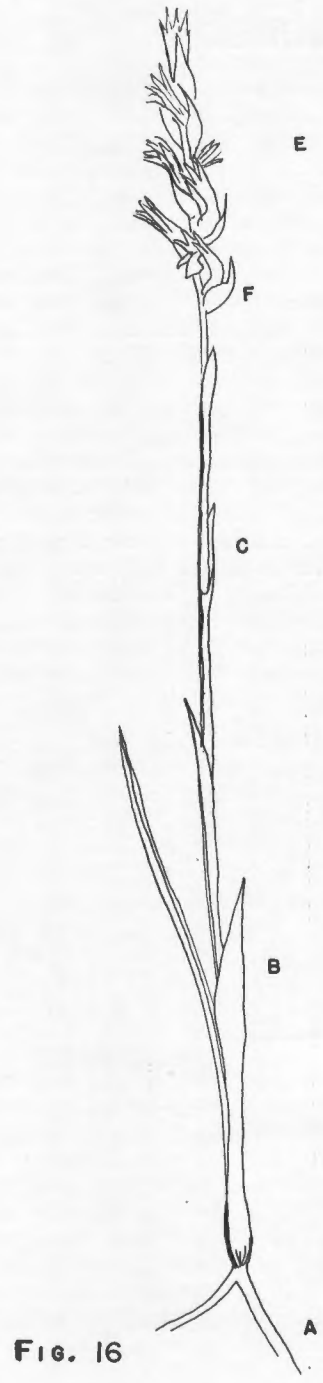
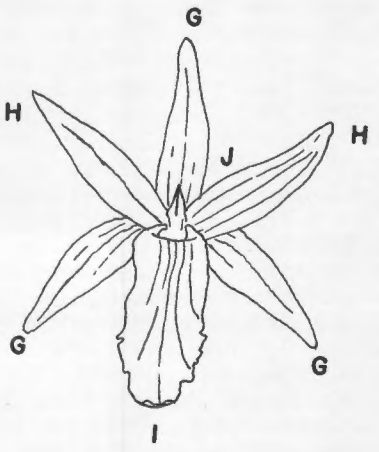


FIG. 16



16 A

Fig. 16A. Enlarged flower.

The Vanishing Habitat

This is a purely personal message from the editor to the members of the Minneapolis Bird club, although it is printed herein with the knowledge and consent of the board of directors. Read it carefully — and then get mad!

Have you been to the bass ponds lately? Have you "birded" in the Roberts Sanctuary? Have you visited "Bittern Swamp" in Theodore Wirth park this spring? Were you pleased with what you found at these places?

For the last year there has been a program of "destruction" taking place at the Izaak Walton League bass ponds. The plantings along the edges of the ponds have been cut down, the brush has been cleared out, and the ponds are now not much more than holes in the ground. The whole area looks like a "manicured" park. Where the responsibility for this policy lies is not exactly clear — but the results are obvious — there is less habitat for birds than formerly.

The "Bittern Swamp" area in Theodore Wirth park has for years been one of my favorite haunts. Some of the happiest hours of my life have been spent there watching the birds. I particularly recall one Sunday afternoon in May when "all the warblers in the book" flitted through the trees, and all I had to do to see them was sit and watch. Gradually fences were allowed to fall down, then they were removed entirely, and this spring the trees and shrubs around the swamp have been cut down, a service road has been put through, and the swamp is in the process of being filled in. Yellow-headed Blackbirds will not nest there any longer, no more will the call of the Sora Rail be heard, and a once untouched area has now become the victim of "progress".

At the Roberts Sanctuary the situation is different, but in many ways worse. The area, set aside as a wildlife sanctuary, has become a playground for vandals. Although signs are posted at all gates stating that dogs and bicycles are prohibited, the area is overrun with both. Small boys bring in hatchets and saws, and chop at the trees. They build fires in the swamp in the fall, burning large sections of marsh grass (last fall up to within 100 feet of the trees we planted last spring), and they set fires among the roots of the old trees, damaging them beyond any hope of recovery. They bring in ropes and throw them over leaning willows and swing until the branches, and sometimes the trunks, are broken. They build "forts" and have "wars." They chase the squirrels, chipmunks, and rabbits, and their dogs pursue the pheasants. In fact, men bring their hunting dogs in for training purposes. The boys shoot holes through the bird feeder and kill the birds themselves in winter. All this in a bird sanctuary!

You and I know that these things have been going on for a long time. I haven't done anything about it, have you? I think the time has come, however, when our duty is clear and we have no choice but to act. In view of the destruction of bird habitat and, yes, of bird life itself, we have no moral right to go complacently on year after year devoting our entire time and energies to having meetings and programs for our own amusement and pleasure. The films we see of birds feeding baby birds may well be the only ones we will see in the future, because the outlook for wildlife in general is not bright. Soon there will be no point in having a bird club because there will be no birds. If we add to the foregoing fate we all know is in store for Mother lake, the encroachment of industry in the Minnesota river valley, and contemplate the results of the drainage program throughout the state, the picture is not very bright.

All governmental bodies are responsive — to some extent — to the will of their constituents. But do our park board (which controls the Roberts Sanctuary and Theodore Wirth park) and our state conservation department know what we want? Have we ever told them? How would they know if we did not speak up? The time has come, I think, for speaking up. The park board's emphasis in recent years has been on spectator sports, undoubtedly because their backers are the most vocal element in our population, and the conservation department's emphasis has been on keeping the hunters and fishermen happy — for the same reason. As a group of citizens interested in keeping portions of land in their natural state, forever inviolate, we have a right to ask our public officials to provide and maintain such facilities for our recreation and that of future generations, just as they do for those who want golf courses, tennis courts, playgrounds, and baseball diamonds.

Last week a friend told me that her daughter (in her twenties) revealed in a conversation that she did not know what an anemone is. Do we have a whole generation of young people growing up who have never had the joy of walking through unspoiled woods? To be able to enjoy the flowers, the trees, the birds, the insects and the animals in their natural state — and not through the plate glass of a museum exhibit — is the birthright of every American child. Who but us is interested in protecting this right?

Now — what can we do about it? This is going to be a struggle, but we cannot in good conscience avoid it. It may take all our energies and all our funds for several years, but it must be done if, as a club, we are to have any justification for our existence. First, I think we should have some indication from all the members of the club who feel strongly about this, so that we can get their ideas and promises of assistance. Then, a large, strong committee should be organized within our club to spearhead our activities. Contact then should be made with other bird clubs and groups interested in the outdoors, to encourage the organization of similar committees within their ranks, so a conjoint effort can be made. Then the proper officials and authorities must be contacted and our viewpoint made known to them. A program of education of our public officials in the values of land, water, resources, and wildlife conservation should be undertaken.

Will you help? Call me or write me and give me your ideas. When we get a nucleus of people who are singleminded in their devotion to this task, we can go forward. In addition to what we hope to be able to accomplish, such a project will give our club a sense of unity and purpose such as it has never had before and which it so badly needs at this time.

Please let me hear from you!

Vera E. Sparkes, Editor
2417 Lyndale Avenue North
Aldrich 2655

Editor's Note: The above article appeared in the May, 1954 issue of **The Kingfisher**, a publication of the Minneapolis Bird Club. It is the editor's personal opinion that not for years has there been so much danger of the loss of public domain to private industry and the destruction of what we have because of unfeeling carelessness. Therefore we have reprinted Miss Sparke's article in the hopes that we may stir up positive action to protect "vanishing habitat" on local, state, and national levels. **P. B. H.**

A December Field Trip in Saguaro and Organ Pipe National Monuments

by

Robert Galati

Saguaro National Monument is one of the more than 175 units administered by the national park service. It is located approximately 17 miles east of Tucson, Arizona, and it contains approximately 54,971 acres of federally owned land.

On December 16, 1954, my wife, Carlyn, and I arrived at the monument and drove slowly over the paved nine mile loop road to acquaint ourselves with the park. Our first concern was to become familiar with the desert type of plant life in the park, so we purchased a booklet which named and described the plants in the exhibit areas around the cactus forest drive. Before the day was over, we had become familiar with the common plants in the park.

We decided that the best way to see any wildlife was to park the car and get away from the loop road. As we wandered into the leafless forest of Giant Saguaro (sah-wah-ro), we couldn't help but feel the friendliness of the huge silent figures. We had scarcely gone 100 yards from the car when we encountered our first wildlife. We saw a group of Gambel's Quail busily feeding in a wash. As we approached them they hastily scurried in the opposite direction. A Blacktailed Jackrabbit was startled also, and raced across the wash to disappear among the Cholla (cho-yuh) and Prickly Pear Cacti. A flock of Desert Sparrows rose from the ground and flew to a nearby Palo Verde (pal-oh-vair-day) tree. As we continued our trip through the forest, we could hear the shrill whistle of the Palmer's Thresher in the distance. From time to time we saw the Gila Woodpecker and Gilded Flicker bound from one saguaro to another. Occasionally, one of them would slip into one of the holes in the saguaros and then promptly poke his head out. We were ever on the alert for a glimpse of the Roadrunner, but our first day brought no sign of any. We returned to the picnic area and spent the night in our sleeping bags under the stars.

The following morning we were greeted shortly after dawn by the sharp whistle of the Palmer's Thrasher. He certainly demanded our attention! As the sun rose, so did the life on the sonoran desert, and before long, the picnic area was alive with birds. We threw some bread on the ground and sat back to observe the first visitors. Within three minutes two Palmer's Thrashers quickly approached the bread from a nearby Prickly Pear Cactus. A few moments later a Cactus Wren raced out from under a bush, grabbed a piece of bread and scurried in among the cacti. A second Cactus Wren followed suit. Just then a loud "churr . . . pit" caught our attention. A male and female Gila Woodpecker landed on a nearby saguaro, looked over the situation and then flew to the ground near the bread. They approached the bread in an awkward waddle which gave us the impression that they were almost legless. Each one consumed one piece of bread on the spot and then flew off with another piece. As they left, the Cactus Wren and Palmer's Thrasher raced in and snatched another piece of bread and scooted under the cacti. This went on for about 15 minutes. The highlight of our observations was the

bold appearance of a fiery Arizona Cardinal. He suddenly approached the bread from the confines of a Prickly Pear Cactus, grabbed a piece in his bill, and flew off to a nearby Ocotilla (oh-koh-tee-yo). He remained near the area for over ten minutes and then disappeared over the hill. Before we had completed breakfast, the Gilded Flicker, Bewick's Wren, Verdin, and House Finch joined the list of visitors. As the sun rose and heated the cool air, we drove slowly around the loop road. In the midst of a dense growth of Creosote Bushes, Carlyn spotted a Roadrunner feeding in the midst of a group of Gambel's Quail. I quickly parked the car and grabbed my camera. As I approached them, the quail promptly dispersed leaving the Roadrunner to face me alone. I thought the bird might run off "half-cocked" at any moment so I quickly set my tripod up and began photographing him. As the camera clicked away, the Roadrunner became quite curious and cautiously approached me with his crest rising and falling with each succeeding step. Approximately 15 feet from me he flattened out on the ground and took a hasty dust bath. On completing his bath he came to within three feet of me, cocked his head from side to side, raised and lowered his crest a few more times, and then stalked off, seemingly satisfied. I returned to the car and we continued our trip around the loop. We stopped near the site of the giant 48-foot saguaro, and I walked out to have a closer look at it. I had just covered half the distance to it when I saw some animals moving through the cacti and bushes not over 50 yards from me. I could not make out what they were until one walked out into a clearing. They were Peccary! I called to Carlyn and she quickly joined me. As we watched them scurry through the underbrush, we were startled by a grunt behind us. Without looking we raced to the car and scrambled into the front seat. As we recovered our composure, a pack of 11 Peccary scampered across the road just ahead of us and disappeared into the underbrush. In our mad scramble to the car, I had left my camera sitting near the giant saguaro. After several feeble attempts at retrieving it, I made a headlong dash for it, snatched it up, and raced for the car. We immediately drove to the park headquarters and asked the superintendent what our chances of stalking Peccary were without getting attacked. He informed us that they were unpredictable and were easily put to panic. If they happened to turn in our direction when startled, they could be dangerous. He informed us that we would be reasonably safe if we stalked them from a distance, kept from startling them, and did not allow ourselves to get between the adults and their young. With this in mind we returned to the spot where we had last seen them. We followed their train through the foothills of the Tanque Verde mountains and then decided that it would be best to try and pick up their trail the next day, as it was getting late. On our return trip to the car we "jumped" two Mexican Mule Deer. They had been lying near some huge rocks and were suddenly startled by our presence. Both of them bounded up to higher ground and disappeared over the foothill.

We were awakened by the patter of rain the following morning. The clouds in the east were lifting and it looked like the moisture would have to make way for the sun eventually. It was not time for the sun to appear over the mountains, so we decided to make the loop drive before other tourists made their appearance. As we left the picnic area we saw what looked like a hawk on one of the saguaros. He flew as we made our approach. A glimpse of his red tail gave us his identity. At the first exhibit area a coyote ran across the road with a rabbit dangling from his mouth. He stopped and turned toward us a short distance from the road. He was certainly a handsome

animal! He posed for us momentarily and then trotted off through the underbrush. Beyond the exhibit area I noticed another hawk perched on a saguaro arm. He too flew on our approach and I identified him as a Swainson's Hawk. When we arrived at the second main exhibit area, I stopped the car and decided to have a look in the peccary den. Before I had walked ten feet from the car, a series of grunts filled the air and two boars rushed out of the mouth of the den and struck a menacing pose. The fur on the back of their necks was one big bristle. I promptly climbed back into the car and we eyed them respectfully. I maneuvered the car so that we could see directly into the den without having to get out. The den was literally packed with peccary piled on top of one another. The two boars remained on guard at the den's entrance. We thought that if we quietly took our leave, the boars might return to the inner recesses of the den and lie down with the rest of the pack. After a hasty breakfast at the picnic grounds, we returned to the den site and found the pack still at large. They were spread out over the exhibit area feeding on Prickly Pear Cacti. The rain had stopped in the meantime, and the sun was making a feeble attempt at breaking through the clouds. I set my camera on the road and began taking pictures of the feeding pack. They eventually crossed the road on both sides of me and slowly made their way up the foothill. Carlyn reluctantly joined me, and we stalked them from what we judged was a safe distance. As they moved in and out of the underbrush, we kept to the higher ground and observed them. We eventually got an accurate count of them and found the pack to consist of 13 adults and three young. The young were about half the adult size. They remained quite close to their parents. Once in a while one of the young would become so engrossed in a root stalk that he would find himself a few hundred feet from his parents. When this occurred he would drop the partly eaten root and make a mad dash for his distant parents. As the pack worked their way through the foothills, a trail of devastation was left behind. They uprooted and knocked down several Barrel Cacti, tore at the roots of the Johoba (ho-hoh-buh) Bush, and sampled every Prickly Pear Cactus in their path. We couldn't quite comprehend how they could eat the prickly pear without cutting their tongues to ribbons. Periodically, two or three adults would get together for a scratching session. They would face in opposite directions and briskly rub their sides together. Apparently, they carried a large number of fleas in their fur. As they ate their way through the foothills, they also left a trail of droppings. Their fecal material had very little body. This was probably due to their almost exclusive diet of Prickly Pear Cactus. Whenever they remained in one area for a reasonable length of time, the air was filled with the fetid odor of their droppings. At one point in their gradual climb they stopped in one area for over an hour and sampled just about every Prickly Pear Cactus and root stock available. Occasionally, one of the young would have a spat over a root with an adult. A nipping battle would ensue with neither one giving ground. Eventually, they would turn their backs and call it a draw. During the big feast we witnessed the mating of a pair. Their breeding lasted approximately 15 minutes, and then they returned to feeding.

On numerous occasions the boars, aroused by the clicking of the movie camera, wheeled in our direction as if to charge. The fur on the back of their necks bristled. On these occasions I stopped running the camera immediately, and we both stood motionless. After a few moments, harmony would be re-established and they would return to their feeding.

By the time evening had arrived, we were inclined to believe that they were related to the Mountain Goat. They

had scaled some formidable rises, and had led us well up the mointain side. We by-passed what appeared to be another of their dens. Apparently, they had two or more dens that they could retire to from time to time. On the approach of darkness we left the interesting party and started the arduous descent to the car. We judged that they had taken us slightly over a mile as the crow flies from their morning den.

We spent the following morning near the park headquarters observing the birds as they came in to get water and feed at the station. Several groups of Gambel's Quail spent most of the morning feeding on the grain put out for them. A Mexican Goshawk put them to flight once as he swooped into their midst . . . narrowly missing one with his talons. We were able to add the Mourning Dove, Say's Phoebe, and Canon Towhee to our bird list. Several Harris's Ground Squirrels mingled with the birds and refreshed themselves with the water.

As we left Soguaro National Monument during the early afternoon, we saw numerous Phainopeplas on each side of the road leading to Tucson. The trip to Organ Pipe was uneventful. An occasional hawk or falcon was seen sitting on a pole or soaring overhead, but outside of these animals, very little wildlife was seen. As we approached the entrance to Organ Pipe Cactus National Monument, a Roadrunner almost ran into our car. He made an ungraceful landing on the side of the road and then ran off through the underbrush. We found the administration building closed so we went to the park superintendent's home. We found him in and quite willing to give us all the information we wanted. He warned us about taking the unimproved roads as we might get stranded for weeks on them if any car trouble should develop or we should get bogged down in the road.

Organ Pipe Cactus National Monument is the largest of the Arizona national monuments. It includes 328,161 acres of federally owned land. Its southern border hinges on the U. S.-Mexican border. This monument receives its name from the massive clusters of the strange-appearing, long-armed giant, the Organ Pipe Cactus. Each one resembles the huge rows of pipes of a pipe organ. There are two improved roads in the monument. One stretches east of the headquarters for eight miles, and the other makes a loop for 40 miles just west of the headquarters.

We chose to try the 40 mile loop road to see what it had to offer in plant and animal life. We found that the road had an endless number of dips and curves. One either drove slowly or took the consequences. We had to straddle numerous washes and quite often found the rear or front end of the car hitting bottom on the ascending or descending grades. I enjoyed every minute of the drive and secretly wished that the park department would not improve the road. This was one place that tourists would be forced to view the plant and animal life. A short distance from headquarters, we sighted two Red-tailed Hawks chasing each other through the Saguaro forest. Eventually they landed on the limb of an Ironwood tree. One of them began pecking at what looked like the remains of a dead animal. On closer scrutiny we found it to be his own talons. He was giving them a thorough cleaning. Occassionally, a Blacktailed Jackrabbit raced through the underbrush, or a Desert Cottontail crossed our path. We found the Phainopepla, Gambel's Quail, and Gambel's Sparrow to be quite prevalent near the washes. We eventually arrived at Dripping Springs and parked the car. A short climb up the cliff led us to the cave where the springs originated. We found it swarming with wasps. Many of them had fallen into the water. We continued to climb up the trail leading to the top of the cliff, and found ourselves looking over a broad valley surrounded by moun-

tains. We combed the mountain sides and valley with our binoculars for a glimpse of the Desert Bighorn Sheep, but none were in sight. We descended from the cliff and made our way to the car. Just beyond the Dripping Springs area we noticed a Mule Deer standing near a giant Organ Pipe Cactus. He remained as motionless as a statue and just gazed at us. We returned the gaze for about five minutes and then made our camp for the night. We spent another night under the stars in our sleeping bags. Early the following morning we continued our trip on the loop road. We startled two more Mule Deer standing near the loop road and sighted a coyote standing in a wash.

The superintendent had told us about a place called Quitobaquito. It had approximately an acre of water fed by spring. It was supposed to be a melting pot for birds in the summer months. He thought that our chances of seeing a Vermilion Flycatcher there were good. Quitobaquito is located a few yards from the Mexican border. As we approached this desert oasis, two Green-winged Teal flew up from the water. We parked the car in an inconspicuous place and waited for the birds to make their appearance. Within an hour we got to see the Bewick's and Cactus Wren, Phainopepla, Black and Say's Phoebe, Verdin, Western Gnatcatcher, Gambel's Sparrow, Western Meadowlark, Gila Woodpecker, Raven, Killdeer, Oregon Junco, Desert Sparrow, Audubon's Warbler, Palmer's Thrasher, and Red-tailed Hawk. We took our leave of Quitobaquito and returned to the main loop road. I noticed a Gray Fox sitting near the side of the road just off a small trail with his back to us. It looked like he was poised on the trail's edge anticipating the arrival of some prey. I stopped the car approximately 15 feet from him and set my camera up to photograph him. He only became aware of my presence when the camera started clicking. He turned his head and eyed me without budging. I made a half circle and approached him from the opposite side. Apparently this was a little too much for him, because he stood up and trotted down the trail, disappearing into the underbrush. — *Duluth, Minn.*

Seasonal Report

by

Mary Lupient

The month of March was marked by very cold weather. Snow blanketed the entire state March 23. River lowlands, ponds and lakes were frozen solid until the end of the month. Marie Aftreith at Schroeder reported March 28 that Lake Superior had an unusual amount of ice on it. It was 15 below at Bemidji on the 25th and it was zero in the Twin Cities March 26, coldest for this date since the weather bureau began keeping records. The last three days of the month were moderate and ushered April in, a very lovely month. On the 10th the temperature rose to 81 in the southern part of the state. Wild flowers such as Hepaticas and Bloodroots carpeted the woodlands and other species of flowers bloomed earlier than usual. The season in general was ten days ahead of other years. Except for a week of very high winds and dust storms. May too, offered exceptionally fine weather. However precipitation in April and May to date of this writing, May 21, was far below normal. The drought created grass fire hazards and became a menace to crops. The weather probably affected the late migrations especially the warbler movement. No large waves were reported and apparently only occasional small bands were seen. The field trip to Frontenac, May 14-15, was not productive. Few migrant warblers were there, but the Prothonotary was seen by many observers. Two males and a female appeared to be looking for nesting sites near Lake Pepin. A Prothonotary was singing near the St. Croix river in O'Brien state park, May 18, in a habitat suitable for nesting. Several Blue-winged Warblers were seen May 14 where they habitually nest near Vasa and in the same area Cerulean Warblers sang in the trees. A Black-throated Blue Warbler was seen at Robert's Sanctuary May 12, and a Connecticut Warbler walked under my hedges for several hours, May 19. The first Myrtle Warbler was reported April 1 but the peak of the migration was later and much lighter than usual. It occurred the week following May 2. At this time Palm Warblers and Ruby-crowned Kinglets were reported from several sections.

Grebes appeared at the usual time. A concentration of 150 Horned Grebes was reported by Dr. P. B. Hofslund in Superior bay, May 3. He reported an estimated flock of between two and three thousand Lesser Scaups in the same area. Ducks were less abundant in eastern parts of the state. No reports were received from western sections. At Mille Lacs, April 27, Dr. Vernon Whipple saw a concentration of Redheads and Canvasbacks. The duck migration in southwestern Minnesota was caught by the severe cold. The birds were frozen in the lakes and hundreds perished from starvation and predation. About 25 very emaciated dead ducks were brought to the Museum of Natural History. Dr. W. J. Breckenridge reported the arrival of Wood Ducks on an island in the Mississippi near his home, April 5. They nested. April 23, one nest contained 11 eggs and on May 14 another nest contained 12 eggs. Both nests were destroyed, presumably by predators.

A pair of Loons nested on a small rushy island in Lake Vadnais near St. Paul. From the nearby road one bird could be seen on the nest as the other swam about in the vicinity.

Some interesting records on the American Egret were received. C. H. Asp

reported a colony near Afton which harbored about 300 Great Blue Herons and approximately 100 of the Egrets. He estimated from 25 to 50 Egret nests. The folowing report was received from A. C. Rosenwinkel: "On April 23 John Hall and I visited a Great Blue Heron colony with a few American Egrets in it. The colony is situated in a circular area one-fourth mile in diameter along an arm of the Vermillion river a few miles south of Hastings. We estimated 200 nests, two of them occupied by American Egrets. On April 30 a larger number of Egrets were in the colony". From several sections of southern Minnesota there were reports of single individuals.

Whistling Swans arrived April 3 in the lowlands adjacent to the Izaac Walton bass ponds and Cedar avenue south of Minneapolis. There were five but by April 5 the number had increased to more than 200. At times they gathered in small groups and divided, facing each other. They then stretched their necks far forward at a slightly upward angle and bowed in a solemn and dignified manner until their bills almost touched the water. All the time they uttered low melodious notes of a bell-like quality. They performed in this manner several times. They left the area April 13. An interesting report was received from the museum from Mrs. William Whiteford who lives close to the Minnesota river lowlands adjacent to the Izaak Walton bass ponds. She stated that about 1000 Whistling Swans arrived April 24 and stayed only a few hours. At Fish lake in Stevens county, Dr. A. B. Erickson saw approximately 30 and Dr. Hofslund stated that the first Swans arrived in the bay at Duluth, April 8. More than 400 were counted on the St. Louis river, April 21. John Futcher reported that nine Whistling Swans were at Rice Lake refuge near MacGregor, May 9.

The goose migration was reportedly normal. There were large flocks at Lake Traverse, March 31 to April 3. Thousands waited in southeastern Minnesota the third week in March presumably because there was little open water except in rivers. A. C. Rosenwinkel reported a flock of 40 Blue and Snow Geese near St. Paul, April 9. Robley Hunt, manager of Mud Lake refuge reported to the museum that there are many more Canada Geese nesting in the refuge this year. Some time ago the wings of a number of the geese were clipped and the birds penned up for a year. They were then released and have been returning each spring to nest, bringing with them other Canadas. This spring there were a larger number than before and there is now a nice increase in the nesting population.

At Rothsne about 150 Sandhill Cranes wer observed the forepart of April, and 90 were still there April 14. At the same time two Snowy Owls were seen at the Minneapolis city limits in March and at MacGregor one was seen March 10. A Hawk Owl was reported by Les Dundas, Rice Lake refuge manager, March 10. A Sawwhet was reported at MacGregor by John Futcher, March 8. A Great Horned Owl's nest containing young was discovered near Ft. Snelling by Mrs. E. W. Joul. It was seen later by several observers.

The only hawk migration of any size was seen by Dr. Hofslund at Duluth, May 3. He stated that there was a continuous flight of Sparrow Hawks, Pigeon Hawks, Sharpshins, Coopers and Marsh Hawks. About 75 Marsh Hawks were seen near Rothsne April 14. Bald Eagles were reported by several observers. A Harlan's Hawk was observed by A. C. Rosenwinkel near St. Paul, April 19.

The Rail migration was reportedly very late, and shorebirds, except for a few individuals, were several days later than usual. Mrs. Ann Dodge reported a large flock of Golden Plovers, May 2, near the Minneapolis city limits. With them were Wilson's Phalaropes, Upland Plovers and other shorebirds of the common species. Due to the very dry

weather the water table became so low that some ponds completely dried up and thus shorebird observation was hampered. Fewer in number were reported although they appeared throughout the state. Between 25 and 30 Phalaropes appeared May 12 at a small pond near Minneapolis. Two of them were Northern Phalaropes.

Forster's Terns arrived with Common Terns at Mother lake, Minneapolis, April 14. The peak of the Black Tern migration was May 12 and a Caspian was seen at Shakopee May 13.

The gull migration was a few days late, that is, the Ring-billed and Herring Gulls were, in the south half of Minnesota. There were no reports on the Franklin's Gull. Dr. A. E. Allin reported that Mrs. R. M. Beckett saw an Iceland Gull at Two Harbors, March 24.

The arrival of Mourning Doves, Cuckoos, Nighthawks, Chimney Swifts, Ruby-throated Hummingbirds, Belted Kingfishers and Flickers was about on the usual dates. An interesting note was received from Dr. A. B. Erickson. It read as follows: "On April 21 at Gorder's lake in Stevens county I saw a Red-shafted Flicker. The bird flew across the road as I sat in a parked car. The red in the tail and the wings was pronounced. I was not able to see the bird's head, therefore I cannot state what color the cheek patches were".

Blue-grey Gnatcatchers are never abundant, but they are found at Frontenac, O'Brien state park, at the home of Mrs. Ann Dodge, Minnetonka, and several records were received from the Twin Cities. American Pipits walked along a pond near Minneapolis as late as May 15, and a good sized flock of Lapland Longspurs tarried in the same area, last seen May 13.

Bohemian Waxwings roamed around southern Minnesota until late in March. They were more abundant than usual, but no large flocks of Cedar Waxwings were reported.

Flycatchers and Swallows were late in arriving. Purple Martins were notably later and reportedly much less abundant. Many vacancies occurred in martin houses.

Thrushes were less numerous but the dense foliage which came out earlier than normal offered so much concealment that observation was difficult. There was a large mortality among thrushes last spring because of late freezing storms. The peak of the Robin migration in the Twin City area was April 14 and they were very abundant. The number and arrival of Bluebirds was normal.

Blackbirds, especially the Red-winged, arrived late, in great numbers as usual. Baltimore Orioles were very abundant. Dickcissels and Bobolinks were first noted May 18.

The sparrow migration was also a few days late and the numbers fewer. The migration of Slate-colored Juncos was heavy and some lingered in and around the Twin Cities as late as May 14.

All migrants hurried along except the ones mentioned above, probably because they were late in arriving. Judging by the fine weather in April and May it is difficult to determine why they appeared later than their wont and passed through rapidly in small bands. Storms south of us and inclement weather may have been a determining factor. It is seldom that so few warblers have been observed, but they may have taken advantage of the south winds and fair weather here to pass over without stopping. Rain usually brings them down and there was practically no precipitation. — *Minneapolis, Minn.*

The Canadian Lakehead

Edited by
A. E. Allin

The late winter of 1954-55 was fairly cold. In early February the temperature fell to —20°. It was —18° at the end of the month and —12° on March 7. The snowfall for the winter was light in the early part, but more was received in February and March. The total precipitation for the winter was 9.39" compared with 8.34" in 1953-54. The lake was frozen nearly to Isle Royale. No snow fell in April or May in contrast to a year ago and both months were very dry. May was unusually warm. Pussy willows were out on March 22. Compton Tortoiseshell and Mourning Cloak butterflies were seen on April 3 and April 5 respectively. Swamp Tree-frogs were heard on April 10 and American Toads were trilling on May 22. On the latter date most of the trees were in leaf and saskatoons, pine cherries and wild plums were in bloom. The first Little Brown Bat was seen on May 10. In general the season was ten days to two weeks earlier than usual.

Nothing of interest was noted during the late winter months. A few Pine Grosbeaks, Northern Shrikes and Snowy Owls were present and remained until early April. A Bronzed Grackle, found dead on March 11, constitutes one of our few winter records for the species. Usually one or more Richardson's Owls are reported in early March but none was seen this spring.

Although the occasional Redpoll had been reported during the winter, flocks appeared about March 13 and were probably our first migrants. Two Hoary Redpolls were also seen on that date. A large flock of Snow Buntings was seen on February 20. The only other record during 1955 was a flock reported on March 25 by K. Denis. As usual the first common migrants were crows and Herring Gulls. Both species were seen on March 14. A Robin was heard singing on March 28 and an American Golden-eye was seen on the same date. The first days of April brought a wave of early migrants — Marsh Hawk, April 2; Brown Creeper and Slate-coloured Junco, April 4; and Bronzed Grackles, April 5. Several flocks of Canada Geese were reported in the late evening of April 5.

Peculiarly, few, if any, Canada Geese were then reported for nearly three weeks. The majority of the Canada Geese passed through the area on April 23 and 24. None has been seen subsequently, and no Snow or Blue Geese were reported this spring. T. Tuominen reported two Whistling Swans on the Kaministiquia river on April 28. Duck migration was very poor but this was possibly due to the early spring with an unusually early opening of the inland lakes. The ice began to break up in the local harbour on April 17, and went out of Whitefish lake on April 22. In 1954 it did not go out until May 14. Many ducks were present there on April 22. Mallards, Blacks, and Pintails arrived on April 8, 11 and 14, respectively. Baldpates on April 14 were two days earlier than previously recorded. Ringnecked Ducks and Lesser Scaup were noted on April 15, Redheads on April 28 and Greater Scaup on May 1. Bluewinged Teal were reported on April 29 and a Shoveller on May 7. Canvasbacks, Hooded Mergansers, Ruddy Ducks and Gadwalls were conspicuous by their absence. On May 8, 145 Scaup consisted of 106 males and 39 females. Two

days later 200 Scaup showed a preponderance of males over females in the ratio of 2:1. By May 22, few Bluebills remained but we counted 24 male and seven female. On all three occasions the majority of the birds were Greater Scaup but a few Lesser Scaup were probably included.

We have commented on the changing status of shore birds at the Canadian Lakehead. This spring was notable for the species seen rather than for their numbers. On May 12, K. Denis saw a Piping Plover. There are only two previous records, one seen by Col. Dear in 1940 and one on May 25, 1947, (K. Eoll). White-rumped and Bairds' Sandpipers have both been recorded. The only previous spring records were May 24 and May 29, 1954. C. E. Garton saw Pectoral Sandpipers on May 19; the only previous spring record was for May 23, 1953. The Dowitcher had been seen on May 25, 1947, May 16, 1953 and May 29, 1954. This year I saw four in Fort William on May 17, and numbers have been recorded subsequently by other observers. Along the same shore, David Allin and I saw two Hudsonian Godwits on the evening of May 22 — while taking a brief respite from the writing of these columns. This was a new species for our life-list and the third Lakehead record. K. Eoll had recorded the species on May 24, 1942, and Col. Dear saw a pair in Port Arthur many years ago. We saw five more in the same area on May 23. A pair of Upland Plovers returned on May 8, equalling the previous early arrival of May 8, 1953. Thev were first seen in these fields in 1946.

As noted above, spring was unusually early and with the warm April and May, and an absence of storms, migration was unimpeded. The majority of the birds arrived ahead of average. Of 103 species for which we have adequate date and which are expected prior to May 24, no less than 87 species arrived prior to the average date. The majority were only a few days early but no less than 24 species were ten or more days early and the 103 species averaged five days. The following 16 species have been reported earlier than on any previous occasion: Phoebe and Red-backed Sandpiper, (1 day); Baldpate and American Golden-eye (2 days); Least Sandpiper, (3 days); Osprey and Cliff Swallow (4 days); Brown Thrasher, Lincoln's Sparrow, Hermit Thrush and White-throated Sparrow (5 days); Eastern Bluebird, Northern Yellowthroat Warbler, and Ring-billed Gull (6 days); Black-bellied Plover and Barn Swallow (12 days). The latter two are most unusual. The Tree Swallow excepted, swallows have not previously been reported locally in April, but both Cliff and Barn Swallows returned on April 29, 1955. The Black-bellied Plover has returned on the average on May 28 for the seven years recorded but this year was observed on May 12.

Migration is now drawing to a close. As we have indicated it has been unusually early. Whereas there has been no shortage of species, many have been recorded in very small numbers. In addition to the geese and ducks, I would include Tree Swallows, Phoebes, Myrtle Warblers, White-throated Sparrows, and the three local thrushes, Hermit, Wilson's and Olive-backed. The Rusty Blackbird has been reported on only one occasion and Slate-coloured Juncos were seen in dozens rather than in hundreds. No Woodcock has been reported. The above species are ones which we recorded as being affected by the severe, widespread storm of early May, 1954. Was its effect sufficiently severe to be reflected in the 1955 migration? Probably this would not be assumed without further proof, for the later species have also proven to be uncommon. To May 23, the majority of the warblers and the vireos have been recorded but in relatively small numbers. Possibly the main flight has not yet arrived.

The Chipping Sparrow has been very common this spring and unusual numbers of Lincoln Sparrows have been seen. White-crowned Sparrows have

been scarce and only the occasional Fox and Harris's Sparrow were reported. We saw a Gambel's Sparrow with three White-crowned Sparrows on May 18. Previous records for this sub-species are May 9, 1943, May 23, 1945 and May 15, 1946. There has been an apparent absence of Horned Larks.

The outstanding observation to date was a Lark Sparrow seen by C. E. Garton in Port Arthur on April 30. This is an addition to the local list. Another addition not previously recorded in these columns has recently come to our attention. A. Outram, a well-known Toronto ornithologist, observed a Lark Bunting in Port Arthur on June 27, 1954. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

Another new sustaining member is Mr. Drake Lightner. His name was received too late to be included on the list of sustaining members published in the Publication committee report in the March issue.

* * *

This issue of *The Flicker* is the fifth since December, 1954. That means we have caught up with our publication dates. If we wish to keep up with our schedule, it is important that contributors get their material to the editor in plenty of time for the issue they wish to contribute to. That should be about a month before the issue is ready to go to press. We will publish in March, June, September, and December.

* * *

At the last business meeting of the M.O.U. there were certain changes made in the make-up of the editorial committee. With the appointment of two associate editors, it is hoped that the editor's job will be eased, and that the make-up of the magazine will be improved. Will you send material for cover pictures, photo essay stories, etc. to Harvey Gunderson, Museum of Natural History, and Notes of Interest and items of interest about M.O.U. members to William Longley, Kasson, Minnesota.

A Cooperative Study of Bird Migration

In 1951 the Wisconsin Society for Ornithology began an intensive study of migration by seeking arrival dates from every county in Wisconsin. Now in its third year on a continent-wide scale, the project involves a growing network of cooperators throughout the 41 states and provinces east of the Rockies, from the Gulf into Canada.

Through comparison of detailed migration maps in successive seasons, the effects of various kinds of weather on the timing, speed, extent and direction of flights can be studied. The very promising results in 1953 and 1954[1] can be verified only by more numerous reports in the future. So additional cooperators are welcome — not only professional ornithologists and bird-banders, but also every back-yard bird-watcher who keeps records — and in towns and counties already represented, as well as in the blank areas on the present maps.

The 37 species under study were chosen partly for special purposes and partly to insure that there would be some early and late migrants to watch for in every part of the study area; no one is expected to report on all of them.

Canada Goose
Marsh Hawk
Killdeer
Wilson's Snipe
Mourning Dove
Nighthawk
Chimney Swift
Ruby-throated Hummingbird
Yellow-shafted Flicker
Eastern Kingbird
Crested Flycatcher
Eastern Phoebe
Eastern Wood Pewee
Barn Swallow
Purple Martin
Common Crow
House Wren
Catbird
Brown Thrasher
Wood Thrush
Eastern Bluebird male and female
Red-eyed Vireo
Black and White Warbler
Yellow Warbler
Myrtle Warbler
Oven-bird
American Redstart
Red-winged Blackbird
Baltimore Oriole
Rose-breasted Grosbeak
Scarlet Tanager
Indigo Bunting
American Goldfinch
Slate-colored Junco
3 Sparrows: Chipping White-crowned White-throated

The data desired include the date when migrants of each species were thought to arrive in your neighborhood, plus, when possible, the numbers seen on that date. For example, Chimney Swift, April 27, 1955, flock of about 5. Dates of species whose exact arrival was probably missed during the observer's absence for several days should be labeled as such (E. g., *by* April 27). There should be no more than one report on the arriving species seen on a group field trip; but if 30 or even 50 persons in the same city each recorded the appearance of White-throats or Wrens in their gardens, every single record will be useful.

Forms supplied to cooperators also provide space to report additional information, such as dates of waves or peak numbers, and, for species not resident in summer, the departure date, when such observations can be made. But just a postcard will suffice for reporting arrival dates of a few species. All reports should be sent to Chandler S. Robbins, Patuxent Research Refuge, Laurel, Maryland, or to your regional Audubon Field Notes editor. If you kept spring records in 1953 or 1954, those will be welcome also (for the same species listed above). A different list of species suitable for study in fall will be sent later in 1955 to all cooperators. — *James Zimmerman, Wisc. Soc. for Ornithology.*

[1]See, for instance, John V. Dennis (**Audubon Magazine**, May-June, 1954, pp. 130-133); and Aaron M. Bagg (**Bulletin of the Massachussetts Audubon Society**, March-April, 1955).

Notes of Interest

SURF SCOTERS IN CASS COUNTY, MINNESOTA — Four Surf Scoters were shot on October 9, 1954 by a party of two duck hunters on Thillippi lake in Cass county near Remer, Minnesota.

The hunters described the birds as flying very low over the water in a small flock. The ducks were taken for a flock of Ringnecks as many flocks of Ringnecks were using the area.

Two of the scoters were only crippled when they were first shot down, and it took considerable effort on the part of the hunters to overtake and shoot the fast divers.

The birds were examined and photographed in kodachrome as part of the waterfowl bag check survey as conducted by the Division of Game and Fish.

The four birds were juveniles — two males and two females. All four birds had the same markings. The color was dark brown, almost all over, with the exception of the two white cheek patches. There was no trace of white on the wings. These characteristics are typical of juvenile Surf Scoters. The bill and head were also typical of this scoter as described in Kortwright's book on waterfowl.

One additional record of a Surf Scoter was obtained recently by John R. Tester. He shot a bird of this species at Swan lake, Severance township, Sibley county, in October 1950. — *Walter H. Petraborg, Minnesota Division of Game and Fish, St. Paul.*

* * *

GOSHAWKS AT CAMP RIPLEY, MINNESOTA — In Minnesota the Goshawk is not commonly recorded, and even in certain areas where it is found, its presence generally is not known, for this hawk prefers a habitat of dense woods or brush — the habitat also of the Ruffed Grouse and Snowshoe Hare. In this type of cover its movements are difficult to observe — for its flight is low, seldom does it soar above the tree tops, usually darting among the branches and shadows.

During the bow and arrow season for deer at Camp Ripley, large numbers of archers were afield. Hunting deer with bow and arrow calls for careful stalking or patient waiting in favorable sighting lanes. In this manner, numerous sight records and encounters were made of other wildlife species. Hunters passing through the checking station would volunteer this information in addition to data relative to deer hunting. Several individuals commented on the presence of hawks, and their description of flight and area frequented by these birds typified the Goshawk. One archer related that while he was admiring a Ruffed Grouse, a Goshawk materialized out of nowhere, struck down the grouse in a flurry of leaves and feathers, and carried the bird off even though the archer was within 25 feet of the scene. Another hunter on a "stand" was startled by a screaming Bluejay being hotly pursued by a Goshawk. The jay, attempting to elude the large hawk, would fly through tangles of hazel brush, but the Goshawk would crash into the thicket in pursuit. The kill was effected within several feet of this archer — and again the hawk got away.

Subsequent field trips in this area have yielded an occasional glimpse of this large gull-like hawk, but more often only a patch of feathers and bone fragments of grouse are clues of its continued presence. Many of these Goshawks are migrants from the north country, similar in this respect to the Snowy Owl, but unlike the owl whose numbers are greatly reduced by trophy hunters, the Goshawk is not an easy mark. — *John L. Zorichak, Minnesota Division of Game and Fish, Brainerd.*

SANDHILL CRANES ON THE ROSEAU RIVER REFUGE AND PUBLIC HUNTING GROUNDS, ROSEAU, MINNESOTA — Sandhill Crane observations and the number of cranes that I observed in 1954 were not as numerous as in 1953 in spite of more time spent in the area in 1954. It is possible that the impoundments constructed in 1952 and filled for the first time in the spring of 1954 may have inundated some habitat formerly used by the Sandhill Cranes resulting in a reduction of habitat and fewer cranes using the area.

The first crane was observed on May 12, 1954, flying over flooded willow and sedges in pool 2 while an aerial waterfowl migration survey was being made. On May 18 while an aerial breeding pair count of waterfowl was being made, a pair of Sandhill Cranes was observed on a semi-open island covered with Juneberry, willow brush, grasses, and herbaceous growth in the southeastern portion of pool 3.

The wet sedge and *Juncus* meadow north of pool 1, and west of the Pine creek diversion ditch was where Sandhill Cranes were most frequently seen. Four cranes were seen feeding on the wet meadow on June 3; three cranes were seen on June 16; and on June 28 two adult and one juvenile cranes were seen. The two adult cranes were lying on narrow ridges of peat 20 to 50 feet long and 12 to 18 inches wide covered with Blue Flag and Cowslip, and rising six inches above the surrounding wet meadow. The juvenile crane appeared to be playing about the adults. When I tried to get a closer look at the juvenile, the adults did not fly until I approached within 200 feet. The juvenile bird, however, disappeared when I was still over a thousand feet away. A half hour was spent searching the narrow higher strips for the juvenile but without success.

The fair size flocks of 20 to 50 cranes seen in August 1953 after the young were flying were not seen this past summer. Neither was the large flock of migrating cranes that has been noted in late September in previous years. In late September 1953 large flocks of 100 to 400 cranes were observed in the area. They remained until the opening of the waterfowl season. Large flocks of cranes were not observed in the fall of 1954 although several small flocks of five to 12 cranes were observed the opening week of the waterfowl season with one flock of seven seen winging south on October 10. — *Lester T. Magnus, Division of Game and Fish, Roseau.*

* * *

WHAT WEATHER? Wind, clouds, sun and temperature all appear on bird check lists.

Do you, as an avid birder, record all of these and realize what effect they have on your birding? You do? How scientific! If so, I wonder how many of the MOU'ers gave consideration to the weather on the February 19-20 trip along the North Shore of Lake Superior to Grand Marais?

Those 32 Americans who made the trip encountered all types of weather. The icy highway made one wish for a "horseshoe" on the tires. A blizzard and strong winds — how about a helicopter motive for the automobile?

Any compensations? Yes, for the photographers as the snow and ice covered trees with the sun on them made a fairyland of the countryside. The wind swaying the ice-coated trees provided tinkling music.

The contrast to good roads and fair weather of previous years made the bird watchers weigh the advantages of just common old weather with the 1955 variety!

Did we see birds? They can be listed by the bird (not road and weather) watchers! — *Amy Chambers, Minneapolis Bird Club.*

* * *

OPOSSUM AT WALNUT LAKE, FARIBAULT COUNTY, MINNESOTA — A minor opossum invasion appears to have taken place in the Walnut Lake area in Faribault county in 1954. Nine are known to have been killed between October 2 and December 7, 1954. Five were taken with coon hounds along the south shore of South Walnut lake during the period October 2-29. Three of these were young, about the size of an adult muskrat, while one was reported as an adult male.

Two more, one of which was known to be a juvenile, were taken about 1½ miles southwest of South Walnut lake. One of these was taken with coon hounds while the other was killed by a hunter during the pheasant season.

On the night of November 15, a juvenile male was killed by a car along the south shore of the lake, and on about December 7 a juvenile female was taken in a mink trap in the same general area. These animals were about the size of an adult house cat. Both are now in the collection of the Minnesota Museum of Natural History, University of Minnesota.

There is no knowledge of opossum ever having been released in the Walnut Lake area. — *Maynard M. Nelson, Minnesota Division of Game and Fish, St. Paul.*

* * *

THE CHUKAR PARTRIDGE (*ALECTORIS GRAECA*) AT ELY, MINNESOTA — A remnant Chukar Partridge population left from the extensive release program of 1937-1947 still exists in Minnesota. A scattered flock of about 100 birds can be seen almost daily in the winter near the Pioneer and Zenith underground mines at Ely, where they are fed by the miners and seek cover in a huge sink hole which separates the mines. Although an occasional bird or two is reported at times from other parts of the state, this is the only remaining flock of any size.

Since the Chukar is a ground feeding bird it cannot find sufficient winter feed in Minnesota's deep snows. At Ely they are fed artificially and are able to use a favored escape mechanism by setting their wings and swooping down the steep walled sides of the sink hole. Clutches are large as nests containing 22 eggs have been found and broods of 16 are common. Inadequate habitat, however, reduces the birds during the winter, and the total number appears to remain relatively stable over a period of years.

Nevada and Idaho each released less than ten thousand birds during their original stocking program and have scored successes in establishing huntable populations. Minnesota raised and released almost ten times as many (65,000) and met with failure. The difference is that suitable habitat resembling that in the Chukar's native countries is found in Idaho and Nevada and not in Minnesota. This indicates the value of intensive surveys prior to any releases of exotic game species and suggests that mass release methods employed indiscriminately over the state are unwise. — *Milton H. Stenlund, Minnesota Division of Game and Fish, Ely, Minnesota.*

HAWK MIGRATION TRIP

The next official M.O.U. field trip will be to Duluth, Minnesota to watch the fall migration of hawks. Because the flight occurs from August through October, there are no definite arrangements for this trip. However, the Duluth Bird club participates in official counts of the Fish and Wildlife Service on the second and third week ends of September, and it is suggested that you try to be there on these week ends in order to avail yourself of their experience. The counts this year will be held on September 10 and 11, and 17 and 18. The main lookout will be on the Skyline Boulevard above 45th Avenue East. For futher information contact *Dr. P. B. Hofslund, Biology Department, University of Minnesota, Duluth Branch, at Duluth, Minnesota.*

THE MINNESOTA ORNITHOLOGISTS' UNION

Are you interested in birds? If so, perhaps you would like to know more about the M.O.U.

Bird study is a fascinating avocation enjoyed by many individuals. Birding enthusiasts who join an ornithological club get mutual benefits by sharing their birding experiences with others who are like-minded. Bird watchers from all parts of Minnesota have banded together in a state-wide organization known as the Minnesota Ornithologists' Union.

Membership in the M.O.U. is open to any person who has a genuine interest in birds and who subscribes to the object of the organization as stated in the constitution and by-laws as follows: "The object of the Union shall be the promotion of a broad program of conservation primarily in the field of ornithology. To achieve this broad objective, the Union urges and promotes interest in field studies and observations of birds by individual members and affiliated bird clubs."

Members in good standing are entitled to vote and participate in all activities of the Union. At the annual meeting of the Union, members have the opportunity to present papers on the program and to participate in field trips. The official organ of the M.O.U. is *The Flicker*, which is published quarterly. Members are invited to publish articles and items on birdlife in this excellent magazine which is sent to the membership in March, June, September and December. The Union has been very active in the state in initiating and promoting legislation and activities pertinent to the conservation of wildlife. Annual dues for active members are $2.00 and they should be paid in advance to the treasurer.

If one subscribes to the purposes of this organization, even if he prefers to do his birding on an individual basis, there is a great need for his becoming an M.O.U. member. Active participation in the activities of the Union is not essential to membership in the society. Your support of the Union and its magazine are important in promoting ornithology in Minnesota. You are invited to join the Minnesota Ornithologists' Union.

Membership Application

Minnesota Ornithologists' Union

Name .....

Street Address .....

City and State .....

Are you a member of a Bird Club? .....

If so, name of Club? .....

Special fields of outdoor interest .....

Comments .....

Please enclose check for $2.00 with application and mail to Mrs. Mary Lupient, 212 Bedford St. S.E., Minneapolis 14, Minnesota.

Minnesota Ornithologists' Union

Affiliated Societies

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President, Helen Johnsrud; Vice-president, Iva M. Loy; Treasurer, Loes P. Scott; Recording Secretary, Esther Jorgenson; Corresponding Secretary, Mrs. C. Flugum.

Meets the second Tuesday, September through May.

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The Flicker

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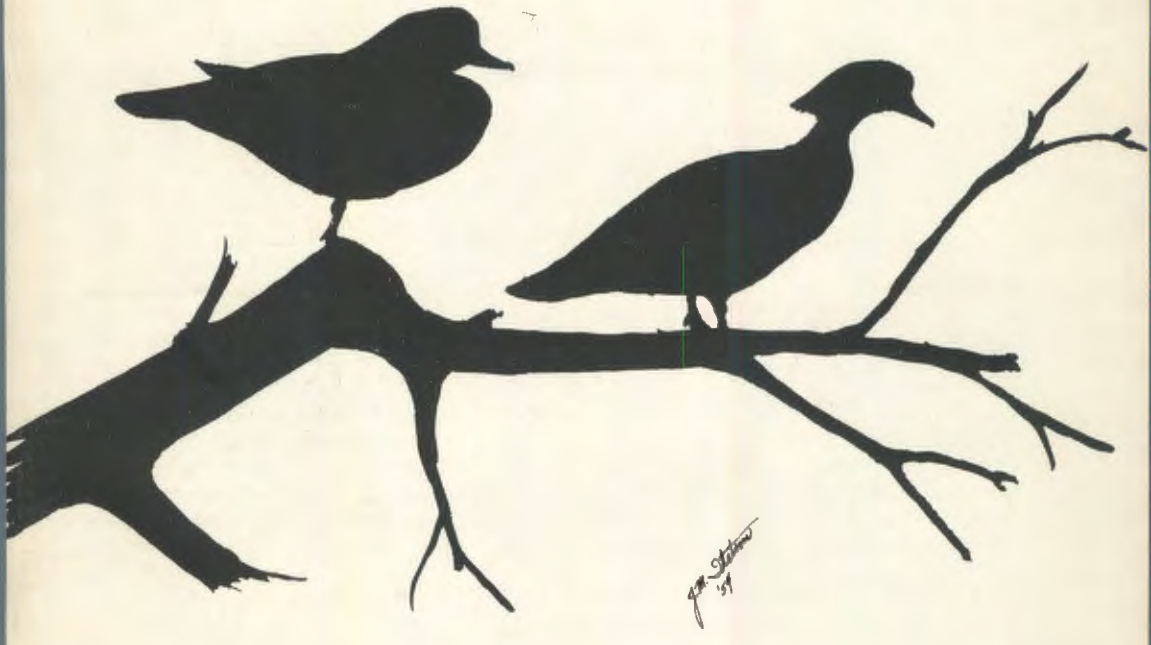

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THE FLICKER

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THE COVER

Wood Duck by J. M. Idstrom

THE PRESIDENT'S PAGE

Taxco, Guerrero, Mexico, July 7, 1955

I think I've found Shangri-La! A mighty fortress; walls three feet thick; bougainvilla, lilies, orchids and tropical vegetation nearly hiding it from view — the Hacienda de San Francisco Cuadra lies tucked away in the mountains about ten miles southwest of the city of silver frame, Jame-Taxco, in the state of Guerrero, Mexico. Ever since a brief visit to the Hacienda two years ago I have been eager to return and to probe its secrets more deeply.

Aside from an intriguing history which dates from its founding in 1540 by an officer in the Spanish army of Herman Cortes, the Hacienda is rich in the natural beauty of its plant and animal life. Its subsequent owner, Don Juan Francisco de la Bodega y Cuadra (a direct descendant of the founder) as commander of the Port of San Blas, led the expedition, accompanied by Fray Junipero Serra, which culminated in the discovery of southern Alaska.

To reach this tropical paradise this summer involved a lengthy and interesting trip down the west coast of Mexico. Naturally, as a good little ornithologist should, I reckoned distance by changes I observed in the bird life of the region. Crossing the border at Nogales it wasn't long before the Vultures, essential in the Mexican scene, appeared — both Turkey and Black soared overhead. Soon the Crested Caracara, a large and powerful bird of prey, also scanned the earth for food.

At Guaymas, Brown Pelicans, magnificent Frigate-birds, and Cormorants gave evidence that we were in a coastal city. Boat-ta'led Grackles and Inca Doves added a new note while those ever present English Sparrows and House Finches were reminders of home. It was interesting to note other common birds of Minnesota which will surprise the traveler — Cardinals, Egrets and Great Blue Herons seem quite at home in the states of Sonora and Sinaloa.

Journeying next into the state of Nayarit to the sea coast city of San Blas furnishes an ornithological treat — here the White and Glossy Ibises abound on sand bars and mud flats of the rivers. Snowy Egrets join their American relatives and the pendulant nests of Yellow-winged Caciques characterize these Pacific lowlands. The sight of my first Squirrel Cuckoo, Black and Blue Jay and Magpie Jay make San Blas memorable for me.

Leaving the coastal lowlands I entered the mountains to the east. Beyond Guadalajara, in a mountain canyon near San Jose Purua, is the Balneario Agua Blanca. Here, during a stay of several days, I became acquainted with the "salta pared" or Canyon Wren — its bold whistle also characteristic of the Hacienda. The identification of many new birds kept me happily busy here. I found White-collared Seedeaters, Blue-black Grassquits, Black Phoebes, Dark-backed Goldfinches and a drab bird, though beautiful songster, the Russet Nightingale Thrush which is known as "tzenzontle." Many of these same birds are found in our new mountain retreat and, in days to come, I hope to discover many others.

Enough for thoughts away from home. The M.O.U. faces another year which demands cooperation and assistance from all its members. Our membership goal of 750 is not yet achieved — we must first *meet* that quota and then *exceed* it. A margin of at least 250 members is necessary before we can feel confident that the *new Flicker* can be continued in its present eye-appealing format. Each of you can help by letting your friends, who have an interest in the bird life of our state, know that a publication meant particularly for them is obtainable. Show them your copies of the *Flicker* and new memberships will certainly follow.

Plan now to take part in our field trips — the hawk migration at Duluth in September and the North Shore trip in February are those in the immediate future.

Robert W. Hanlon, President

Notes on Some Birds of Long and Great Inagua Islands, Bahamas

by

Robert Hanlon

Long Island:

From June 24, until July 2, 1954, three companions and I stayed at Clarence Town, Long Island, in the central Bahamas (See Figure 1), where we observed, studied and collected some of the animal life of this area. Long Island is approximately 65 miles long and averages about five miles in width. It is a relatively low island with occasional small hills in the central portion. Soil is scarce and coral dominates the terrain. There is little commercial farming except for bananas which grow in the "banana holes" found throughout the island. These unusual geological features are said to be created by the action of carbonic acid on limestone and result in depressions four to ten feet deep and 20 to 50 feet in diameter. Some, however, have been enlarged and deepened by the inhabitants. Bush covers

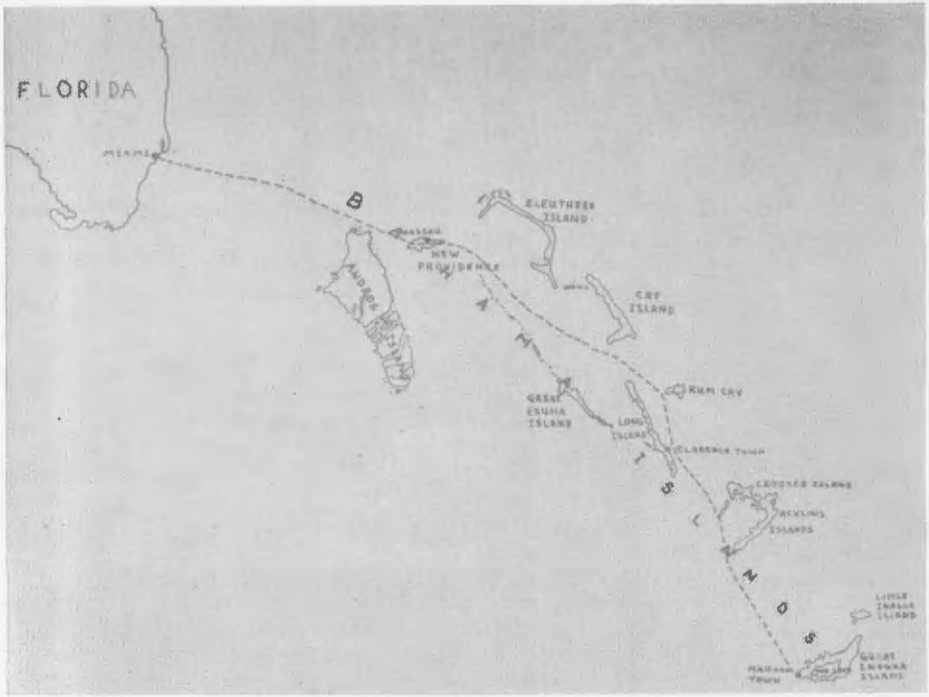


Figure 1. This map indicates the extent of travels taken through the Bahamas. Islands north of Andros, unvisited by the group, have been omitted in this drawing. The broken line indicates the route followed. Map was prepared by Karl Kleinschmidt and photographed by Kay Aaberg.

the island. It consists of low trees, seldom over 25 feet in height and an abundance of cactus and sisal.

Our field work was carried on in an area adjacent to Clarence Town, and at several areas north of the town towards Deadman's Cay. Field notes and observations of the island bird life were supplemented by collected specimens when possible. These specimens are now in the biology department of Mankato State Teachers college and Mankato senior high school.

AMERICAN FRIGATE-BIRD — *Fregata magnificens.* An immature bird was seen flying over Clarence Town, on the afternoon of June 27.

AMERICAN EGRET — *Casmerodius albus egretta.* A lone, mature male, feeding about the salt ponds near the village, was collected on June 30.

GREEN HERON — *Butorides virescens bahamensis.* These were common birds, known locally as "Poor Joes". Nesting was in progress during our visit and a nest of three eggs was collected on June 30, as was a mature female bird.

WILSON'S PLOVER — *Charadrius wilsonia wilsonia.* This bird was encountered frequently about the harbour and cays near Clarence Town. A mature female was collected June 30 on the cay outside Clarence Town harbour.

RUDDY TURNSTONE — *Arenaria interpres morinella.* Two birds were observed on the cay outside of Clarence Town, on June 27.

Figure 2. Greg, a self-admitted member of our group, and native of Long Island, holds a young Black-necked Stilt, one of the commonest Bahamanian birds, which he found crouching beneath a rock in a salt pond near Clarence Town.

WILLET — *Catoptrophorus semipalmatus semipalmatus.* A number of Willets were seen about several salt ponds and along the coastal areas, always in the company of Black-necked Stilts. I do not recall seeing more than a pair of birds at any one locality. A mature female, 14½" in length, was collected at South Beach, Long Island, on June 28.

BLACK-NECKED STILT — *Himantopus himantopus mexicanus.* A most common, vociferous bird on Long Island. Downy young were seen on June 27, on the cay outside the harbour of Clarence Town. A mature female was collected on June 26, near the village. (See figure 2)

LAUGHING GULL — *Larus atricilla.* This, the commonest gull of Long Island, was found near the inland salt ponds as well as along the coast.

GULL-BILLED TERN — *Gelochelidon anglica aranea.* A mature male, measuring 14 inches, was collected at South Beach, near Clarence Town, on June 28.

Figure 3. Sam Nixon, Audubon warden and protector of the Flamingo colony on Great Inagua Island, rests for a moment on an old nest mound while he examines an ailing junior member of the colony.

SOOTY TERN — *Sterna fuscata fuscata.* A nesting colony of about 80 pairs of these terns was found on a cay near Clarence Town. Their single eggs were laid under shrubs or rocks and no attempt was made to construct nest cavities. Natives occasionally made forays on the colony to gather the eggs which they considered very palatable. On June 27, a mature female 15½ inches in length was collected and an egg (54 mm x 39 mm, creamy white marked with numerous irregular chocolate spots) was taken.

LEAST TERN — *Sterna albifrons antillarum.* Found in abundance on Long Island. A mature male measuring eight inches in length was taken on the before-mentioned cay on June 27.

WHITE-CROWNED PIGEON — *Columba leucocephala.* One was observed in flight over a marshy area between Clarence Town and Deadman's Cay on June 28.

MOURNING DOVE — *Zenaida macroura carolinensis.* This was a relatively common bird in and about Clarence Town.

ZENAIDA DOVE — *Zenaida aurita zenaida.* We observed this bird frequently in and around Clarence Town.

GROUND DOVE — *Columbigallina passerina bahamensis.* Known as the "Tobacco Dove", this small bird was abundant about town. Nests and eggs were observed.

MANGROVE CUCKOO — *Coccyzus minor maynardi.* This bird, closely resembling the Yellow-billed Cuckoo, was observed in the rather dense, inland bush country. A mature male was taken on June 26.

NIGHTHAWK — *Chordeiles minor gundlachi.* We found the Nighthawk, called the "Night Owl" by local people, to be a common nocturnal bird of Long Island.

BAHAMA WOODSTAR — *Calliphlox evelynae evelynae.* This was the only species of hummingbird we identified on the island. A nest, collected on June 26, measured about 35mm outside diameter, and 22mm inside diameter.

GRAY KINGBIRD — *Tyrannus dominicensis dominicensis.* This common and conspicuous Long Island flycatcher was observed in the village and surrounding bush. A mature male was collected on June 26.

NORTHERN MOCKINGBIRD — *Mimus polyglottos orpheus.* This was a very common bird in and about Clarence Town. A mature female was collected in bush country on June 26.

BAHAMAN MOCKINGBIRD — *Mimus gundlachii gunlachii.* This was less common than the Northern Mockingbird, but was seen frequently in the bush area.

BANANAQUIT — *Coereba flaveola bahamensis.* A common and characteristic bird of the central Bahamas. A mature female was taken in the village on June 27.

STRIPED-HEADED TANAGER — *Spindalis zena zena.* This bird was seen only once on Long Island. It was outside the village in a tree about 15 feet from the ground. When collected, it proved to be a sexually mature male; his bright coloration marks him as a conspicuous resident.

BLACK-FACED GRASSQUIT — *Tiaris bicolor bicolor.* I would judge this small finch to be the commonest bird in the vicinity of Clarence Town. A mature male, measuring 4½ inches, was collected in our "backyard" on June 30.

GREATER ANTILLEAN BULLFINCH — *Loxigilla violacea violacea.* We found this species, known locally as the "Policeman Bird", to be relatively common on Long Island. An immature female was taken, also in our "backyard", on June 27.

Great Inagua Island:

Great Inagua, 60 miles long and 25

miles at its widest point, is one the larger islands of the Bahama group and the most southerly. There are no inhabitants on the island except for a settlement and salt works at Matthew Town in the S.W. corner. A few low hills may be seen but the area is largely flat and sparsely covered with brush. In the interior of the southern half of the island is a large body of now-brackish water termed "The Lake".

Great Inagua has appeal to the ornithologist because the island, and especially "The Lake", represents the heaviest breeding concentration of Flamingoes known to exist. Many other species of wading birds and waterfowl were studied by us from July 3 to July 8, the extent of our visit there.

Trips were made about Matthew Town, out to "The Lake" and, by air, to Northeast point where we camped for two days.

For the trip to the Flamingo colony at "The Lake" we headed out through the bush the morning of July 4 in a swamp buggy driven by Sam Nixon, the local Audubon warden. (See figure 3). There are no roads nor even apparent paths, but Sam, through instinct and experience, headed towards the interior of the island. Roseate Spoonbills, Louisiana Herons, Bahama Pintails, Stilts, Smooth-billed Anis and Cuban Parrots were startled by our approach during the three-hour trip to the shores of "The Lake".

Our destination was a hidden marvel — a sight to thrill the heart of any ornithologist — the only nesting colony of Flamingoes in the Bahama Islands, and the largest known concentration of

Figure 4. Here a downy young Flamingo obligingly shows the characteristic "bent beak" so pronounced on its parents.

these birds in the world. All other nesting colonies are dwarfed by comparison. Over 15,000 birds (of the remaining 29,000) nest within 60 miles of this spot. Conical, mud nests numbering several hundred were still present and eggs which were washed or kicked from the nest littered the shore. Well over 1000 grayish-black young, estimated to be six weeks old, moved about in groups near the shore while adults fed about the shallow lake creating weird light-colored circles in the mud caused by the straining action of their beaks. (See figure 4)

Of course, many of the species seen on Long Island were likewise found here. Unless new facts were discovered, these birds are merely listed.

BROWN PELICAN — *Pelecanus occidentalis occidentalis.* A pair soared low over "The Lake" on July 4 and several were sighted along the coastal regions.

AMERICAN EGRET — *Casmerodius albus egretta.* A common bird of the mangrove islands, more numerous than on Long Island.

LOUISIANA HERON — *Hydranassa tricolor ruficollis.* We noticed several in the marshes toward the interior of the island. A mature male was taken near a brine lake at Northeast point on July 7.

LITTLE BLUE HERON — *Florida caerulea.* A mature female was shot near the salt ponds at Matthew Town on July 3. Many others were seen in the area.

Figure 5. A part of the Great Inagua nesting colony which shows mounds, abandoned eggs and eggs which have been kicked or washed from the nests.

GREEN HERON — *Butorides virescens bahamensis.*

ROSEATE SPOONBILL — *Ajaia ajaja.* These delightfully interesting birds were seen in flocks of up to a dozen both at Matthew Town and Northeast point.

FLAMINGO — *Phoenicopterus ruber ruber.* The large concentration of adults and young at "The Lake" were seen on July 4. Nineteen adults were observed feeding at Northeast point on July 8. (See figure 5)

BAHAMA PINTAIL — *Anas bahamensis bahamensis.* Several dozen of these native ducks rose from salt ponds and marshes near "The Lake".

OSPREY — *Pandion haliaetus ridgwayi.* An adult bird spent much time near the harbour at Matthew Town and another adult was observed near an empty ground nest on top of the bluff at Northeast point on July 7.

OYSTERCATCHER — *Haematopus ostralegus prattii.* Early on the morning of July 8 one flew over the lagoon at Northeast point.

SNOWY PLOVER — *Charadrius alexandrinus nivosus.* These small shorebirds were numerous along the edges of the salt ponds.

KILLDEER — *Charadrius vociferous ternominatus.* Less common than the Snow Plover, they were observed along the brine lake at Northeast point.

WILSON'S PLOVER — *Charadrius wilsonia wilsonia.*

STILT — *Himantopus himantopus mexicanus.*

GREATER YELLOW-LEGS — *Tringa melanoleuca.* A flock of five were watched and heard near the brine lake at Northeast point on July 7.

WILLET — *Catoptropherus semipalmatus semipalmatus.*

LAUGHING GULL — *Larus atricilla.*

ROSEATE TERN — *Sterna dougallii dougallii.* Although a few were seen along the coast near Matthew Town, Roseate Terns were especially evident at Northeast point on July 7 and 8.

LEAST TERN — *Sterna albinifrons antillarum.*

MOURNING DOVE — *Zenaida macroura carolinensis.*

ZENAIDA DOVE — *Zenaida aurita zenaida.*

GROUND DOVE — *Columbigallina passerina volitans.* That Great Inagua individuals were a different sub-species from Long Island birds was observed by Bond (1945 *Not. Nat,. Acad. Nat. Sci.,* Phila.; 148:2).

CUBAN PARROT — *Amazona leucocophala bahamensis.* Two individuals were seen in rather isolated groves between Matthew Town and "The Lake" on July 4.

SMOOTH-BILLED ANI — *Crotophaga ani.* A pair occupied a small tree at the edge of the salt pond south of Matthew Town.

GRAY KINGBIRD — *Tyrannus dominicensis dominicensis.*

NORTHERN MOCKINGBIRD — *Mimus polyglottus orpheus.*

BAHAMA MOCKINGBIRD — *Mimus gundlachii gundlachii.*

BLUE-GRAY GNATCATCHER — *Polioptila caerulea caerulea.* These birds were rather common in scrub and appeared very bold in their fearlessness. A male was taken at Matthew Town on July 3.

BAHAMA BANANAQUIT — *Coereba flaveola bahamensis.*

BLACK-FACED GRASSQUIT — *Viaris bicolor bicolor.*

Mankato, Minn.

Studies of Algae Poisoning

With special reference to the relationship of this phenomenon to losses of wildfowl and other birds.

by

Theodore A. Olson

What is "algae toxication"

Algae poisoning episodes are invariably associated with the phenomenon known as the "blooming" of water. This term "water bloom" is an extremely apt expression and it was no doubt coined originally by some keen-eyed lay observer who had an appreciation for terseness and an appreciation of the fact that the change in appearance of surface water which accompanies this condition had something to do with the presence of microscopic plant life. In grandfather's time children were warned that they must avoid swimming during the hot days of July and August for these it was pointed out were "Dog Days" and the water was in "bloom", a fact most anyone could verify if he gazed into the roily depths of the old swimming hole. From this it is clear that even the uninitiated have long recognized that surface waters may produce extensive algae growths and have seriously suggested that in some way these growths were "unhealthy".

In European countries too the use of terms such as "Wasserbluthe", "Fleur d'eau", "Flos aquae" and similar expressions are common, indicating that water blooms may be world wide in occurrence. This is supported by published reports from the Scandinavian countries, Africa, Australia and South America.

Formally a "water bloom" may be defined as the visual change produced in surface waters by the growth of millions upon millions of tiny free-floating aquatic plants known as phytoplankton. The appearance of the water is thus altered in terms of increased turbidity and the production of a rich blue-green or grass-green color. Many species of minute aquatic plants are capable of such extensive growths but the best known bloom producers are the cyanophyta or Blue-green Algae. As a result the latter are frequently referred to as "nuisance algae".

Algae blooms occur throughout the normal growing season and may even occur to a limited extent under conditions of ice coverage although hot dry summer weather characterizing the period known as "Dog Days" seems best. Shallow, warm, well fertilized waters rich in phosphate and nitrogen are the favored environments but blooms may often be found in deep cool waters and are very common in certain northern waters in Minnesota, Wisconsin and Michigan as well as in several extensive lake areas in Canada. High water levels, cool cloudy weather and a rainy season will reduce the frequency and extent of the ordinary algae bloom.

The first scientific report dealing with a toxic bloom was made by George Francis of Adelaide, Australia in 1878. His article entitled "Poisonous Australian Lakes" dealt with certain observations he had made relative to the appearance of a bloom of the blue-green algae *Nodularia spumigena* in Lake Alexandrina, one of the Murray Estuary lakes. On February 11 of that year this algae in accordance with his account formed such a heavy bloom that it resembled a "green pasty porridge" and sheep, horses, dogs and pigs which consumed the water died in one to 24 hours. The symptoms were stupor, unconsciousness,

prostration and convulsions with spasms evident under certain conditions.

It is especially interesting to Minnesotans to note that the next published record takes us to Waterville, Minnesota where Porter, Arthur and Stalker during the years 1882, 1883 and 1884 observed toxic water blooms which resulted in the loss of a considerable number of cattle, horses and hogs when these animals drank algae laden water along the north shores of Lake Sakatah and Lake Tetonka. Some of the animals died so promptly that they were unable to reach their barnyard although it was only 600 feet away. The final report of these episodes at Waterville appeared as a supplement to the fourth biennial report of the board of regents of the University of Minnesota in 1887.

Since 1884 there have been a multitude of episodes of this kind in Minnesota and adjoining states, especially in Iowa. Reports of similar poisonings have also come from South Africa, South America, the European countries and Canada. There is reason to believe that toxic algal blooms are as widespread in occurrence as the blooms themselves, but that the special conditions which result in animal losses are not always operative. For example, it has been noted that it is usually a common planktonic blue-green algae which is associated with the manifestations of toxicity and that variations in toxicity may occur from day to day. Sometimes algae are concentrated by wind in areas where cattle drink and a few hours later the scums may again be dispersed. Only at such times that all conditions are favorable for the ingestion of appreciable quantities of a toxic algal suspension will an animal loss occur.

Field Observations

The case-history method may be adopted here as a means of presenting information which is pertinent to a better understanding of the phenomenon of algae toxication and its recognition in the field. The following accounts are typical illustrations of algae poisoning as observed in Minnesota and will point out that all forms of warm-blooded wild life as well as domestic animals are susceptible to the toxication.

(1) The Round Lake Algae Poisoning Outbreak in 1948.

Round lake is situated in the northern half of Minnesota. It is a small, shallow body of water indirectly receiving the sewage effluent of a small municipality. Because it is shallow and well fertilized, green algal blooms have frequently been seen, and residents claim that it was intensely green and malodorous years ago when hundreds of ducks died along its shores. In late May 1948, the lake again assumed its brilliant green hue and heavy algae scums were seen along the edges. On the 27th, a valuable yearling stallion having access to a sheltered portion of the shoreline where the scum was particularly heavy, died suddenly. Early on Sunday morning, three days later, a pair of two year olds and two additional yearlings were found dead. A fruitless search was made for toxic forage plants and a post mortem examination was made by the local veterinarian without positive results. On the same day two dogs were seen drinking lake water at 4:00 p.m. By 6:00 p.m. one was dead, the other exceedingly ill. The latter survived after a long convalescence. Its recovery was locally attributed to the beneficial effect of the large quantities of fresh milk which had been administered to the animal shortly after it had been seen lapping the lake water. A Pheasant, a Great Blue Heron, and a Snipe were also found dead along the shore where algae had been concentrated. A sample of water collected on the day following (May 31) when the algae had been largely dispersed, contained only a moderate amount of algae but was toxic to mice when tested in the laboratory. Symptoms produced in the laboratory animals were identical with those seen in typical cases of algae poisoning. The algae in the sample was **Polycystis aeruginosa.**

(2) The Fox Lake Outbreak of Algae Poisoning 1948.

Unlike the Round lake episode, the Fox lake outbreak occurred late in the season at a time when algae blooms are very common in relatively shallow lakes of this type. During the first week in September, extensive accumulations of a blue-green algal scum were seen along the shorelines of the lake. After a few calm, warm sunny days, a light northerly wind swept great masses of these algae toward the south shore where they formed a thick porridge-like mass extending many yards outwards from the water's edge. A large number of hogs, ducks, chickens and other animals having access to this scum died after they had consumed small quantities. When the wind changed direction a few days later, the algae were swept across the lake to the north shore where a similar loss occurred. A total of 79 hogs, two horses, and an uncounted number of chickens, ducks, cats, and dogs were destroyed within a few days. One breeder of fancy hybrid hogs stated that his animals drank water from the lake early in the morning on September 3 and that by 7:00 a.m., four were dead and others were ill. By 10 o'clock, ten animals had died and within the next two hours, 24 of his hogs were down, either dead or dying. His total loss was 27 animals.

On September 19, a thorough investigation

was made of the area and of the circumstances attending the outbreak. It was discovered that as a result of drinking the water, wild animals and birds as well as domestic animals had died. Along the shoreline the remains of gray squirrels, muskrats, ducks, various species of shore birds, English Sparrows, and a large number of carp were found. Pigeons had died in the barns and haylofts where they had taken refuge after drinking lake water. A partially paralyzed Phalarope and an English Sparrow similarly affected were seen fluttering along the shoreline. They were easily captured. When examined more carefully, it was found that their legs were extended and useless and that the wings, which were only partly paralyzed, were employed to propel the birds along the ground. When a finger was thrust against the eye of either one of these birds, the nictitating membrane was found to be functional, in contrast to the paralyzed condition frequently observed in botulinus poisoning. Although an offshore wind had broken up the scum blanket which had existed earlier, the lake as a whole had a deep blue-green color and suspended algal filaments made the water highly turbid. Samples taken in the shallow water about fifteen feet from the shoreline contained only a moderate suspension of algal colonies but were extremely toxic. As little as 0.1 ml. of the algal suspension killed mice in twenty minutes, and 1.0 ml., administered either by mouth or intraperitoneally, killed the animals within five minutes. A rabbit and a chicken were also fed the algae. A small dose produced extreme salivation in the rabbit, while a heavy dose of 150 ml. caused death in 17 minutes. with the suggestion of a clonic spasm as the primary symptom. The chicken, fed 50 ml. by mouth, died in an hour and 24 minutes, with paralysis as an important symptom. After intraperitoneal inoculation of 10 ml. of the water, a full grown chicken died in 20 minutes Hamsters and guinea pigs inoculated with suspensions of this toxic material also died quickly. Guinea pigs and some mice produced foamy tears (chromodacryorrhea) containing a fat staining substance which was attributed to the discharge of the harderian gland. The algal species which predominated in the water samples at this time was **Anabaena Lemmermanni.**

A multitude of similar outbreaks could be cited each involving bird life as well as the larger domestic animals and each following the same general pattern as concerns the sequence of events leading up to the poisoning episode. However, further accounts of this nature would be largely repetitious, and the nature of algae poisoning can probably be better described by a brief resume of some representative laboratory studies.

Laboratory Studies of the Toxic Material

The symptoms of laboratory animals can be more readily followed and understood than those of domestic animals or wildfowl in the field, thus much of our knowledge concerning the action of the algal toxin is based on experiments in which algal suspensions or partially purified extracts have been administered to animals and birds under laboratory conditions. The following account is a brief summation of some of this work.

In a laboratory study of algae toxin it will be seen that the manifestations of poisoning vary somewhat, depending on the amount of toxic material given or upon its relative toxicity. When a rapidly fatal dose is administered to mice, for instance, death may occur within five minutes, and the only symptoms are restlessness followed by three or four violent leaps into the air. Then the animal usually falls on its side and lies quiet. If the dose is small or a less toxic material is used, a slight dragging of the leg closest to the point of inoculation is observed. Ultimately a flaccid paralysis is noted of this leg as well as the other hind leg and the tail. The paralysis creeps forward, reaching the forelegs and anterior body. When this stage is reached, the mouse cannot turn over when placed on its back, and after a few nodding movements of the head accompanied by gasps for air, respiration usually ceases and the heart stops. Urination, defecation, lachrymation, salivation, coughing, and clonic spasms are characteristic in most laboratory animals. Foamy white tears (chromodacryorrhea) which may be stained by specific fat stain are often produced in rapidly fatal cases in guinea pigs and occasionally in rats and mice. In rabbits, fore and hind legs are usually extended and the head drawn back. Pigeons and chickens show restlessness, swallowing, blinking eyes, falling on the breast, and clonic spasms, and occasionally, in the pigeon regurgitation.

Studies of the crude unpurified algal material as collected directly from a lake show that the toxicity may vary tremendously. In certain instances quantities of 0.02 ml. or less injected intraperitoneally may be fatal to a 20 gram mouse in an hour, whereas other samples must be injected in quantities 150 times as great to produce death in

eighteen hours. On the basis of dry weight, parenteral lethal doses have varied from 200 gamma for the Fox lake material to 68 mg. for certain laboratory-grown cultures. When the algae are fed, a greater dosage must be administered and the effects are delayed. For example, a 10 ml. intraperitoneal injection of an extremely toxic algal sample killed a full grown chicken within 20 minutes. By mouth, 50 ml. of the same algae were lethal within one and one-half hours. Such results may be expected, for many toxic substances would act in a similar manner. The toxin of Clostridium botulinum C, for example, is reported (Kalmbach and Gunderson, 1934) as having an injected to oral minimum lethal dose ratio of 1:1800 for guinea pigs, 1:22,000 for mice, and 1:14,800 for rabbits. With time, the toxicity of a given algal bloom may change in the field. Thus samples collected in exactly the same area at Fox lake, Minnesota, were extremely toxic on September 19 when 0.1 ml. or less killed mice within twenty minutes, while nine days later, 2.0 ml., also administered intraperitoneally, killed animals only after five hours. Although the ratio between the predominant algae *Anabaena Lemmermanni* and *Polysystis aeruginosa* had shifted from a 3:1 to a 1:1 ratio during this period, it is believed that other factors were involved.

Within our experience, as pointed out earlier, it has been found that ducks and shore birds are frequent victims when outbeaks of algae poisoning occur. These observations have led to a careful consideration of the literature and first hand reports of the phenomenon known as "duck sickness". This malady, affecting not only ducks but also many other groups of wild birds (Kalmbach, 1934, states that 69 species representing 21 families are known to be affected), is today recognized as an outstanding menace to migratory waterfowl in the western and upper midwestern states as well as Canada. In late 1932, 150,000 ducks were found dead near the north end of Great Salt lake on the south shore of Willard Spur and in adjacent Bear river bay area. In one instance, ducks were found along the shore at the rate of 8000 to 10,000 per mile for a distance of six to eight miles. The cause has variously been attributed to industrial waste pollution, lead poisoning, gases, bacterial infection, parasites, dietary deficiency, alkali toxicity, and to toxic algae. In 1934 all causes other than poisoning by the toxin of *Clostridium botulinum* Type C were relegated to the background by the findings reported by Kalmbach and Gunderson that year.

However, more recently certain areas have been found where outbreaks are not always clearly attributable to botulinus C poisoning and a definite possibility exists that in some cases algae poisoning could have played a part. For example, in a study relating to duck sickness at Whitewater lake, Manitoba, Bossenmaier et al (1954) point out that either botulism or blue-green algae poisoning may have been responsible for the reported losses and that these agents could have acted independently or played complementary roles in the outbreaks which they record.

Whatever the outcome of future studies relating to the importance and exact relationship of algae toxication to the widespread phenomenon now labeled as "duck sickness' it is a known fact that algae toxic to mammals are also lethal to birds and that appreciable numbers are destroyed whenever a notable animal kill occurs. Thus a large number of wild birds may be destroyed each year in these small usually unrecorded episodes and the cumulative effect of such losses can be considerable. It is hoped therefore that there may be an increased interest in algae poisoning and its effect upon bird life and that the field observer and laboratory worker will pool their resources to solve the problem. — *Associate Professor, School of Public Health, University of Minnesota.*

Living Museum of Natural History

by

Richard H. Pough

The Problem. In the course of the 2½ billion years that life has existed on earth an enormous number of living organisms have evolved. Each present day species and each of its local races or strains has become, through evolutionary processes, uniquely adapted to a specific set of local living conditions and each has developed special attributes. The ability of nature to mold organisms in this way to virtually every set of climatic and other living conditions has produced plant-animal communities capable of occupying almost every spot on the earth's surface. In a very real sense each of the living organisms that make up these widely diverse communities represents a unique end product of a 2½ billion year period of development and should be looked upon as a precious biological element of potential value to man.

Ask a chemist what chemical element or compound man will never have any use for and his answer will be that new uses turn up every day for once little known and neglected substances. Compared to chemistry, biology is in its infancy; yet hardly a week goes by that we don't find some new use for a once obscure mold, bacteria, or other plant or animal. More and more, biologists are coming to the realization that every one of the members of the earth's many plant-animal communities is a potential resource. In short, these assemblages of living organisms that we term communities can be looked upon as "biological treasure houses." Only by preserving samples of each of the earth's local plant-animal communities can we assure naturalists and biologists of coming generations of a continuing available supply of earth's "biological elements" — elements that, unlike chemical elements, can never be produced again by man once they are lost.

The long list of startling new products such as antibiotics that have been obtained in recent years from once obscure or unknown organisms is sufficient to indicate that we have barely scratched the surface when it comes to explaining most of the world's plant-animal communities. The new products and new uses that research will some day uncover will make many a plant-animal community a real biological treasure house. For instance, we have only recently begun to appreciate the vast superiority of certain strains or local species of a given organism over those we at first tried to use. So, our effort must be more than just one of "saving the species." Wherever we can we must try to preserve at least a small sample of each local community and thus a sample of each of the local population it contains.

All of which makes it clear that it does not require any great amount of faith to believe that our generation is under a very great moral obligation to pass on to coming generations of mankind the earth's biological treasures that it has taken so long to produce.

The Present Situation. Although the problem described above has been of concern to naturalists and biologists for a long time, it has been increasingly critical in recent years.

As human populations grow there is going to be an ever greater trend toward increasingly intense exploitation of every acre of land. Nowhere, outside reserved areas, are the original plant-animal communities that occupied the land likely to be allowed to continue to exist completely undisturbed. Yet we know of no other way to make sure that all of their component organisms will continue to survive. The degree of disturbance does not have to be great to alter in a subtle way the complex structure of a living community and thus eliminate some of its members. Even if trees are removed only when mature and about to die of old age, the community can be seriously disrupted. In some regions key members of the forest community will gradually disappear for lack of a rotting log, the only place their seeds can germinate and the young shallow rooted seedlings obtain enough moisture to survive the summer drought. In other forests lack of the mound of mineral soil and extra sunlight that become available when a mature tree topples over in a storm may eliminate a species whose seeds cannot germinate in the forest floor humus or survive the dense shade of a closed canopy forest. We also know that in a forest the cutting of the best stems, generation after generation, can in time genetically alter the growing stock so that the forest is increasingly composed of badly formed trees of low value for lumber. As the forests of the whole world come under more and more intense exploitation, this selective process in favor of poor stems seems likely to continue. Overgrazing exerts a similar selective influence and tends to eliminate the most palatable and most productive grasses in favor of those that are less attractive to livestock. Of course, when a forest is clear cut, when a grassland is planted to pasture grasses, or when land is plowed and dosed with insecticides, herbicides, and fertilizers, little or nothing is left of its original plant-animal community and conversion to a wholly different man-induced community is nearly complete.

What Is Being Done. Although most of it is not being done with conscious purpose of coping with the problem just described, much has been done in the United States to preserve samples of our original plant-animal communities. Our national parks include areas at some distance from roads and recreation centers where, because of the present policy of the administering agency — the National Park Service — the native plant-animal communities are fully protected. The U. S. Forest Service has under its multiple use policy designated certain sections of the national forests as wilderness and natural areas. Some of the larger national wildlife refuges of the U. S. Fish and Wildlife Service include fine samples of local plant-animal communities that are still in their virgin state. There are also many state and local parks, public hunting grounds, and bird sanctuaries, some of which contain good undisturbed samples of one or more local plant-animal communities. There are also many bits of original landscape still in private hands that remain undisturbed because of their remoteness or the fact that the owner has

recognized their significance and protected them.

Unfortunately, none of these samples or original communities has a satisfactory status from the standpoint of long-range nature protection. The national park service is under no mandate from congress to preserve any part of its holdings as natural areas. In fact, it is under increasing pressure to expand its roads and other public facilities to open up additional areas in order to accommodate an ever expanding load of visitors who come seeking recreation. The forest service is likewise under pressure to whittle down the size of its wilderness areas and to permit selective logging and livestock grazing in them. In theory, at least, every part of a fish and wildlife service refuge or a state public hunting ground is subject to "management" to increase its carrying capacity for certain favored game species. Management usually involves human activities that alter the character of the original community, so as they are now constituted, these refuges do not represent any solution to our problem.

Even private bird and wildflower sanctuaries are all too frequently administered by groups who introduce species not native to the country or exercise management on behalf of favored species, thus destroying them as natural areas. State and local parks present similar difficulties as they are often quite small and carry such a heavy recreation load that there is soon little that is natural about their plant-animal communities. Even in the larger parks, foresters are generally given such a dominant voice in their administration that the forests are managed to such a point that the park ceases to have much value as a natural area.

Another category of publicly owned land that should not be overlooked is the not inconsiderable areas of army, navy, air force, atomic energy commission, and similar ownerships. Often these agencies must acquire a large acreage simply to buffer and protect their installations. In most cases nature protection could be made a recognized secondary use for these areas that must be closed to the public but are not otherwise used.

In closing, it may be pertinent to point out that such areas as have already been established or may be set up are always subject to the danger that some thruway authority with the right of eminent domain may decide

that they present the shortest or at least the cheapest route for a new highway, or one of the military services may decide that they have just the remoteness that they are looking for in order to establish new bombing ranges or proving grounds, or some hydrapower or reclamation authority may decide that the area provides a nice site for a dam and reservoir.

What Still Needs To Be Done. Many things need to be done and done promptly if even a partial solution is to be found to the problem described. In some cases it is already too late. A few types of unique North American communities are now virtually extinct. Others have been impoverished by the loss of at least one of their original constituents such as the Passenger Pigeon or Carolina Parakeet.

It is difficult to set down anything like a complete list of the steps that must be taken to improve matters and almost impossible to say which are the most important. In short, the problem must be attacked along many fronts as no matter where one turns the need for action is urgent and the time we have left to save any samples of many once common communities is rapidly running out.

It can be assumed at the onset that such examples of undisturbed plant-animal communities as do remain in private ownership are doomed to destruction sooner or later. This is true even in those cases where the present owner is giving it every protection, as it is quite likely that his heirs will not have the same interest in its protection. In fact, where a valuable timber stand is involved, inheritance taxes may make it virtually mandatory that his heirs cut the timber in order to raise money to pay the tax. Thus, the only solution is to arrange the transfer of such areas to governmental or corporate ownership by purchase, gift, or bequest. Where the land must be bought it should first be optioned and then a campaign for funds carried on in the region.

Where no single remnant of the mature or climax phase of a certain local community type is left, an attempt should be made to obtain a section of land it once occupied where the disturbance of original conditions has been least severe. In most cases, natural succession will carry it back to something closely resembling the original virgin conditions. The final results of such a program will be the next best thing to having saved a virgin sample. This is especially true in those cases where a grassland has only been mowed or lightly grazed or a forest only lightly cut.

Another important step is to call the attention of those in charge of the administration of publicly owned property to areas under their jurisdiction that are vital to the preservation of local samples of important plant-animal communities. Wherever it is feasible to do so, some safeguards in the form of binding written agreements should be placed over the area. Only in this way can we avoid the risk that some new administration will do something that completely destroys the natural character of the area. Ultimately, more adequate protection should be sought in the form of a legislative enactment that gives the area special protective status. It is also desirable to obtain a legislative mandate to the agency authorizing it to recognize the needs of nature protection in acquiring and administering land.

In some ways the most critical problem of all is the defense of the natural areas we already have. We must at all times be prepared to defend with every means at our disposal the conversion of these areas to other uses by governmental agencies or private corporations with the power of eminent domain. We must and can argue that no land is more precious and valuable than that in

natural area reserves. Failure to take an uncompromising stand on this one point would ultimately doom the whole program. Once set aside, these areas must be considered inviolate except in a national emergency. As the pressure on land increases with growing populations and the development of new ways of exploiting land, we can assume that every natural area will sooner or later be sought by some exploitive group. Often they will do so under the impression that because it is undeveloped or government owned it is of no great value and can be obtained cheaply.

Side Lights on the Problem. It almost goes without saying that the whole future of natural history as a science is tied to the preservation of natural areas. Usually our museums contain only some part of an animal or the dried specimen of a plant that enables the organism to be identified and classified. The living organisms of which these are only symbols exist only on a piece of land or water where they have a functional role to play as a member of a closely integrated local plant-animal community. In time all museum specimens will crumble to dust and they can only be replaced if the communities from which they came have been kept going somewhere out on the land.

The science of natural history is still in its infancy. In many cases we are still busy with the preliminary task of collecting, classifying, and naming the various forms of life. The real study of them in terms of their anatomy, physiology, and behavior has just begun. Some, like the fabulous Passenger Pigeon, will never be studied and many of the secrets of its remarkable life history will never be known. As the study of animal physiology and psychology advances, it is becoming increasingly clear that indoor laboratory studies must always be supplemented with studies of the same animal in its normal environment. One eminent biologist recently put it this way: "Outside the frame of reference of the particular plant-animal community of which the animal is a functional part, it is just a curiously fashioned bit of organic matter with attributes and behavior patterns that are quite meaningless." A completely natural undisturbed sample of the community of which the animal is a part is usually the best and sometimes the only "outdoor laboratory" where such work can be done.

The availability of natural areas is essential to the new science of ecology that is growing so rapidly in importance. On areas long free from human disturbance the plant-animal community possesses a remarkable stability and completeness of integration of all its members. Such areas, occupied by a mature or what the ecologists call a "climax" community for the climate and site, are essential to the proper evaluation of the processes of successional changes that goes on whenever an area is disturbed. The measurement of the degree of success being achieved in many fields of applied ecology, such as forestry and range management, is dependent on undisturbed check areas. Only by having them for comparison can we be sure that our management practices are achieving more satisfactory results than if the area were left unmanaged.

Students of evolution have made it clear that the environmental influences that mold living organisms operate in and through the community in which they live. Each member of the community exerts some direct or indirect influence on each of its associates. Once a community is disturbed or disrupted by human influences, it is no longer possible to fully assess the factors that molded the organisms into what it is today.

A famous geneticist, in pointing out the potential value of natural areas, mentioned that an acre of the community of which the wild ancestor of corn was part, would easily be worth a billion dollars because of the genes it

would provide. Genes that would make it possible to breed better domestic corn for the whole world.

One of America's top wildlife conservationists recently pointed out that we have reached a point where little further benefit can be expected from the type of wildlife protection laws that proved so beneficial in the past. The current decline in many species is due almost wholly to an accelerated shrinkage in suitable habitat — in other words, the communities to which they belong. This is especially true of the continent's waterfowl. If they are to continue to exist at even their present much reduced population levels we must arrest at once all further encroachments on our remaining wetlands and set them up as refuges and natural areas. The same situation exists in the case of grassland species except that it is too late to preserve species like the Whooping Crane and the Prairie Chicken as game. It is now simply a case of trying to preserve them from complete extinction because of their scientific and aesthetic value.

A minister recently said that the program of setting aside samples of each of the world's different plant-animal communities that the Lord created here on earth, in order that a few samples of each type might escape the rising flood of civilization and human population, reminded him of Noah, and God's instructions to Noah. "And of every living thing of all flesh, two of every sort shalt thou bring into the ark, to keep them alive with thee." He said he felt that if in Noah's day God wanted a pair of each of the earth's living things preserved so that they might continue to inhabit the earth, then a natural area preservation program must certainly have the Lord's blessing.

One generous contributor to the fund to purchase Mettler's Woods as a research area for Rutgers University said he felt he was helping to set up something far more lasting and significant than even a new university building. He pointed out that natural areas are maintained by nature at no expense, that they are subject to no depreciation and that long after a new building has become obsolete and been torn down, an area like Mettler's Woods would still be increasing in value to the university and the whole country. He said that in his opinion no memorial that could be set up in honor of a human being is likely to be as long lasting and imperishable as a natural area. He said he wished he could afford to buy the whole tract and give it to the university so it could carry his name.

An art dealer commented recently on the strange divergence in our attitude toward art objects — the unique product of the creative genius of a man — and the earth's plant-animal communities — unique products of the creative genius of God. Americans have spent and are continuing to spend millions every year to acquire and preserve art in great expensive museums. A fraction of what has been spent for this purpose to date would set up a splendid countryside system of nature reserves that would go a long way toward solving the problem.

Many supporters of the natural area program are concentrating all their giving in this field at the present time in the belief that this compensates for the hundreds who as yet lack the background to understand and appreciate the significance of the natural area program. There are many worthy causes in today's world and the generous giver has a tendency to apportion his gifts among a large number. Actually the nature preservation movement is far more important to the future of mankind than many more popular and fashionable causes. However, to date it gets only a fraction of what is going to many others of almost trivial importance by comparison. This means that if the job is to be done it must

for the moment be the main philanthropy of the small select group who appreciate the urgent need.

In fact, almost any other philanthropic endeavor can tolerate some delay in achieveing its goals better than the cause of nature preservation. The time during which natural areas can still be acquired is rapidly running out. What we save in the next few years is all that will ever be saved. Once gone, a natural area can never be fully recreated. In America we are currently setting land use patterns that will persist for centuries to come and whether coming generations will bless or berate us depends on how fast we act.

Fortunately, many foundations realize that the way in which they can be of the greatest service to the country is in looking ahead. This means that they constantly seek to shift their funds from causes like polio and cancer, that the public is now supporting, to important causes that the public does not yet understand. This has led to increasing foundation support for the natural area program, and as both public gifts and tax funds go in increasing amounts into medical and social welfare work of all sorts, more funds will undoubtedly become available soon for natural area preservation.

In Conclusion. If you have had the patience to read all of this, you will understand why those of us who feel that the burden of doing something in this field rests on our shoulders, feel compelled to call the attention of one and all to the problem. We also hope you will understand why we ask without apology for the funds we need to purchase areas that must be bought at once if they are to be saved at all.

Richard H. Pough, President
The Nature Conservancy,
New York City.

Some Minn

by Frankli

The familiar Leopard Frog is not restricted to permanent ponds and streams but ranges far afield.

In contrast, the highly aquatic Green Frog is seldom found away from its watery retreat in stream or lake.

The Mink Frog, which has a musky odor, is a recluse of the lakes and bogs in the coniferous region of Minnesota.

esota Frogs

n E. Willis

The Wood Frog's preference is moist undisturbed woodland and bogs.

The Spring Peeper, another inhabitant of moist woodland, is often found climbing on the plants and shrubs of the understory.

The widely distributed Swamp Tree Frogs are the choristers responsible for the very loud, trilling notes coming from every pond in early spring.

Seasonal Report

by

Mary Lupient

Your reporter spent most of the month of August in that beautiful, fascinating, interesting and strange land of contrasts, Mexico. Because I was on a conducted tour there was not much opportunity to observe bird life, but I snatched fleeting glimpses as we moved along. Of special note was the observation of numberless Black Vultures in central and southern Mexico. They perched on housetops in the cities, on fence posts, trees and elsewhere in the country while great numbers circled overhead everywhere. They feed mostly on carrion and it's a question as to what so many of them found for food in the mountainous country, but no doubt wildlife abounds in the jungles. A few Turkey Vultures lived with them, but they appeared in greater numbers farther north.

Man-o-war birds, Brown Pelicans, Gulls and other ocean birds were fairly numerous at Acapulco on the Pacific. Many species of perching birds sang in the tropical gardens surrounding the hotels where we stayed. Hummingbirds of dazzling beauty also inhabited those gardens, but due to the luxuriant vegetation and the limited time at my disposal I couldn't get good enough looks to identify many of them. In my opinion Mexico is a birdwatcher's paradise.

In Minnesota the most noteworthy item was the torrid heat accompanied by high humidity that broke records in July and August. Successive days of very high temperature was the greatest on record and at date of this writing, August 29, the temperature again rose above 90. During the season a few wind storms of varying intensity occurred in several sections. Lyon county in June was struck by a tornado that did such extensive damage that it was declared a disaster area. Except in scattered areas precipitation was light in July; there were local heavy rains in August.

The grasshopper infestation was so serious in northern counties that steps were taken to control it. In some areas considerable damage was done to crops and pastures.

American Egrets in fairly large numbers were seen along the Minnesota river valley during August, possibly part of the colony that nested near Hastings. Tom Shrader, associated with the River Basin studies of the Fish and Wildlife Service reported to the Museum of Natural History, August 20, that about 100 American Egrets were living in the sloughs in Kandiyohi county. Fifteen were seen by Mrs. C. E. Peterson 12 miles northeast of Madison, May 30. It would be interesting to know if there was a nesting colony in western Minnesota as these reports might indicate.

A very interesting record was received from Brother Theodore July 2. He located nesting Yellow-crowned Night Herons in the Winona area. The young were about half grown.

Evidently good-sized flocks of White Pelicans migrate through Minnesota. Walter Scott saw about 60 near Hendricks, May 29.

Apparently there was a paucity of rails this season. Observers were canvassed for records and very few rails were seen. The coot population was reportedly smaller.

The returning shore bird migration began in July and the movement of all

species progressed normally up to this date. Yellow-legs and Pectoral Sandpipers were first to appear. A large concentration of shore birds was observed at Mother lake, Minneapolis, August 28 and a flock of between two and three hundred were found in the sloughs around Hutchinson the third week in August. Among them were reportedly about 50 Stilt Sandpipers.

At this time the report on the duck broods is incomplete. Of interest is a record by Dr. W. J. Breckenridge who saw a Baldpate Duck with six Downy young in Itasca county, August 31. This bird does not nest in Minnesota to any great extent.

Three pairs of nesting Western Kingbirds were found in June two miles south of Anoka by William Pieper. Dr. Breckenridge reported four pairs in the area around Anoka and A. C. Rosenwinkel saw a pair near Langdon, Washington county. One individual was seen near Wadena, May 28.

Some concern was felt regarding the small number of warblers migrating in the spring. That is, those that nest in northern areas. However reports indicate that the usual number was found in the nesting habitats. The nesting population was normal in Itasca park at the time of the MOU spring meeting. A male Pine Warbler sang incessantly the first week in July at Mrs. A. D. Coriea's cabin, Cedar Forest. Later she saw the female. The first returning warblers were reported by Dr. Breckenridge. At the end of the second week of August they began passing through his yard in Minneapolis. He noted several species. Warblers accompanied by Chickadees and Blue-grey Gnatcatchers migrated in small waves through the St. Croix river valley, August 25.

More than the usual number of records of the Orchard Oriole were received, A pair nested again at the summer home of Mr. and Mrs. W. F. Davison near Afton. Mr. and Mrs. Luwe found a pair July 4, which they believed to be nesting near Madelia. The birds were not seen to enter the nest, but the female became very agitated whenever Mr. and Mrs. Luwe approached. A record of an Orchard Oriole was sent by Dr. Herbert Krause, from Fergus Falls and one was reported by John Jarosz seen near Fridley just north of Minneapolis, June 5.

A Bell's Vireo nested in June near Reno according to William Pieper. He also reported the Le Conte Sparrow nesting in the sand dune area north of Anoka.

A male Cardinal appeared at the home of George Ryan in Crow Wing county during the first week of June, but it was never ascertained as to whether it nested. Mrs. Paul Becker reported Cardinals at her home near Walker this season.

At Mahtomedi two Ravens were seen August 21 by Dr. Breckenridge which indicates a nesting or an early migration.

We are indebted to Dr. A. E. Allin, Fort William, Canada for the report of a Mockingbird seen by him, June 24, at Two Harbors.

Mr. and Mrs. W. R. Luwe took pictures of an albino House Wren they found nesting in Mankato, the first week in July.

Two Carolina Wrens, evidently strays in migration, were observed by A. C. Rosenwinkel near St. Paul the latter part of May. — *Minneapolis, Minnesota.*

The Canadian Lakehead

Edited by
A. E. Allin

The early summer of 1955 has been the warmest in several decades at the Canadian Lakehead. June was very dry, and despite five inches of rain reported at the Kaministiquia climatological station during July, creeks are almost dry and lakes are very low. Due to the absence of late frosts there is a very heavy crop of the early fruits.

In the previous number of *The Flicker* we listed several interesting shore birds reported prior to May 24, including two Hudsonian Godwits seen on May 22. Three were present on May 25 as well as two Marbled Godwits. There is only one previous Lakehead record for the latter, May 19, 1948, when we saw a flock in the Fort William harbour. On May 25 we also saw five Golden and seven Black-bellied Plovers as well as three Knots, a species which had previously been recorded at the Lakehead on only two occasions. Five more Knots were seen on May 29.

A year ago C. E. Garton reported the first Caspian Tern for the area on May 24. One was seen on May 26, 1955, (A.E.A.) Bonaparte's Gulls are occasional spring visitors. One was seen on May 29. Occasionally a straggler is noted in mid-summer and this year David Allin reported one at Amethyst Harbour, on July 10.

Probably due to the early opening of inland rivers and lakes, fewer ducks were seen this spring than are usually reported. More, however, remained throughout the summer. A mixed flock of about 75 Blacks, Mallards, Pintails, and American Golden-eyes as well as Lesser Scaups feed regularly near the local elevators. The Lesser Scaups are probably non-breeding birds; the other species may represent a breeding population. A Black Duck was flushed from her nest and ten eggs on May 23 and a second breeding bird located on May 25. The Pintail is occurring with increasing frequency as a summer resident and a nest with seven eggs discovered in Port Arthur on May 29 is the third definite breeding record. The Shoveller is a rare visitor which has been listed more frequently in recent years. At least two pair were present throughout the latter part of May.

Perching birds provided few observations of interest. We feel that Nighthawks, Tree Swallows, Yellow-bellied Flycatchers and Olive-sided Flycatchers have been uncommon. The Black-billed Cuckoo has been extremely scarce and only two Scarlet Tanagers have been reported. The Catbird continues to increase. There have been two records for the Brown Thrasher. The Indigo Bunting, one of the rarest summer residents, has been reported only on a few occasions and only one nest of the species has been found. This season it was reported at Dog lake and at Two Island lake.

Brewer's Blackbird continues to expand and was seen in at least five areas. Dr. MacLaren, a visiting amateur ornithologist, reported one nest with young in Paipoonge township. To date all local nests of this species have been on the ground. The Bobolink has occurred locally for many years but prior to 1955 no breeding record had been established. This year, at least a dozen males were present in one large field but we failed to flush any females as had been done so readily in the past. On July 18, Mrs. M. Knowles reported two males in widely separated areas of Paipoonge township, west of Fort William. One was associating with an

agitated female but no nest could be found. The second was accompanied by what Mr. Knowles took to be a young bird. We visited the area on the same evening and readily captured (and subsequently released) a bob-tailed young scarcely able to fly.

Alan Oliver reported the return on May 15 of Whip-poor-wills to a woods they have occupied for several years. He relates that in 1953 he heard their typical notes in mid-day in his garden. Investigation disclosed a Mockingbird; one of the few local records for that summer visitor. It may be recalled Colonel Dear and I were attracted by a similar imitation of the Whip-poor-will to the first Mockingbird reported for the Lakehead on August 19, 1948.

For several years an albino crow has been frequently reported along the Nipigon highway, west of Rossport. On July 30, L. S. Dear saw two such albinos, associating with three normal crows near the Gravel river.

Although the Raven is frequently seen in summer in areas somewhat remote from the Lakehead and less frequently about the Twin Cities, no nest had been found in Thunder Bay district although we had seen young scarcely able to fly at the mouth of Kama river on June 27, 1943. In recent years we suspected they might be nesting on cliffs along the Jackfish river, 80 miles northeast of Port Arthur, but we had failed to substantiate these suspicions by locating a nest. Dr. MacLaren is familiar with their breeding habits in Scotland and we told him to study this area when he anticipated visiting it on June 2. Dr. MacLaren located the nest about 25 feet from the top of a 250 foot, precipitous cliff, at the base of a fault which extended from the nest to the top of the cliff. We were able to visit the area later the same day and observed the very noisy young in their inaccessible nest. On August 3 Mrs. M. Speirs saw a young Raven scarcely able to fly near the Dorion fish hatchery.

The Long-eared Owl is a rare summer resident. Col. Dear found a nest and four eggs in Fort William on May 20, 1924. Dear observed a single bird 40 miles southwest of Fort William on July 23. This is apparently the seventh Lakehead record. Another interesting owl record has recently come to our attention. A Great Gray Owl was seen the last week of July, 1954, in the Black Sturgeon area, 50 miles northeast of Port Arthur. Its presence in summer suggested it might breed there. The only known breeding record for the Great Gray Owl in Ontario was the finding of two half-grown young in Parry Sound district, in July, 1911.

The Herring Gull is usually common not only about the lake but also inland. It appears to have had a very successful breeding season. This may be due to the absence of major storms on Lake Superior which at times must destroy many nests built on the low rocky islands along the north shore. Recently Herring Gulls have nested on the breakwalls, on the huge piles of coal stored about the paper mills, and on wooden pilings along the shore. A Herring Gull banded at Bowmanville, Lake Ontario, was recently found dead at Pigeon bay on the Ontario-Minnesota boundary.

According to Audubon Field Notes, the 838 Pine Grosbeaks reported by the Thunder Bay Field Naturalists' club on their Christmas census taken December 26, 1954, was the greatest number reported by any group participating in the census.

Dr. Alexander Klots, lepidopterist of the American Museum of Natural History, with Dr. F. H. Rindge, associate curator of the Department of Insects and Spiders, were visitors to northwestern Ontario during July, collecting at Geraldton and Hymers in Thunder Bay district as well as about Kenora. Dr. Rindge was interested in certain moths; Dr. Klots' interest was in the local butterflies. Nipigon is the type locality for a form of the Bog Fritillary and a form of the Purple Lesser Fritillary. These were taken originally by a Horace

Dawson who collected in the Hymers district about 1895-1910, the specimens being forwarded to the above-mentioned institution. Dawson was honored in the naming of the local form of the Bog Fritillary *Boloria eunomia dawson* B & McD.

At times the conservationist doubts whether his efforts are proving fruitful. At other times results of his labors are more evident. It would seem to this writer that we can be more optimistic of the future through continuing efforts and constant vigilance will always be necessary. An illustration of interest in conservation as opposed to general indifference or even frank maliciousness when it pertains to birds of prey was described recently in the Atikokan *Progress*. Near Banff, Alberta, a pair of Ospreys for five years built their nest on the top cross-bar of a telegraph pole among the wires, thus disrupting the service. They rebuilt the nest again this year. Rather than destroy the nest and eggs the Canadian Pacific Railway employees added a fifth bar above those in service and transferred the nest to its new location. This removed the source of trouble to the railway and the Ospreys contentedly raised their brood.

Visitors, particularly naturalists, from Minnesota visiting the Lakehead should not miss Sibley Provincial park some 35 miles northeast of Port Arthur. Here a small nature museum has been established on the shores of Lake Mary Louise. Nature trails are being laid out in strategic areas of the park and trained personnel are posted at the museum and act as leaders of the hikes. In the evenings nature talks are given at neighboring summer resorts. The program for 1955 is in charge of C. E. Garton, a past president of the Thunder Bay Field Naturalists club. Mr. Garton is an outstanding botanist and ornithologist who frequently contributes observations for these columns. The Sibley peninsula is one of the few stations where the rare little orchid *Malaxis paludosa* occurs and many other interesting animals and plants may be found in the park.

West of the Lakehead, Quetico Provincial park is receiving attention and an access road is being cut from the Fort William-Atikokan highway. Quetico, established in 1909, the same year as Superior National park, has an area of 1,000,000 acres, unsurpassed for naturalists and other lovers of the primitive wilderness. Probably it is best known for its conoeing possibilities. Now a Quetico foundation has been established to promote this great area of lakes and streams, forests, and wildlife. The foundation will sponsor educational, research and other projects to ensure the natural beauties are preserved. No building permits will be issued for the park or for a buffer zone within a mile surrounding it. Aircraft transportation is restricted to certain specified airports and aircraft may land and depart only at designated bases under federal government licenses. In general, points of entry and departure are limited to department headquarters and certain divisional posts. Public camp sites are being built at French and Pym lakes. It is anticipated a museum will be established at the old Dawson trail at French lake. Research in 1955 will be undertaken into ancient Indian culture. Other workers will study the route taken by Paul Kane when he did his famous paintings along the Voyageurs highway in 1846.

With an expansion of such efforts throughout our two great countries we may hope there will be less possibility that a coming generation will face the fears of the prophet Isaiah written thousands of years ago:

"Woe unto them that join house to house,
That lay field to field,
Till there be no place
That they may be placed alone
In the midst of the earth!" (Isaiah 5:8)

Regional Laboratory,
Ontario Department of Health,
Fort William, Ontario.

A New Tip-Top Trap for Taking Prairie Grouse

by

Robert E. Farmes

A limited amount of Sharp-tailed Grouse trapping has been carried on in northwestern Minnesota during the past five winters. In 1950, six single treadle tip-top traps were made according to the plans in Progress Report No. 5 of the "Prairie Grouse Cooperative." These were operated with a fair degree of success. However, these traps were not completely satisfactory and it was believed that something better might be devised. Thus, several types of traps have been experimented with in the past four years. These have been single treadle tip-top, double treadle tip-top, short-bob, funnel, box, a number of "Rube Goldbergs" and a tip-top with four treadles. All but the double treadle traps caught birds, but the four-treadle tip-top which has been in use for three years now, has proved far better than any of the others.

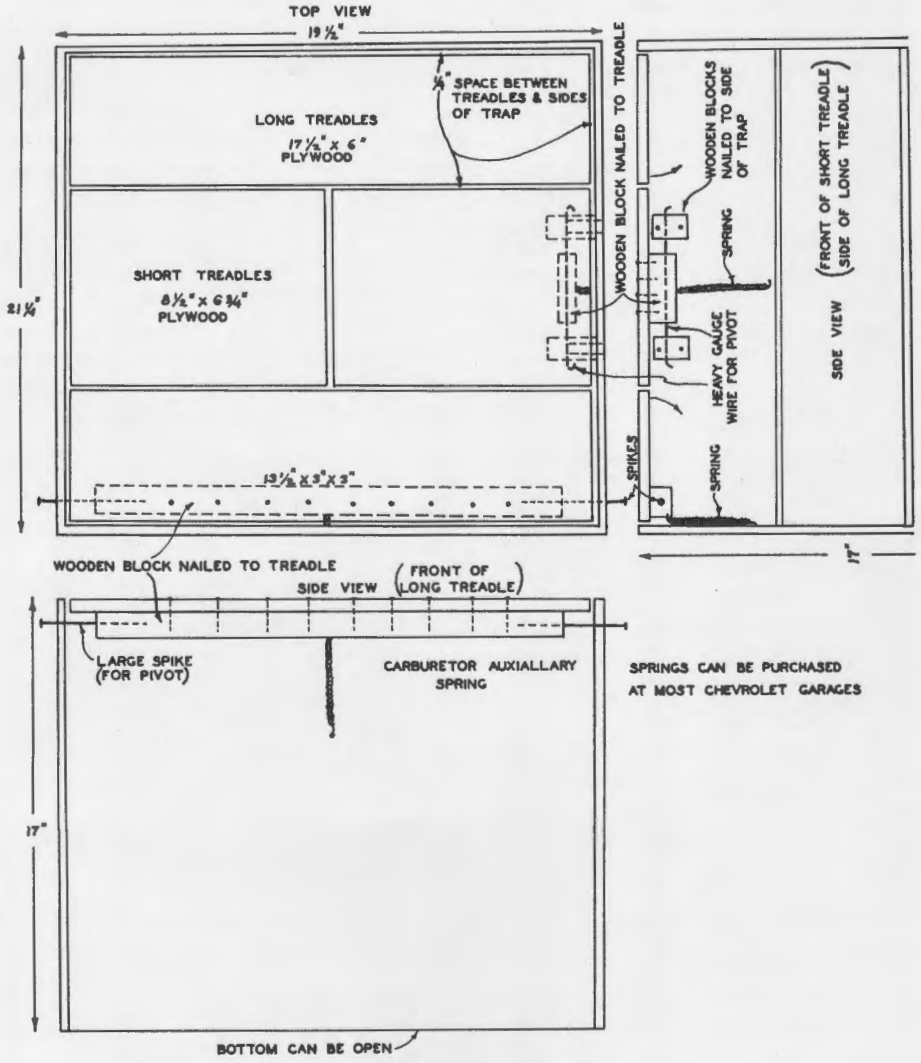
Most of the trapping has been carried on in February and March in eastern Marshall county in the vicinity of Thief Lake refuge and public hunting grounds. The traps are buried so that the tops are nearly level with the snow. Buckwheat is scattered on and around the traps. The traps have been operated both in brush and stubble fields.

The four-treadle type trap takes a little longer to build than the single-treadle type because of the extra work required on the four treadles. Probably the best material for the treadles is plywood as they should have a smooth surface so that when they tip the bird

slides in before it can catch itself. All treadles tip toward the center of the trap and are held in place and brought back with the aid of a spring. The action of the treadles on this trap is much faster than with a single large treadle which is undoubtedly the reason it has proved better. Construction of the trap is shown in the accompanying figure and photographs.

To date, sixty-five Sharptails have been trapped and banded. Forty-seven of these, plus twelve birds obtained from North Dakota, were released in the Whitewater refuge in southeastern Minnesota in an attempt to establish the

FOUR-TREADLE TIP-TOP TRAP
FOR TAKING PRAIRIE GROUSE



species there. All birds were released in the winter and early spring shortly after being trapped. The last release was made on March 11, 1952 and the last known observations of any Sharptails in the area was made in the spring of 1954. The only recovery of any of the birds released in the Whitewater refuge was made on October 25, 1950 when a Sharptail was found dead on a farm near Shell Lake, Wisconsin. This is a distance of about 115 airline miles.

Of the 18 birds banded and released at the trapping site at Thief lake, recoveries have been made of five. One of these, banded in the early spring of 1950, was shot the following fall 7½ miles north of the trapping site. Another, banded in 1950, was retrapped at the same trapping site in 1952. The other three birds were shot during the hunting season within 1¾ miles of the trapping site. — *Pittman-Robertson Project 11-R, Minnesota Division of Game and Fish.*

Review of

The Passenger Pigeon

Its Natural History and Extinction

Professor Schorger's *The Passenger Pigeon* is a thorough going compilation of "facts" pertinent to the life history of our now extinct wild pigeon — a combination of natural history and historical writing. The word "facts" is set apart here since in this connection it has a somewhat limited meaning. The Passenger Pigeon, no longer available for field studies, must have the details of its life history and habits carefully sorted out from the innumerable, often inaccurate, carelessly stated, or exaggerated accounts that have come down to us through the printed pages. The few remaining eye witnesses of the extraordinary events concerned with the wild pigeons are mostly only memories from dim distant past which may have changed markedly from the facts as they occurred. Schorger has tackled this assignment and has done a good job of assembling, sorting and evaluating the material.

As an example of conflicting statements, he had to deal with one writer who reported that a pair of pigeons nested four to eight times each year while more conservative observers reported two to three nests annually. After critically cross-checking dates of nestings, Schorger finally came to the even more conservative conclusion that "It is doubtful that more than one brood was reared in a season."

Practically all of the Passenger Pigeon's life activities appeared to have been communal affairs. "The Passenger Pigeon was never comfortable unless it was crowded," said Schorger. For instance, Audubon and some friends were visiting a roost in Kentucky during the winter when "Suddenly there burst forth a general cry of 'Here they come!' The noise which they made, though yet distant, reminded me of a hard gale at sea passing through the rigging of a close-reefed vessel. As the birds arrived and passed over me, I felt a current of air that surprised me . . . The Pigeons, arriving by thousands, alighted everywhere, one above another, until solid masses as large as hogsheads were formed on the branches all around. Here and there the perches gave way under the weight with a crash, and, falling to the ground, destroyed hundreds of the birds beneath, forcing down the dense groups with which every stick was loaded. It was a scene of uproar and confusion. I found it quite useless to speak, or even to shout to those persons who were nearest to me. Even the reports of guns were seldom heard, and I was made aware of the firing only by seeing the shooters reloading."

Remarkable as were the accounts of the winter roosts, the quoted reports of the unbelievable extent and density of the nestings keeps the reader fascinated. One would be frankly skeptical if it were not for the concurrence of nearly all observers as to the enormity of it all. Not that they all agreed as to the numbers of birds but that even the most conservative estimates were still fantastic. Numerous observers described the Petoskey, Michigan, nesting of 1878 as "forty miles in length and six in width." Schorger averaged 47 reports on various large nestings and concluded that "a nesting three miles in width and ten in length can be considered typical". Within these nestings

The Passenger Pigeon: Its Natural History and Extinction. A. W. Schorger (**Madison, the Univ. of Wisconsin Press, 1955 XIII, 424 p.**) Illustrations $7.50.

a single tree did not support just a few scattered nests, but various conservative reports state "thirty-six", "twenty to seventy", "about a hundred". One report of 500 nests in one tree, however, the author assumed to be "a product of the imagination". The best estimates of the actual number of nests in such nestings came from the figures on squabs marketed since only one egg was laid by each pair of birds. These numbers are often confused, however, as to whether or not they included trapped adults as well as squabs. Shipments from a Van Buren county, Michigan, nesting of 1869 were reported by Cook as three cars daily for forty days. Since 150 barrels of 35 dozen each were shipped in each car, the total daily shipments were 24,750 or a season total of 11,880,000 birds. Schorger corrects Cook's arithmetic to 7,560,000 birds for the season with the comment that "Even this number passes credulity".

For instance, a crusader for the pigeons claimed the killing and resulting starvation of squabs at the Petoskey, Michigan, nesting destroyed 1,000,000,000 birds while a game dealer listed 1,107,000 actually shipped. The truth probably lay somewhere in between — but what a spread in figures! Referring to three nestings in Michigan in 1874, Schorger stated that these " . . . furnished for the market 1000 tons of squabs and 2,400,000 adult birds".

Perhaps the most gruesome accounts in the book are those reporting the "Methods of Capture". Netting of as many as 1500 birds in a single net haul was reported. Ladder-like perches were built where a single shotgun blast directed the length of the ladder killed scores of birds. Netted birds were killed by biting their heads or crushing them between the thumb and fingers, but "It was difficult to continue this method without fatigue".

Even the last remnants of the Passenger Pigeons still had a strong tendency to nest in colonies and thus were easy prey to professional pigeoners. Schorger states, "The conclusion is inescapable that the Passenger Pigeon became extinct through such constant persecution that it was unable to raise sufficient young to perpetuate the race." However, the introductory statement to the chapter on "Nesting" reads:

"The great colonial nestings of the Passenger Pigeon have obscured the fact that it also nested widely as single pairs and loose groups of a dozen or more pairs."

Evidently, these groups, unlike many other species, were too small to successfully raise young. More knowledge of the breeding habits of colonial birds may eventually throw more light on just why they failed.

The factual nature of the subject matter and the innumerable quotations only occasionally allow author Schorger's jovial personality to come to the surface. It does appear in very apt form where he states that the book is "Dedicated to my wife whose patience surmounted extinction."

This compilation of data concerning this extinct bird is similar in many ways to F. G. Roe's excellent book on the Buffalo (*The North American Buffalo*, University of Toronto, 1951. I-VIII, 818 pp.) but since this mammal still exists in small numbers, many facts relative to this species can and have been checked by actual critical field studies with living animals. — *W. J. Breckenridge, Mus. of Nat'l Hist., U. of Minn.*

Notes of Interest

EASTERN MERLIN RELEASES SMALL BIRD — October 14, 1954 was a misty overcast day on the North Shore of Lake Superior near Two Harbors. The migration of small birds, bluejays, robins, and blackbirds was phenomenal. Flocks of these birds could, at times, be seen at all altitudes with thousands of birds in sight at a time. The hawk flight was relatively poor. About a dozen Eastern Merlin came over fairly high, flying fast and definitely not interested in any of these birds. However, in midmorning a female merlin flew over with a small bird in its talons. She circled up until she was several hundred feet up and dropped the bird. Despite the fact that I was watching her with my binoculars, it was not until this time that I realized that the small bird was alive. He flew down toward the trees at about a 45-degree angle and was almost to cover when the merlin stooped and easily overtook and recaptured the small bird. This process was repeated twice again. The next time the merlin did not give chase and the small bird flew away apparently unharmed. — *Dana R. Struthers, Minneapolis.*

* * *

CENSUS OF WOODCOCK AND WILSON'S SNIPE, 1955 — Snipe observations were made in conjunction with our spring Ruffed Grouse and Sharptail census and comparative figures on numbers are on hand for each year; however, no extensive count was made on winnowing snipe over the better habitat.

Snipe activity in Game Management Area VII (Aitkin) appeared to be quite high this spring in the lowland areas which are quite extensive in Aitkin and Carlton counties.

Weather conditions differed greatly from last spring and may be responsible for the difference in activity of the snipe. The spring of 1954 was late, snow in May, with much cold windy weather. This spring, 1955, was early with much warm weather and somewhat windy. Much more snipe activity was noted this spring than last and it compared favorably with that of 1953.

The yearly comparisons and population trends for Area VII are as follows: four areas have been censused over the past three years; 1953 was high with a total of 73 winnowing snipe for the four ten-mile routes; 1954 had a total of 31 snipe for the same routes; 1955 had a total of 42 snipe. Each route was mainly in Ruffed Grouse habitat and was run three times in conjunction with the grouse census.

Areas having the highest snipe populations are the extensive lowland bog areas from Aitkin to Duluth in Aitkin and Carlton counties. Two morning censuses were made in this area while checking Sharptail dancing grounds; an average of two birds was heard winnowing per stop. The highest count was made on April 29. These two censuses in strictly snipe hatbitat had an average of 20 birds per ten stops, compared with 10:5 birds per ten stops on the four grouse routes.

Snipe activity was highest the last two weeks in April 1953, the first two weeks of May 1954, and the last week of April and the first week of May 1955. Weather conditions appeared to be very vital in affecting the activity of snipe each spring.

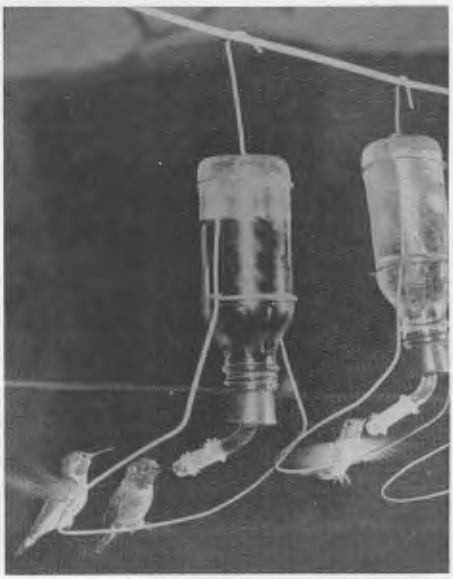
Woodcock appear to be scarce in Aitkin county but increasing in numbers to the east in Carlton and Pine counties.

Four evening routes were run near Aitkin in various stop intervals to try to find a bird. None was heard. However, a few snipe were active. — *Walter H. Petraborg, Minnesota Department of Conservation, Aitkin, Minnesota. Work completed on Project W-11-R-15.*

A NEW FEEDER FOR HUMMINGBIRDS — With spring in the air, our thoughts turn to ways in which we may attract more birds to our lawns and gardens. Those of us who are particularly fond of Hummingbirds are eager to try the new "Tiny Tucker" feeder which has proved so successful at the famous Tucker wild bird santuary in Modjeska canyon, 16 miles east of Orange, California.

One after the other, several types of feeders offered on the market were tried at the sanctuary, but none seemed to attract new "hummers." Finally, the former director, Dr. Arnold Lowe, designed one with an opening which hangs downward like a fuchsia, and the "Tiny Tucker" was born. Within ten minutes after it was placed among flowers, a beautiful male Anna Hummingbird, which had visited the flowers frequently but scorned the feeders, was drinking the bright red sugar-water from the new feeder. Others learned quickly. During the summer hundreds of Hummingbirds representing six different species at home in California were guests at the new lunch counters.

Although we in Minnesota have only the gorgeous Ruby-throat, it's good sport to see how many of them we can entice to our gardens before the end of summer. Postpaid $1.15 will buy this feeder. Address: Tucker Bird Sanctuary, Box 53, Modjeska Canyon, Orange, California. Profit from sale of the feeders will be used to establish a fund to pay a resident curator at the famous haven where 135 species of birds have been recorded since 1926.



B. F. Tucker, a Long Beach banker, purchased the property in 1918 and his home became a mecca for bird-watchers. After the death of his wife in 1939, he deeded the property to the Audubon Society. The sanctuary is maintained by membership and contributions — and any profits from sales of the "Tiny Tucker" feeders. — *Mrs. Arnold B. Erickson, Eastwood Road, Excelsior, Minn.*

Editor's Note: Feeders are also available at $1.00 cash and carry, at the Museum of Natural History, University of Minnesota, with a commission of 25c for each sale going to the Minnesota Ornithological Union. — *P. B. H.*

* * *

GREAT BLUE HERON ROBS OSPREY OF FISH — On July 28, 1953 Lester Pike, William Ellerbrock, Forrest Lee and I were engaged in the banding of young flightless ducks on the northwestern side of Round lake which is just west of Squaw lake in Itasca county. An Osprey flew over us, hovered and stooped. He came up with a fish which probably weighed a half-pound and circled up to an altitude of about 100 feet. At this point, a Great Blue Heron approached the Osprey from behind on the right side and just slightly above. When the heron was about three feet away the Osprey evidently became flustered and dropped the fish. Both birds dropped into the water, which was about 10 to 15 feet deep. The heron flew away with the fish. The Osprey made no attempt to recover the fish. — *Dana R. Struthers, Minnesota Division of Game and Fish, St. Paul.*

DUCK HAWK AT WEST TWIN LAKE — On September 15, 1953, Charles Johnson and I had an excellent opportunity to observe the hunting tactics of an adult Duck Hawk. As our canoe approached the pass between East and West Twin lakes near Grey Eagle in Todd county, we noticed a coot flying across the pass. At almost the same instant, a duck hawk appeared in pursuit. The coot evidently sensed its approach for just as the hawk was about to strike the coot folded its wings and dropped like a rock into West Twin lake.

Moments later a Blue-winged Teal was seen crossing the pass. The hawk in the meantime had circled, and spotting the teal, it set its wings and dived striking the teal about 25 feet above the ground. The teal fell to the ground and the hawk made a small circle and dropped on its prey.

We landed the canoe as quickly as possible and rushed to the spot flushing the hawk. In picking up the teal we found it to be injured on the wing, neck and side. It was a juvenile male whose feather growth was not yet complete. Upon release at the water's edge the teal flew about six feet above the water and landed in a stand of cattail about 60 feet away. — *Maynard M. Nelson, Minnesota Division of Game and Fish, St. Paul.*

* * *

BIRDSONG DURING PARTIAL ECLIPSES OF THE SUN — Although heavy clouds seriously marred observation of the partial eclipse at Lake Itasca on June 30, 1954, a coincident attempt was made by members of the University of Minnesota forestry and biological station to record birdsong during this interesting period.

The awakening times of 12 species were recorded on this particular occasion as the time at which they were first heard singing. These were as follows:

3:29 Kingbird	3:49 Catbird
3:31 Yellow-throat	3:50 Vesper Sparrow
3:33 Red-eyed Towhee	3:54 Rose-breasted Grosbeak
3:39 Alder Flycatcher	3:54 House Wren
3:44 Veery	3:54 Warbling Vireo
3:45 Yellow Warbler	3:54 Nashville Warbler

As our watches were not checked against a central reference point, these times have a relative rather than an absolute accuracy. (They were probably correct to within two minutes.)

The period before maximum eclipse was marked by a heavy overcast which shut out all view of the sun. The clouds, swiftly moving in an easterly direction, reduced general illumination over the landscape to a point reminiscent of that preceding a heavy thunderstorm in summer. Shortly after the point of maximum eclipse at 5:07, the clouds thinning out sufficiently to permit us to see the sun. This thinning out continued somewhat irregularly for the next two hours. Under these conditions, we recorded the bird songs listed in Table 1.

In addition to these, a Veery, Red-eyed Vireo and Yellow Warbler were checked minute by minute from 5:00 to 5:15 a.m. All three sang in each minute during this period. Without a sensitive light meter which would permit one to show exactly how the two variables (cloudiness and eclipse) interacted, it seems impossible to ascribe much meaning to the results which we obtained. Some individual birds failed to show any detectable response to the changing light conditions. A few like the Veery and Warbling Vireo possibly did. Since then the Veery was not consistent in this respect, we do not attach any significance to the results. — *J. J. Hickey, P. B. Hofslund and W. D. Stull, University of Minnesota Biological Station, Lake Itasca, Minnesota.*

COWBIRD PARASITIZING GOLDFINCH — Again this year (1954) some of my Cretin high school students and I have continued gathering data on the nesting of Goldfinches, work which was started a number of years ago by Brother Hubert Lewis (Thistle-Nesting Goldfinches. *Flicker*, 1953, 24:105-109). The Goldfinch nesting habitat in the Highland park district of St. Paul has been greatly reduced this year because of the construction of many new houses.

The building of nests commenced during the third week in July, a little later than usual. The first nests were in small elms and boxelders. Building in thistles commenced in the fourth week in July. At the end of the season during the last week in September we had found 14 nests in thistles, three in elms, four in boxelders, and one in an ash tree. The nests in the boxelders were failures, but there was a high percentage of success in the others, the highest being in thistles.

This year we had the unusual experience of finding a double Goldfinch nest. The nest was in a boxelder, about four feet from the ground. On July 16 the nest appeared to be nearly completed. On July 23 there were two Goldfinch eggs in the nest. On the 26th there was only one egg and there were indications that the nest was abandoned. On this same date a block from the nest we found a female Goldfinch that had been dead about two or three days. There is a possibility that it was the one from the double nest. On August 12 I brought the nest to the Minnesota Museum of Natural History. The upper story of the nest was removed without revealing a Cowbird egg as was suspected. The lower part had a division in it, however, and contained two Cowbird eggs. Probably the Cowbird eggs were laid during the early stages of nest construction and were covered over as the normal nest was completed. This disturbance apparently disrupted the Goldfinch's normal nest building routine and she added another story in spite of there being no Cowbird eggs in the completed normal nest.

We have found very few Goldfinch nests with Cowbird eggs in them. This is undoubtedly due to the Goldfinch's late nesting date. On these occasions we have not found that the Goldfinch buries the eggs as the Yellow Warbler frequently does.

Ordinarily the Goldfinch fastens the nest to the top of three branches of a crotch. This allows one section of the nest to spread out as more room is needed for the growing brood. — *Brother Pius, Cretin High School, St. Paul, Minn.*

* * *

A NOTE ON COLOR DISCRIMINATION IN CHICKENS — As a project for the Ornothology course at Mankato State Teacher's college, color discrimination of 12-week old hybrid chickens was studied.

Whole grain wheat was dyed with brilliant vital red, crystal violet, and methylene blue. The result in the color of the grain was red-orange, violet, and green, respectively. The grain was dried to a known weight and placed in three containers, which were placed in a holder in such a manner as to allow for rotation every 24 hours, thus placing each color in a different position for 24 hours. Hence the chickens were fed this colored grain for 72 hours. The consumption of wheat was as follows: Brilliant vital red, 404 grams; crystal violet, 31 grams; methylene blue, 109.5 grams.

This would tend to indicate that domestic chickens have a color selectivity of the red-orange end of the spectrum. Wallace (*An Introduction to Ornothology*, 1955. The MacMillan Company) states that pigeons and poultry invariably ate the grains at the red-orange-yellow end of the spectrum. — *David G. Shaffer and Ben J. Fawver, Mankato.*

POSSIBLE RECENT OCCURRENCE OF PRAIRIE CHICKEN IN DODGE COUNTY, MINNESOTA — A report that a flock of Prairie Chickens had been seen in southwestern Dodge county in the winter of 1952-53 was investigated in March, 1953. Clifford Toquam living in Section 29, Ripley township near Blooming Prairie, claimed to have seen a small flock at least three times during the winter. Mr. Toquam seemed well-posted on appearances and habits of the birds. He stated that nearly 100 of them had been present each winter between 1939 when he first arrived, and 1947. After 1947 the birds numbered only about a dozen.

From 1939 to 1947 there was about 360 acres of unbroken prairie sod in Sections 20 and 31 and 80 or more acres in Section 6 of Westfield township. Wet soil prevented tillage of this land until drainage operations allowed plowing of most of it in 1947. At the time I investigated the region there were about 80 acres remaining unused in Section 31 and 20 acres in the adjacent Section 6. Two miles north, in Section 18, Ripley township, was another 160 acres said never to have been plowed.

In the fall of 1952 most of the "prairie", in which the Prairie Chicken wintered and perhaps nested, had been burned off. The rest was burned in the spring. Possibly the destruction of the habitat caused the last of the birds to leave this area during the winter of 1953 since sometime after Mr. Toquam saw the group, another farmer living fifteen miles to the northeast (three miles south of Kasson), told me that a small flock of Prairie Chickens had appeared at his farm. Conditions at this farm were quite similar to the original area, with a sedge slough and aspen grove presenting food and cover.

The vegetation at the prairie relict in Ripley township was dominated by Cordgrass (*Spartina pectinata*), Beardgrass (*Andropogon* sp.), Goldenrod (*Solidago* sp.), and a small shrubby willow (*Salix petiolaris*?). A part of the area important to wintering Prairie Chicken was a two- or three-acre grove of willow and aspen. Part of the area in Section 5 was pock-marked with shallow depressions about ten feet in diameter and nearby were mounds possibly built up by Indians. These mounds were approximately three feet high and 30 feet in diameter. — *William H. Longley, Department of Conservation, Kasson, Minnesota. Work done on P-R Project W-11-R.*

* * *

EVIDENCE THAT FALCONS FLY AT NIGHT — It is a well-known fact that falcons take off in the pre-dawn light to hunt food for themselves and their young. During migration, at least in the fall, as soon as it is light enough to distinguish a silhouette against the sky, hawks can be seen migrating. These birds generally stop flying about sunrise and the migration usually picks up again about 10 a.m.

About the 20th of June in 1951, Ross Olson and I visited an aerie of an American Peregrine Falcon on the North Shore of Lake Superior. We stayed on the cliff until about nine in the evening, at which time the sky became overcast and it was so dark that it was necessary to make one's way carefully back to the car. After we had walked about a mile toward the car we heard the swish of wings followed by the screams of a Peregrine. We are quite certain that we did not flush the bird. It was dark enough so that we could not see her. Our only conclusion is that the falcon was hunting the nocturnal woodcock, nighthawks, or bats which are often seen in the afterlight in this area. — *Dana R. Struthers, Minneapolis.*

MEADOWLARK HABITAT — What separates Eastern from Western Meadowlarks in my experience is a difference in habitat. The Eastern, it would seem, prefers a dank growth or a more humid location while the Western goes along with short grass and drier sites. This is what one would suspect, knowing the difference in climate through the main range of the two species, but where the ranges overlap, the differences may well be less obvious. It is said that species behave typically near the edges of their range, and this could be the case with the two meadowlarks.

In southwestern Dodge county there is (or was) a wet, long grass pasture some 80 acres in extent, surrounded on all sides by cultivated land. Much of the 80 acres, if pastured at all in recent years, was pastured only lightly. In April, 1953, at intervals on fence posts strung through the long grass there sat, singing Eastern Meadowlarks. On the surrounding land (cultivated fields, heavily grazed pasture, and tame hay crops) where vegetation is quite sparse *in spring*, only Western Meadowlarks were heard.

In the hilly lands along the Mississippi river, in Wabasha and Winona counties for example, both species occur in good numbers but separated again by habitat differences. In general, the Western Meadowlarks are found on the plateau tops where the fields are large and the wind blows free. The Easterns stay in the more humid valleys, on the natural terraces or in the valley bottoms where fields are small or large and perhaps surrounded by forest growth.

In Ramsey county several years ago a "colony" of Eastern Meadowlarks held out atop a four- or five-acre covered water reservoir where the long grass was little disturbed. On the adjacent golf course were found only Westerns, which are not adverse to some long grasses in their territories, since they nested in the "rough". — *William H. Longley, P-R Project W-11-R, Department of Conservation, Kasson, Minnesota.*

A FEEDING PROCEDURE OF A SHORT-EARED OWL AND A SPARROW HAWK — On December 22, 1951, in Dodge county, Minnesota, a Short-eared Owl (*Asio flammeus*) was observed as it captured and ate a meadow mouse (*Microtus* sp.). First tearing at the prey, it apparently opened the body cavity with the bill. It swallowed some small pieces, then deliberately dropped two pieces to the ground, after which it swallowed the entire remains. The discarded pieces proved to be the stomach and intestines.

On January 25, 1955, in the same general locality a Sparrow Hawk (*Falco sparverius*) was observed when he captured and ate a meadow mouse. The hawk perched on the ground with the mouse in his talons. He tore open the body cavity, ate some pieces with fur attached but discarded some patches of fur and also the intestines. He was frightened away by an approaching auto after two or three more bites.

Many references in the literature remark about the eating of entrails by hawks and owls. Most of these have been captive birds which may act unnaturally. It is not known how often the term "entrails" means all body cavity contents or how often it may refer to the highly nutritious organs such as the heart, liver, lungs, etc. But it is the practice for these birds, and mammalian predators, to eat first from the body cavity. I have watched several hawks at great distance as they ate small rodents and observed that they tore at the prey before swallowing it. Whether it is common for them to discard parts is not known. In *Life Histories of North American Birds of Prey, Part II*, is a note (p. 23) referring to feeding habits of a captive (apparently) Sparrow Hawk while eating grasshoppers. The procedure was as follows: "The bird begins by taking several bites of the head. Next the thorax is eaten. The viscera are pulled out and swallowed or occasionally dropped. If dropped, the bird often looks about, as if determining if anything of value has been lost." Is there sometimes a condition of the viscera, especially the stomach and intestines, which might cause them to be undesirable?

Writing about the killing and eating of cattle by grizzly bears, Adolph Murie (*Journ. Wildlife Mgt.* 12:1:57-72) says, "The author's observations indicate that the paunch and intestines of an animal that has been killed are immediately removed intact from the body cavity."

Purposeful discarding of internal parts, if not a matter of taste, should be helpful to a bear by delaying spoilage of the carcass and permitting a return to eat later. To a small hawk or owl, is it a matter of taste? Could the bird be avoiding certain parasites? Could the digestive tract of a meadow mouse, perhaps full of vegetation, cause the bird digestive upset? The important consideration in these cases is the process by which a nonreasoning creature might develop a useful habit of this type. — *William H. Longley, P-R Project W-11-R, Department of Conservation, Kasson, Minnesota.*

* * *

A SUMMER RECORD OF THE SNOW GOOSE AT TALCOT LAKE, MINNESOTA — On August 11, 1954 a single Snow Goose was seen flying over the Talcot lake federal wildlife refuge in a southerly direction. As the bird was only about 100 feet in the air, its calls were very audible to the six members of the Minnesota Division of Game and Fish who observed it.

Talcot lake refuge is located in Cottonwood county 18 miles west of Windom. The six men who saw the bird were Henry Kuefler, George Rostrum, Robert Krogsaag, Marvin Ballard, William H. Carlson, and Donald Clark. — *William H. Carlson, Minnesota Division of Game and Fish, St. Paul.*

HUNT HILL NATIONAL AUDUBON CAMP DEDICATED — Ornithologists, conservationists, and nature leaders throughout the United States gathered at Sarona, Wisconsin, on Saturday, July 9, to dedicate the Hunt Hill national Audubon camp. This is the fourth Audubon camp in the United States and the first in the Upper Midwest.

The program consisted of an informal tour of the grounds and buildings preceding the luncheon. The dedication ceremonies were presided over by John H. Baker of New York, president of the National Audubon Society, who gave the main address.

Mr. Baker paid high tribute to Miss Frances Andrews of Minneapolis, who gave the 300-acre campsite, "Hunt Hill," to the society in memory of her parents, the late Mr. and Mrs. A. C. Andrews, and her brother, William Hunt Andrews. It was to be regretted that Miss Andrews was unable to be present for the dedication because of being taken ill while enroute from International Falls.

High tribute was also given to the finance committee headed by Mrs. F. L. Larkin, of Milwaukee, Wisconsin, and Whitney Eastman of Minneapolis. The goal of $70,000 for buildings was exceeded by over $10,000. Money was contributed by 1300 individuals, 170 clubs, and 90 businessmen.

L. T. Voigt, the Wisconsin conservation director, pledged the all-out support of his department.

George Selke, Minnesota's conservation commissioner, who was one of the speakers, hailed the establishment of the camp as "an epic day for conservation."

Mayors and representatives of chambers of commerce from Rice Lake, Shell Lake, Spooner, and Sarona were introduced as well as the members of the Hunt Hill camp staff.

The staff includes director and hostess, Mr. and Mrs. Walter W. Engelke, Madison, Wisconsin; dietician, Kathryn Counsell, Madison; plant life, Jaque Vallier, biology, Milwaukee schools; insects, Jeff Swinebroad, zoology, Ohio State university; soil, Robert D. Burns, University of California, Los Angeles; birds, Dr. Ernest P. Edwards, Amherst, Virginia, and Alexander Sprunt IV, National Audubon Society, Miami, Florida; nature activities, Dorothy Treat, National Audubon Society, New York, and Mrs. Ruby Ruettger, Coconut Grove, Florida; maintenance, Victor Leveau, Hunt Hill, Sarona, Wisconsin.

Mr. Baker stated that of the 47 students attending the first two-week session of the camp, 26 were from states other than Minnesota and Wisconsin.

Attending the dedication ceremonies were bird club members from the Minneapolis and Minnesota bird clubs, and the Audubon Society of Minneapolis. The Albert Lea, Duluth, and Mankato bird clubs were also represented as well as many other organizations from Minnesota, Wisconsin, Illinois, and Michigan.

Mr. Baker emphasized the fact that students who attend the two-week sessions of the Audubon camp will learn to know the world around them and will receive a better understanding of all living things and their relation to soil, water, rocks, plants, and wild life which will be of lasting benefit to their communities. — *Severena C. Holmberg, President, Minneapolis Bird Club.*

M. O. U. Notes and News

Some of the M.O.U. members who were guests at the dedication ceremonies of the Hunt Hill Audubon camp at Sarona, Wisconsin, were Dr. and Mrs. W. J. Breckenridge of the Minnesota Bird club; Severena C. Holmberg, Amy Chambers, Mr. and Mrs. Boyd Lien, and Lewis Barrett of the Minneapolis Bird club; Mr. and Mrs. Joel K. Bronoel of the Duluth Bird club; Helen Johnsrud and Loes P. Scott of the Albert Lea Audubon society; William R. Luwe of the Mankato Audubon society; and Mr. and Mrs. George O. Ludcke of the Minneapolis Audubon society.

* * *

Mrs. Mary Lupient is taking a month's vacation in old Mexico. You may be sure she will add a number of new birds to her life list.

* * *

John S. Futcher of Minneapolis was awarded the Minneapolis Bird club Audubon scholarship to the Hunt Hill Audubon camp for a two-week session. John teaches science at McGregor, Minnesota. The scholarship was given in honor of the late John S. D. Clark, who was at one time the president of the Minneapolis Bird club, and the first chairman of the Audubon screen tours.

* * *

The Minneapolis Bird club had a very attractive display of trees and plants that attract birds at the Minnetonka Garden club's flower show at the Wayzata high school on June 29-30. Mrs. Clarence Tolg, a member of the club, arranged the display.

* * *

The Minneapolis Bird club will again have a booth at the Minnesota State Fair. Edward F. Harms is in charge of the arrangements. The electric bird identification map, which was so popular last year, will again be used.

* * *

The American Ornithologists' Union will hold its seventy-third stated meeting in Boston, Massachussetts, from October 25 to 30, 1955. Headquarters will be in the Boston Museum of Science. Business sessions are scheduled for Tuesday, October 25, and the public sessions will be held from Wednesday, October 26, to Friday, October 28.

Friday evening the annual banquet will be held in the auditorium of the Boston Museum of Science.

On Saturday, October 29, there will be a one-day field trip to the Newbury-Plum island region, about 40 miles northeast of Boston where coastal birds will be the chief attraction. On Sunday, there will be small informal trips to specific areas.

* * *

The annual meeting of the Minnesota Ornithologists' Union will be held at the Museum of Natural History in December. Notice of the meeting will be sent to members and affiliated clubs. Those wishing to present papers should contact Dr. W. J. Breckenridge at their earliest convenience.

WINTER MEETING
MINNESOTA ORNITHOLOGISTS' UNION
DECEMBER 3, 1955

The papers session of the Winter Meeting of the Minnesota Ornithologists' Union will be held in the auditorium of the Museum of Natural History, University of Minnesota, Minneapolis on Saturday, December 3, 1955.

We hope that you will accept this invitation to present a paper at that meeting.

Would you, upon acceptance, send to me the following information:

1. Title of paper

2. Time required for presentation (10 to 20 minutes)

3. Materials needed (2 x 2 or 3¼ x 4¼ projector, movie projector, blackboard, etc.)

4. Preference for morning or afternoon.

This information should be in my hands by November 1 so that I can compile the completed program, a copy of which will be mailed to you in advance of the meeting.

Dwain Warner, Program Chairman
Museum of Natural History
University of Minnesota
Minneapolis 14, Minnesota


AFFILIATED SOCIETIES
1 Albert Lea Audubon Society
2 Avifaunal Club
3 Duluth Bird Club
4 H. J. Jager Audubon Society
5 Mankato Audubon Society
6 Minneapolis Audubon Society
7 Minneapolis Bird Club
8 Minnesota Bird Club
9 St. Paul Audubon Society
CANADA
KITTSON
ROSEAU
LAKE of the WOODS
MARSHALL
BELTRAMI
KOOCHICHING
ST. LOUIS
COOK
LAKE
POLK
PENNINGTON
RED LAKE
CLEARWATER
ITASCA
NORMAN
MAHNOMEN
HUBBARD
CASS
CLAY
BECKER
AITKIN
WADENA
CROW WING
CARLTON
OTTER TAIL
WILKIN
DOUGLAS
N. DAK.
TODD
PINE
MILLE LACS
KANABEC
GRANT
DOUGLAS
MORRISON
BURNETT
ROBERTS
TRAVERSE
STEVENS
POPE
STEARNS
BENTON
ISANTI
CHISAGO
BIG STONE
SHERBURNE
WISCONSIN
SWIFT
KANDIYOHI
MEEKER
WRIGHT
ANOKA
WASHINGTON
CHIPPEWA
LAC QUI PARLE
HENNEPIN
RAMSEY
McLEOD
CARVER
SCOTT
DAKOTA
RENVILLE
YELLOW MEDICINE
S. DAK.
LINCOLN
LYON
SIBLEY
BROOKINGS
REDWOOD
NICOLLET
LE SUEUR
RICE
GOODHUE
WABASHA
BROWN
MOODY
PIPESTONE
MURRAY
BLUE EARTH
WASECA
STEELE
DODGE
OLMSTED
WINONA
COTTONWOOD
WATONWAN
MINNEHAHA
ROCK
NOBLES
JACKSON
MARTIN
FARIBAULT
FREEBORN
MOWER
FILLMORE
HOUSTON
LYON
OSCEOLA
DICKINSON
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The Flicker

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THE FLICKER

Organ of the *Minnesota Ornithologists' Union.* Published quarterly in March, June, September, and December. *The Flicker* is sent to all members not in arrears for dues. Dues for members: Active, $2.00; Sustaining, $5.00; Life, $50.00; Patron, $100 or more. All articles and communciations for publications should be addressed to the editor. Subscriptions, memberships, and requests for back numbers should be sent to the treasurer.

THE COVER

Brown Creeper by E. O. King

THE PRESIDENT'S PAGE

This is almost like sending out a birth announcement — and I'm delighted to report — TWINS! Olga Lakela and Mary J. Elwell, both members of that active northern club at Duluth, have become our first LIFE MEMBERS! We are delighted that these two fine ladies have chosen *this* as one of the many examples of their active interest in Minnesota bird study and conservation. Certainly those of us in other portions of the state are not going to allow Duluth to shine alone in this respect! I'm confident that many of our members have been bashfully awaiting just such an occasion as this. How wonderful it is for the good of the organization to swell these ranks of life memberships.

We have noted, also, a stimulating increase in the number of sustaining members. This is indeed, a healthful and encouraging sign. It gives your officers the impression that *you* are backing our program of self-improvement and are eager to show this confidence by considering a status other than that of active membership. To acquaint you with our other classes of membership:

Patron	$100.00
Life Member	50.00
Sustaining Member	5.00

Notes coming in from member clubs indicate a variety of activities and projects. We are glad to have you send us this information and we intend to use "The President's Page" to tell you what our affiliated clubs are doing.

The Minneapolis Audubon Society sent me an attractive brochure outlining their programs for the entire year, containing information about their meetings (First Friday of each month, 2 p.m. to 4 p.m. at the Walker library), field walks during April and May, list of officers and committees and the impressive address list of their 130 members. Their M.O.U. policy committee representative, Louise E. Schutz, has also described several of the club projects.

The Mankato Audubon Society, through M.O.U. policy committee representative Bill Luwe, reports that the society sponsored a young man from Mankato, Gary Hofmaster (a student in wildlife management at the University of Michigan), at the Maine Audubon camp this summer. The Mankato club is also at work distributing information about the value of and need for our birds of prey.

Have *your* M.O.U representative send in a report of your club's activities. We want to publicize our member groups and to report the fine work they are doing in many communities of the state.

I am happy to include this excerpt from a letter by Doris Gates, editor of the NEBRASKA BIRD REVIEW: "I have enjoyed reading *The Flicker*. I like the way Mary Lupient writes up her reports and hope to do something like that with some of ours. . . Smooth paper and pictures add so much!"

Use your M.O.U. membership. *Read The Flicker*. Write *for* as well as *to* our editor and *join* us at our general meetings and on our field trips. Who knows, you *may* meet someone you'll like!

Sincerely,

Your President

Birds of Mud Lake National Wildlife Refuge

by

J. C. Carlsen and Stanley W. Harris

Drainage operations in the northwestern corner of Minnesota near the turn of the century resulted in the elimination of several natural lakes in the region immediately east of Holt, Marshall county. The peaty soils of this area were put under cultivation for several years following these drainage operations, but the land proved unsuitable for farming with the consequence that most of the area reverted from the private ownership of homesteaders to state title in lieu of back taxes.

In 1937, the U. S. Fish and Wildlife Service acquired about 60,000 acres of the land for the purpose of developing a federal waterfowl refuge with the restoration of original Mud lake as a major part of the project. Further development since that time has resulted in the formation of 13 separate pools which are impounded behind water control structures and dikes. These pools total some 25,000 acres of marsh area.

The general terrain of the area is very flat. There is only a difference of about 20 feet in elevation between the highest and lowest points in the 97 square miles that comprise the refuge. The highest points of land have growths predominated by aspen (*Populus tremuloides*) and balsam poplar (*Populus balsamifera*) with small amounts of American elm (*Ulmus americanus*), ash (*Fraxinus sp.*) and various shrubby species including red-osier dogwood (*Cornus stolonifera*) and raspberry (*Rubus*), Laborador Tea (*Ledum groenlandicum*). There are two boggy areas within the refuge that are dominated by tamarack (*Larix laricina*) and spruce (*Picea mariana*).

Large stands of willows (*Salix spp.*) occur over much of the refuge where conditions are too wet for more upland plants and too dry for marsh species. These willows are often associated with various grasses and sedges. In areas too wet for willow survival, a gradation occurs through stands of reed (*Phragmities communis*), cattail (*Typha latifolia* and *T. angustifolia*) and sedge (*Carex spp.*) to open water-marsh areas. The openwater-marsh areas support growths of cattails, bulrushes (*Scirpus validus, S. acutus,* and *S. fluviatilis*), spike rush (*Eleocharis palustris*), burreed (*Sparganium eurycorpum*), sedges (*Carex spp.*) and various submerged aquatics the most common of which are crowfoot (*Ranunculus scleratus* and *R. aquatilis*), pondweeds (*Potamogeton pectinatus, P. pusillus,* and *P. richardsonii*), water milfoil (*Myriophyllum exalbescens*) and coontail (*Ceratophyllum demersum*).

About 1200 acres of the most suitable agricultural land of the refuge are farmed for small grain crops by local farmers on a share-crop basis. Many of the grass-sedge areas associated with willow are maintained in natural hay fields that are also operated by local farmers on a share basis.

The records of birds contained in this paper have been taken from the field notes of the authors and from refuge files. Observations on wildlife in the refuge were made irregularly in the summers of 1949 and 1951 and continuously from September 1952 until August 1955 by Carlsen. From June 1953 until September 1954 the area was covered intensively by Harris. Some additional observations were also made here in the summers of 1952 and 1955 by Harris. Records of bird observations have been kept from time

to time by previous refuge personnel and visitors since 1937. In cases where these records are well authenticated with the name of the observer, date, and nature of the observation, they are included in the following list. Mention of the following five species was made in refuge records, but no cases of authenticated observations could be found so they have been excluded from the body of the list: Old Squaw, Red-shouldered Hawk, Osprey, American Woodcock, and Wood Thrush. Unless otherwise stated, each species included in the list has actually been observed by at least one of the authors.

COMMON LOON (*Gavia immer*). Occasional migrant.

HOLBOEL'S GREBE (*Colymbus grisegena holboelli*). Common summer resident and breeder.

HORNED GREBE (*Colymbus auritus*). Uncommon summer resident and breeder.

EARED GREBE (*Colymbus nigricollis californicus*). Rare migrant. We have seen this species only two or three times in the past two years.

WESTERN GREBE (*Aechmophorus occidentalis*). Rare. We have four records for May and June 1954.

PIED-BILLED GREBE (*Podilymbus podiceps podiceps*). Common summer resident and breeder. This is the most common grebe.

WHITE PELICAN (*Pelecanus erythrorhynchos*). Uncommon spring and fall migrant and summer visitor. Does not breed here.

DOUBLE-CRESTED CORMORANT (*Phalacrocorax auritus*). Common summer resident and breeder. One colony ranging from 15 to 50 active nests is occupied each year.

GREAT BLUE HERON (*Ardea herodias*). Common summer resident and breeder.

AMERICAN EGRET (*Casmerodius albus egretta*). Rare. We have not observed this species here. The species was recorded on 28 and 29 July 1947 by C. R. Mason, then executive director of the Massachusetts Audubon Society.

BLACK-CROWNED NIGHT HERON (*Nycticorax nycticorax hoactli*). Regular but uncommon summer resident. Not known to nest.

AMERICAN BITTERN (*Botaurus lentiginosus*). Common summer resident and breeder. This is Mud lake's most common heron.

LEAST BITTERN (*Ixobrychus exilis*). Uncommon summer resident. We have two records for the summer of 1954 and five records for the summer of 1955. Refuge records show a nesting record for 1938.

WHISTLING SWAN (*Cygnus columbianus*). Common early spring and late fall migrant. An occasional bird lingers through the summer.

CANADA GOOSE (*Branta canadensis*). Three subspecies have been observed. *B. c. canadensis* is common in spring and fall migration and is an uncommon breeder. *B. c. leucopareia* and *B. c. hutchinsi* are occasional to uncommon in migration.

WHITE-FRONTED GOOSE (*Anser albifrons*). Uncommon migrant. More common in spring than fall.

SNOW GOOSE (*Chen hyperborea*). Common migrant. More common in fall.

BLUE GOOSE (*Chen caerulescens*). Common migrant. More common in fall than spring.

COMMON MALLARD (*Anas platyrhynchos platyrhynchos.*) Common migrant and breeder.

BLACK DUCK (*Anas rubripes*). Rare breeder and uncommon but regular migrant and summer resident.

GADWALL (*Anas strepera*). Common migrant and breeder.

PINTAIL (*Anas acuta tzitzihoa*). Common migrant and uncommon breeder.

GREEN-WINGED TEAL (*Anas carolinensis*). Uncommon migrant and breeder.

BLUE-WINGED TEAL (*Anas discors*). Common migrant and breeder. This is the most common breeding duck.

EUROPEAN WIDGEON (*Mareca penelope*). Rare. One male was observed at close range on 15 June 1954 and again on 22 June 1954. These are the only records for this species here.

AMERICAN WIDGEON (*Mareca americana*). Common migrant and uncommon breeder.

SHOVELER (*Spatula clypeata*). Common migrant and breeder.

WOOD DUCK (*Aix sponsa*). Uncommon migrant and rare breeder. A small number of adult males move into Mud lake each summer to moult.

REDHEAD (*Aythya americana*). Common migrant and breeder. This is the most common breeding diving duck.

RING-NECKED DUCK (*Aythya collaris*). Common migrant and breeder.

CANVAS-BACK (*Aythya valisinera*). Common migrant and uncommon breeder.

GREATER SCAUP DUCK (*Aythya marila nearctica*). Probably uncommon migrant. One dead male was picked up on 13 May 1954. Other sight records have been recorded in migration.

LESSER SCAUP DUCK (*Aythya affinis*). Common migrant and uncommon breeder.

AMERICAN GOLDEN-EYE (*Bucephala clangula americana*). Common migrant.

BUFFLE-HEAD (*Bucephala albeola*). Common migrant.

WHITE-WINGED SCOTER (*Melanitta fusca deglandi*). Rare. We have not recorded this species here. J. D. Smith, refuge pilot-biologist, noted the species from the air on 14 and 15 June 1953. Recorded on 6 May 1950 by L. J. Schoonover. Rudy Christenson, local farmer, who farmed and hunted the area before the refuge was established tells of shooting White-winged Scoters on Kuriko lake in the 1920's.

RUDDY DUCK (*Oxyura jamaicensis rubida*). Common migrant and breeder.

HOODED MERGANSER (*Lophodytes cucullatus*). Uncommon migrant and summer resident. The species is not known to breed here.

AMERICAN MERGANSER (*Mergus merganser americanus*). Uncommon spring and fall migrant.

RED-BREASTED MERGANSER (*Mergus serrator*). Uncommon migrant.

GOSHAWK (*Accipiter gentilis atricapillus*). Occasional winter visitor. Usually not seen until late November or December.

SHARP-SHINNED HAWK (*Accipiter striatus velox*). Uncommon migrant. Present during fall migration from the middle of August on.

COOPER'S HAWK (*Accipiter cooperii*). Uncommon but regular migrant.

RED-TAILED HAWK (*Buteo jamaicensis*). Common summer resident and breeder. This is the commonest "Buteo" in summer. Individuals referrable to *B. j. krideri* have been occasionally observed in summer.

BROAD-WINGED HAWK (*Buteo platypterus platypterus*). Uncommon migrant and summer resident.

SWAINSON'S HAWK (*Buteo swainsoni*). Rare. Recorded once in the fall of 1953 by E. F. Bossenmaier.

AMERICAN ROUGH-LEGGED HAWK (*Buteo lagopus s. johannis*). Common migrant and winter visitor.

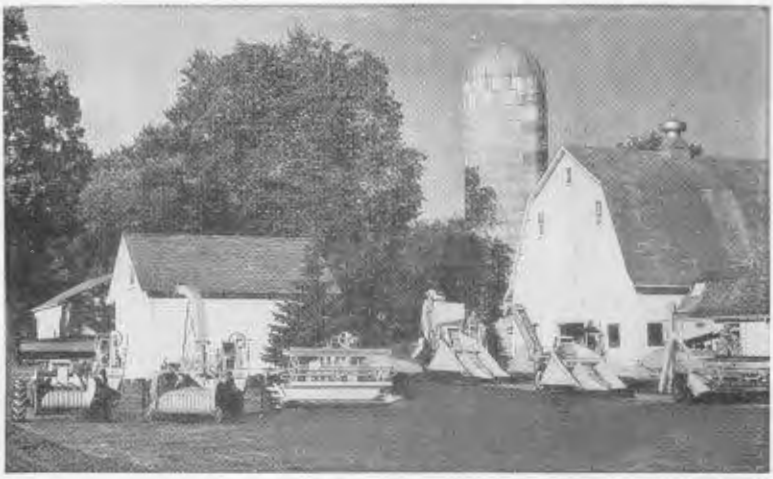
GOLDEN EAGLE (*Aquila chrysaetos canadensis*). Uncommon migrant. More common than the bald eagle.

BALD EAGLE (*Haliaeetus leucocephalus*). Uncommon migrant and rare summer visitor.

HARRIER (*Circus cyaneus hudsonius.*). Common summer resident and breeder. The most common hawk here.

GYRFALCON (*Falco rusticolus obsoletus*). Rare. We have not observed this bird here. Refuge manager Vogen

(CONTINUED ON PAGE 142)



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collected a specimen in 1942 which was attacking waterfowl on the refuge. This bird was mounted and a picture of it is in the refuge files.

PRAIRIE FALCON (*Falco mexicanus*). Observed in 1940 by then refuge manager C. B. Vogen. Not seen by us.

PEREGRINE FALCON (*Falco peregrinus*). Uncommon migrant.

MERLIN (*Falco columbarius*). Uncommon migrant.

KESTREL (*Falco sparverius*). Uncommon summer resident and breeder.

SPRUCE GROUSE (*Canachites canadensis*). Six males and four females were released in the spruce-tamarack area of the refuge on 11 February 1954 after being transferred from the Norris camp area of Beltrami county. No further observations have been obtained on these birds so the status of this species here at the present time is unknown. All old timers in this area say that Spruce Grouse never were recorded here.

RUFFED GROUSE (*Bonasa umbellus*). Common permanent resident.

PRAIRIE CHICKEN (*Tympanuchus cupido*). Rare permanent resident. Refuge manager Hunt observed six on 12 February 1954. This is our most recent positive record.

SHARP-TAILED GROUSE (*Pedioecetes phasianellus*). Common permanent resident. This is probably the most common upland game bird on the area.

EUROPEAN PARTRIDGE (*Perdix perdix perdix*). Rare permanent resident.

RING-NECKED PHEASANT (*Phasianus colchicus torquatus*). Rare permanent resident. Besides the Spruce Grouse, probably the most uncommon upland game bird.

SANDHILL CRANE (*Grus canadensis*). Uncommon but regular fall migrant. Rare in spring.

VIRGINIA RAIL (*Rallus limicola limicola*). Uncommon summer resident and breeder.

SORA (*Porzana carolina*). Common summer resident.

COOT (*Fulica americana*). Common summer resident and breeder. Nesting concentrations of over one nest per acre were recorded in suitable marsh areas in May and June 1954.

SEMIPALMATED PLOVER (*Charadrius hiaticula semipalmatus*). Common migrant. More common during fall migration than spring.

KILLDEER (*Charadrius vociferus vociferus*). Common summer resident and breeder. The most common breeding shore bird.

GOLDEN PLOVER (*Pluvialis dominica dominica*). Rare migrant. One individual was reported on 20 August 1952 by L. H. Mangus. The species was reported again in mid-October 1952 by Carlsen.

BLACK-BELLIED PLOVER (*Squatarola squatarola*). Uncommon but regular migrant. More common in fall than spring.

RUDDY TURNSTONE (*Arenaria interpres morinella*). Occasional migrant.

WILSON'S SNIPE (*Capella gallinago delicata*). Common summer resident and breeder.

UPLAND PLOVER (*Bartramia longicauda*). Rare migrant and breeder. One breeding pair was observed during July of 1954.

SPOTTED SANDPIPER (*Actitis macularia*). Common summer resident and breeder.

SOLITARY SANDPIPER (*Tringa solitaria*). Uncommon but regular migrant.

GREATER YELLOW-LEGS (*Totanus melanoleucus*). Common migrant.

LESSER YELLOW-LEGS (*Totanus flavipes*). Common migrant.

KNOT (*Calidris canutus rufus*). Rare migrant. Our only record is one individual observed on 10 June 1954. C. R. Mason recorded the species in July 1947.

PECTORAL SANDPIPER (*Erolia melanotes*). Common migrant.

WHITE-RUMPED SANDPIPER (*Erolia fuscicollis*). Rare. We have not observed this species here. One was seen on 16 May 1937 by Joe Madson.

BAIRD'S SANDPIPER (*Erolia bairdii*). Rare. Our only positive record was one individual observed on 10 September 1954.

LEAST SANDPIPER (*Erolia minutilla*). Common migrant.

RED-BACKED SANDPIPER (*Erolia alpina pacifica*). Rare migrant. Our only positive record is one individual observed on 10 June 1954.

DOWITCHER (*Limnodromus griseus*). Common migrant.

STILT SANDPIPER (*Micropalama himantopus*). Common migrant. More common in fall than spring.

SEMIPALMATED SANDPIPER (*Ereunetes pusillus*). Common migrant. This is the commonest "peep" sandpiper here.

WESTERN SANDPIPER (*Ereunetes mauri*). Uncommon migrant. We have positively identified this species here only in fall.

MARBLED GODWIT (*Limosa fedoa*). Uncommon but regular migrant. Most often seen in June and July. Newly hatched young with the adults were observed a mile west of the refuge on 17 June 1955 by Carlsen.

HUDSONIAN GODWIT (*Limosa hoemastica*). Occasional migrant. As many as 20 individuals were observed several times during May 1954.

SANDERLING (*Crocethia alba*). Occasional migrant. Several dead sanderlings were picked up on botulism surveys in August and September 1953. We have not positively identified the species in life here. C. R. Mason recorded the species in July 1947.

AVOCET (*Recurvirostra americana*). Rare migrant. Three observed 9 June 1954 and two observed in May 1953 are our only records.

WILSON'S PHALAROPE (*Steganopus tricolor*). Common summer resident and breeder.

NORTHERN PHALAROPE (*Lobipes lobatus*). Common migrant.

HERRING GULL (*Larus argentatus*). Uncommon migrant.

RING-BILLED GULL (*Larus delawarensis*). Uncommon but regular migrant.

FRANKLIN'S GULL (*Larus pipixcan*). Common summer resident and migrant. Known to have nested in colony of over 10,000 birds in 1951. Nests irregularly.

BONAPARTE'S GULL (*Larus philadelphia*). Occasional migrant.

COMMON TERN (*Sterna hirundo hirundo*). Uncommon but regular summer resident. Not known to breed.

CASPIAN TERN (*Hydroprogne caspia*). Rare. We have only a few records from August and September.

BLACK TERN (*Chlidonias nigra surinamensis*). Common summer resident and breeder.

ROCK DOVE (*Columba livia*). Common resident at boundary farmsteads. Individuals occasionally cross into the refuge for short periods.

MOURNING DOVE (*Zenaidura macroura*). Common summer resident and breeder.

BLACK-BILLED CUCKOO (*Coccyzus erythrophthalmus*). Uncommon summer resident. Presumably breeds.

SCREECH OWL (*Otus asio*). Rare. Our only positive record is one recorded by L. J. Schoonover on 12 April 1950.

GREAT HORNED OWL (*Bubo virginianus*). Common permanent resident. The most common owl.

SNOWY OWL (*Nyctea scandiaca*). Irregular winter visitor. Seen in numbers in the winter of 1949-50, less common in 1950-51 and 1953-54. Not recorded in 1951-52 and 1952-53.

HAWK OWL (*Surnia ulula caparoch*). Rare. Our only positive record

was one bird seen by L. J. Schoonover on 20 March 1950.

BARRED OWL (*Strix varia*). Seen in numbers during the winter of 1952-53 and less commonly in other years.

SHORT-EARED OWL (*Asio flammeus flammeus*). Irregular winter visitor.

WHIP-POOR-WILL (*Caprimulgus vociferus*). Our only positive record is one bird observed 18 May 1954.

NIGHTHAWK (*Chordeiles minor*). Uncommon summer resident.

RUBY-THROATED HUMMINGBIRD (*Archilochus colubris*). Uncommon summer resident.

BELTED KINGFISHER (*Megaceryle alcyon alcyon*). Uncommon summer resident.

FLICKER (*Colaptes auratus*). Common summer resident and breeder.

PILEATED WOODPECKER (*Hylatomus pileatus*). Rare permanent resident.

RED-HEADED WOODPECKER (*Melanerpes erythrocephalus erythrocephalus*). Irregularly seen during late summer and fall.

YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius varius*). Irregularly seen during spring and fall.

HAIRY WOODPECKER (*Dendrocopus villosus*). Uncommon permanent resident.

DOWNY WOODPECKER (*Dendrocopus pubescens*). Common permanent resident.

ARCTIC THREE-TOED WOODPECKER (*Picoides arcticus*). Uncommon resident in the tamarack-spruce areas of the refuge.

EASTERN KINGBIRD (*Tyrannus tyrannus*). Common summer resident and breeder.

WESTERN KINGBIRD (*Tyrannus verticalis*). Uncommon summer resident and breeder.

CRESTED FLYCATCHER (*Myiarchus crinitus*). Uncommon summer resident.

EASTERN PHOEBE (*Sayornis phoebe*). Uncommon summer resident and breeder.

ALDER FLCATCHER (*Empidonax traillii traillii*). We have not positively indentified this species. C. R. Mason recorded the species in late July 1947.

LEAST FLYCATCHER (*Empidonax minimus*). Common summer resident.

WOOD PEWEE (*Contopus virens*). Common summer resident.

HORNED LARK (*Eremophila alpestris*). Uncommon summer resident and common winter visitor.

TREE SWALLOW (*Iridoprocne bicolor*). Common summer resident and breeder.

BANK SWALLOW (*Riparia riparia riparia*. Uncommon summer resident and breeder.

ROUGH-WINGED SWALLOW (*Stelgidopteryx ruficollis serripennis*). We have only one positive record. Several were seen in early July of 1953 at some holes in a ditch bank.

BARN SWALLOW (*Hirundo rustica erythrogaster*). Common summer resident and breeder. Stays later in fall than any other swallow.

CLIFF SWALLOW (*Petrochelidon pyrrhonota albifrons*). Abundant summer resident and breeder. Nests under bridges and on headquarters buildings.

PURPLE MARTIN (*Progne subis subis*). Common summer resident. Nests on buildings at headquarters.

CANADA JAY (*Perisoreus canadensis*). Uncommon winter visitor.

BLUE JAY (*Cyanocitta cristata*). Uncommon summer resident.

BLACK-BILLED MAGPIE (*Pica pica hudsonia*). Uncommon but regular winter visitor.

COMMON RAVEN (*Corvus corax*). Common winter visitor.

COMMON CROW (*Corvus brachyrhynchos*). Common summer resident and breeder.

BLACK-CAPPED CHICKADEE (*Parus atricapillus*). Common permanent resident.

WHITE-BREASTED NUTHATCH (*Sitta carolinensis*). Uncommon permanent resident.

RED-BREASTED NUTHATCH (*Sitta canadensis*). We have only one record; one bird heard calling on 12 September 1954.

BROWN CREEPER (*Certhia familiaris*). Seen occasionally during migration.

HOUSE WREN (*Troglodytes aedon*). Common summer resident and breeder.

WINTER WREN (*Troglodytes troglodytes*). Our only record is one bird observed 19 September 1952.

LONG-BILLED MARSH WREN (*Telmatodytes palustris*). Common summer resident and breeder.

SHORT-BILLED MARSH WREN (*Cistothorus platensis stellaris*). Common summer resident and breeder.

CATBIRD (*Dumetella carolinensis*). Common summer resident and breeder.

BROWN THRASHER (*Toxostoma rufum*). Uncommon summer resident.

ROBIN (*Turdus migratorius*). Common summer resident and breeder.

HERMIT THRUSH (*Hylocichla guttata*). Common summer resident and breeder. This is the second most common thrush after the robin.

OLIVE-BACKED THRUSH (*Hylocichla ustulata*). Uncommon summer mer resident.

GRAY-CHEEKED THRUSH (*Hylocichla minima*). Uncommon summer resident.

VEERY (*Hylocichla fuscescens*). Uncommon summer resident.

BLUEBIRD (*Sialia sialis*). Seen occasionally during spring.

GOLDEN-CROWNED KINGLET (*Regulus satrapa*). Seen occasionally during migration. Possibly breeds.

RUBY-CROWNED KINGLET (*Regulus calendula*). Our only record is one seen 19 September 1952.

AMERICAN PIPIT (*Anthus spinoletta rubescens*). Seen regularly during fall of 1953.

CEDAR WAXWING (*Bombycilla cedrorum*). Uncommon summer resident.

NORTHERN SHRIKE (*Lanius excubitor borealis*). Uncommon winter visitor.

LOGGERHEAD SHRIKE (*Lanius ludovicianus*). Rare One was seen in May 1954 and L. J. Schoonover recorded one on 17 May 1950.

STARLING (*Sturnus vulgaris vulgaris*). Seen only occasionally on the refuge although the species is regular around surrounding farms.

YELLOW-THROATED VIREO (*Vireo flavifrons*). The species has been recorded twice, once on 19 May 1954 and once in the summer of 1952.

RED-EYED VIREO (*Vireo olivaceous*). Uncommon summer resident.

WARBLING VIREO (*Vireo gilvus*). Common summer resident and breeder.

BLACK AND WHITE WARBLER (*Mniotilta varia*). Uncommon summer resident.

ORANGE-CROWNED WARBLER (*Vermivora celata celata*). Recorded once during May 1954 and once 19 September 1952. Probably much more common.

NASHVILLE WARBLER (*Vermivora ruficapilla ruficapilla*). Uncommon summer resident and breeder.

YELLOW WARBLER (*Dendroica petechia*). Common summer resident and breeder. The most common summer warbler.

CAPE MAY WARBLER (*Dendroica tigrina*). Recorded once, one bird on June 1954.

MYRTLE WARBLER (*Dendroica coronata coronata*). Common migrant. One of the first warblers through in the spring.

BAY-BREASTED WARBLER (*Dendroica castanea*). Has been recorded only during migration, but probably breeds in the spruce-tamarack areas.

BLACK-POLL WARBLER (*Dendroica striata*). Common migrant.

PALM WARBLER (*Dendroica palmarum*). Has been recorded only during migration, but probably breeds in the spruce-tamarack areas.

OVEN-BIRD (*Seiurus aurocapillus*). Uncommon summer resident.

NORTHERN WATER-THRUSH (*Seiurus noveboracensis*). Only one observation, one bird on 17 May 1954.

YELLOW-THROAT (*Geothlypis trichas*). Common summer resident and breeder.

WILSON'S WARBLER (*Wilsonia pusilla pusilla*). Common migrant. Possibly breeds.

CANADA WARBLER (*Wilsonia canadensis*). Recorded only once, on 3 June 1954, but at that time the species was common.

AMERICAN REDSTART (*Setophaga ruticilla*). Common migrant. Probably breeds.

HOUSE SPARROW (*Passer domesticus domesticus*). Common permanent resident around headquarters buildings.

BOBOLINK (*Dolichonyx oryzivorus*). Common summer resident and breeder.

WESTERN MEADOWLARK (*Sturnella neglecta*). Common summer resident and breeder.

YELLOW-HEADED BLACKBIRD (*Xanthocephalus xanthocephalus*). Common summer resident and breeder.

RED-WING (*Agelaius phoeniceus*). Common summer resident and breeder.

ORCHARD ORIOLE (*Iceterus spurius*). We have only one record, one bird observed on 19 May 1954.

BALTIMORE ORIOLE (*Icterus galbula*). Common summer resident and breeder.

RUSTY BLACKBIRD (*Euphagus carolinus*). Regularly recorded during migration.

BREWER'S BLACKBIRD (*Euphagus cyanocephalus*). Uncommon summer resident.

PURPLE GRACKLE (*Quiscalus quiscula*). Uncommon summer resident.

COWBIRD (*Molothrus ater*). Common summer resident and breeder.

SCARLET TANAGER (*Piranga olivacea*). Recorded by L. J. Schoonover on 19 May 1950. We have one record for the summer of 1951.

ROSE-BREASTED GROSBEAK (*Pheucticus ludovicianus*). Uncommon irregular summer visitor.

EVENING GROSBEAK (*Hesperiphona vespertina*). Uncommon winter visitor.

PURPLE FINCH (*Carpodacus purpureus*). Observed sporadically during summer.

PINE GROSBEAK (*Pinicola enucleator*). Uncommon winter visitor.

REDPOLL (*Acanthus flammea*) Uncommon winter visitor.

COMMON GOLDFINCH (*Spinus tristis tristis*). Common summer resident and breeder.

TOWHEE (*Pipilo erythrophthalmus*). We have only one record, one observed on 26 June 1953.

SAVANNAH SPARROW (*Passerculus sandwichensis*). Common summer resident and breeder.

LECONTE'S SPARROW (*Passerherbulus caudacutus*). We have only one record, one bird observed on 19 May 1954.

VESPER SPARROW (*Pooaecetes gramineus*). Uncommon summer resident and common migrant.

SLATE-COLORED JUNCO (*Junco hyemalis*). Common migrant and winter visitor. Occasionally observed in summer.

TREE SPARROW (*Spizella arborea*). Uncommon migrant.

CHIPPING SPARROW (*Spizella passerina*). Uncommon summer resident.

CLAY-COLORED SPARROW (*Spizella pallida*). Common summer resident and breeder.

HARRIS'S SPARROW (*Zonotrichia querula*). Uncommon migrant.

WHITE-CROWNED SPARROW (*Zonotrichia leucophrys*). Common migrant.

WHITE-THROATED SPARROW (*Zonotrichia albicollis*). Uncommon migrant, summer resident, and breeder.

FOX SPARROW (*Passerella iliaca*). Uncommon migrant.

LINCOLN'S SPARROW (*Melospiza lincolnii*). We have recorded this sparrow only twice, once on 19 September 1952 and once on 15 September 1954.

SWAMP SPARROW (*Melospiza georgiana*). Common summer resident.

SONG SPARROW (*Melospiza melodia*). Common summer resident and breeder.

LAPLAND LONGSPUR (*Calcarius lapponicus lapponicus*). We have only one record, three birds recorded on 19 September 1952.

SNOW BUNTING (*Plectrophenax nivalis nivalis*). Common winter visitor.

— *Ent. and Ec. Zool. Univ. of Minnesota* and *U. S. Fish and Wildlife Service.*

Survey of Cliff Swallow Colonies in Minnesota[1]

by

Gerald Robinson and James R. Beer

The large number of Cliff Swallows (*Petrochelidon pyrrhonata*) nesting in recent years on the Mud Lake Refuge near Holt, Minnesota, and the common occurance of nesting colonies in Carlton county and northern Pine county caused us to investigate the present status of this species which 25 years ago was considered to be a rare summer resident (Roberts, 1932).

In the summer of 1953, questionnaires were sent to members of the Minnesota Ornithologists Union, Minnesota members of the Wilson club, bird banders and other people known to be interested in Minnesota birds. These forms asked for the following information: (1) the geographical location of breeding colonies, (2) type of habitat or structure supporting the nests, (3) the number of nests present, (4) any known history on the colony, (5) if no colonies were known to exist in the area this was to be noted and, (6) name and address of the observer. In all, 62 of these questionnaires were returned. To these data our own personal observations have been added and presented graphically in Figure 1.

The fact that the observers were not evenly distributed over the state must be born in mind while interpreting the colony location data as presented in Figure 1. The general home locality for each observer is shown in Figure 2. This unequal distribution of observers undoubtedly is reflected in the numbers and locations of colonies reported. The two principal concentrations of observers are in the St. Paul-Minneapolis and Duluth areas. There is also an almost complete lack of observers in the southwestern part and only a few along the western edge of the state. In all, a total of 71 colonies were found or reported. These were located primarily in the northeastern part of the state.

It is difficult to determine from the literature what the status of the Cliff Swallow was in Minnesota before the area was settled and modified by the white man, since the early records were found to be few in number and these of limited value. The brief statements of Baird, et al, (1874), Hatch, (1892), Featherstonhaugh, (1847), and Keating, (1824), indicate that this bird was common in areas where suitable nesting sites, such as the rock cliffs that were found on the Minnesota river and Blue Earth river, were available. These sites were, however, relatively few in number. When white man moved into the area on a permanent basis in about 1850 and began putting up buildings, the Cliff Swallows were furnished with an ever increasing number of nesting places in areas which had previously been unsuited for them. The swallows occupied these new nesting sites which were at first primarily in the southern and western parts of the state. In the late 1800's the swallows became numerous and by 1900 they were common summer residents throughout the state (Roberts, 1932). This period of population build up and abundance was followed by what appears to be a drastic decline in both the number of individuals and the number of occupied colonies. Grosvenor and Wetmore (1932) state that "In the central states, for some obscure reason, their numbers have much diminished during the last 20 years". Roberts (1932) considered that at that time the Cliff Swallows were uncommon and local in their

[1] Paper No. 3336, Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul, Minnesota.

DISTRIBUTION OF KNOWN CLIFF SWALLOW COLONIES, 1953

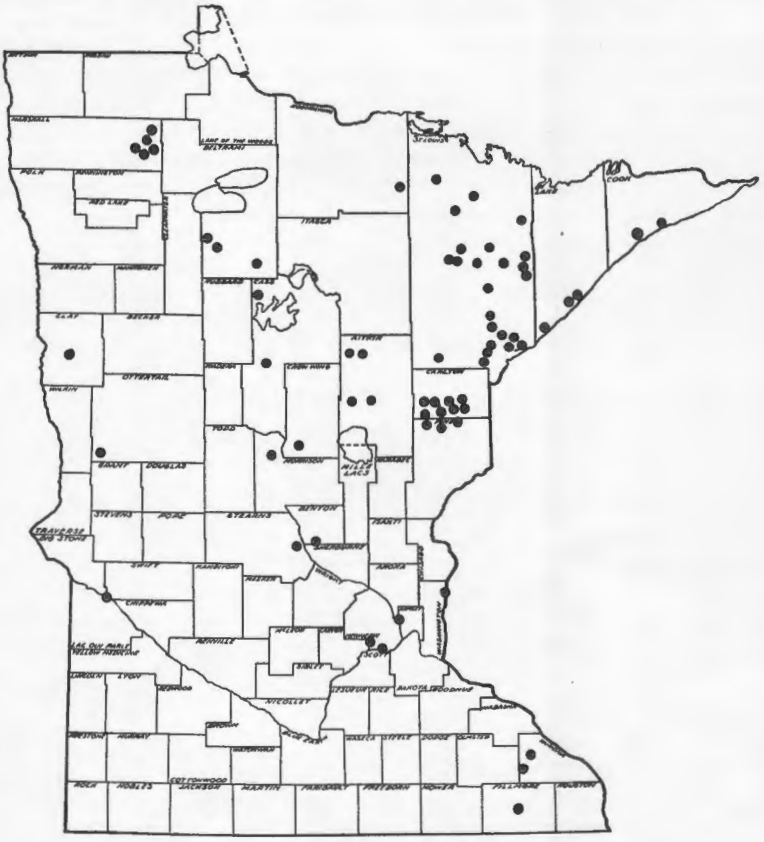

FIG. 1

distribution but they might be returning in increasingly large numbers.

Since 1932 there is very little information available except for a few notes in the files of the University of Minnesota Museum of Natural History and a few notes published in *The Flicker*. The total number of records found for the period from 1932 to 1954 compiled from these sources totals only about 75. While these records are from widely scattered areas, they appear to be concentrated in somewhat greater numbers in the northern part of the state (see Table 1), and in general, agree with the present known distribution.

This then gives a dynamic picture with continual changes in numbers and distribution of the Cliff Swallows during historical times. Up until about 1850 or a little later, the Cliff Swallow was found only in the few areas where suitable cliff nesting sites were available. With the coming of man-made structures they were able to colonize many new areas and build up large populations. The bulk of these were apparently in the south and west. Shortly after 1900 they decreased in numbers so by 1930 they were considered to be uncommon and local in distribution. Between 1930 and 1953 there has been

what appears to be an increase in population density in the north and northeastern parts of the state.

It is not difficult to understand the build up in numbers of individuals and colonies with the coming of settlers and their rough lumber buildings but the following decline, which was apparently catastrophic in its proportions, is more difficult to understand.

Two factors are usually given as the major reasons for its disappearance. The first of these is the reduction of suitable nesting sites caused by the painting of buildings and the deliberate destruction of the nests by the farmers (Roberts, 1932 and Townsend, 1917). The second cause commonly given is the occupation of the Cliff Swallows' nests by the English Sparrow (Roberts, 1932 and Ridgeway, 1915).

The first of these is based on two suppositions: that painting of buildings changed the texture to the extent that the swallows were unable to attach their nests to the buildings. This cannot be more than partially true since a number of the colonies observed recently have been on painted buildings. The nests are often knocked down deliberately,

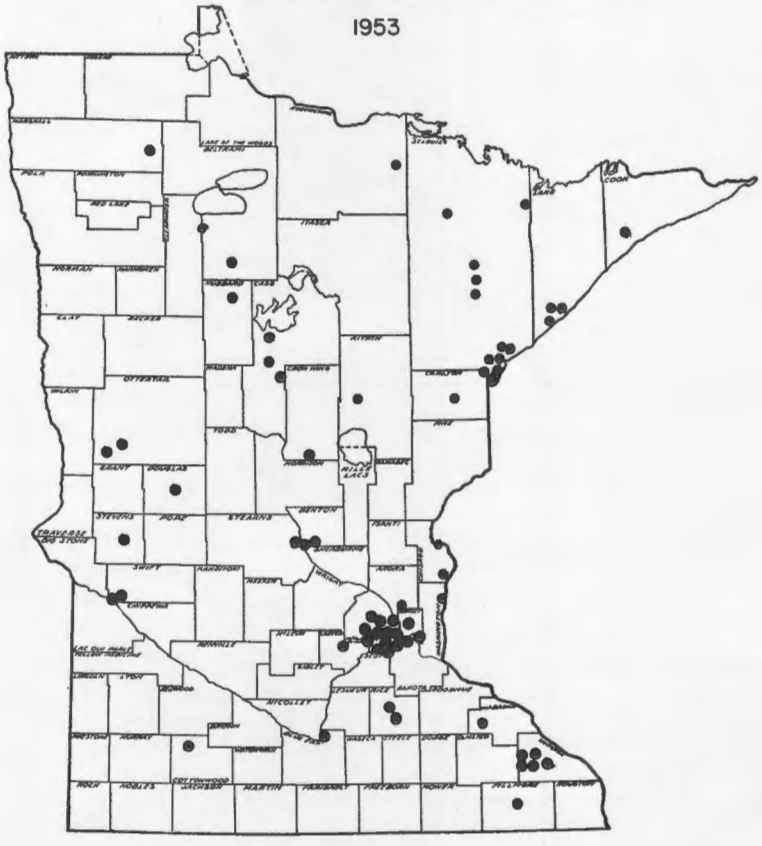

FIG. 2

but it is difficult to evaluate the effect of this since we know nothing of their ability to renest.

The reduction in the swallow population in the first part of the century seems to be somewhat correlated with the appearance and increase in abundance of the English Sparrow and has been postulated as one of the causes of the decline. This presumes that the sparrows are plentiful enough to take over a significant portion of the swallows' nests and that this interference prevents them from nesting successfully that year.

However, neither of these two arguments appear to fit the data at hand. At the present time both the painted barn and the English Sparrow are more plentiful than at the time of the decline, and during the last 20 years there appears to be an increase in their populations in the northern and northeastern areas of the state.

At the best, these arguments are but speculation and are not based upon detailed observations.

It is apparent that the Cliff Swallows disappeared from the southern portions of their range in Minnesota in the early 1900's. Since this time it appears that we have been overlooking most of the colonies reported here.

It is not possible with the data available at this time to come to any definite conclusions as to whether the Cliff Swallows have increased in numbers since the early 1900 decrease or whether the colonies now reported are merely being rediscovered.

The colonies reported were found nesting on either buildings or the undersides of bridges. Only one colony was reported from the cliffs which made up the original nesting sites.

Summary

The Cliff Swallow is not an abundant bird in Minnesota, but is found in moderate numbers in the north and northeastern portions of the state. A few colonies are scattered through the central portions as well as the extreme southeastern corner of the state.

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Table 1.

Nesting Records of the Cliff Swallow in Minnesota

1933 - 1952[1]/

County \ Year	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952
St. Louis						4	2	1	1			2	2	2	2	3	3	1	2	3
Hennepin	1	1	1	2								2								
Pennington	1																			
Marshall	1	1																		
Cass	1																	2		
Aitkin		1								1										
Swift				1																
Olmstead						1											1			
LacQuiParle						1														
Chisago							1													
Winona								2								1		1	1	2
Pine								1					1							
Stearns									1											
Ramsey										1					1					
Clearwater										1										
Wadena														1						
Wright														1						
Houston															1	1				
Cook																1				
Beltrami																		1		

[1]/ Compiled from The Flicker and from the Species File, Museum of Natural History, University of Minnesota.

Minnesota Winter Bird Censuses, 1954

by

Elizabeth Jerabek

After returning from a busy, exciting census day in the snow and open air do you find yourself asking questions about the pleasant winter outing? How did it start? What has it shown about Minnesota winter bird-life? How accurate is the picture which the census gives? How does this year's census compare with those in other parts of the state?

The tradition of Christmas censuses originated 55 years ago when Frank M. Chapman, editor of *Bird-lore*, suggested that his readers spend part of their holiday searching out the birds in their locality. Few additions have been made to the data requested since Dr. Chapman's original specifications: exact locality, hours in the field, weather, wind, temperature, and exact or approximate number of each species observed. The Christmas day counts printed during the years succeeding 1900 probably contributed to a better understanding of the winter bird populations of many areas of the United States. The common birds were determined and through the years new strays and rarities were added to the lists of winter inhabitants.

At least 144 species of birds have been listed in Minnesota during the months of December, January and February. Dr. T. S. Roberts (1916) records 85 species. An article by Dr. Swedenborg (1929) reports 53 species from the 24 censuses published in *Bird-lore* between 1900 and 1929. Another list by Dr. Swedenborg (1937) for 1927-1937 totals 124 species. It was derived from many periodicals and private records as well as published censuses. Censuses published since 1937 have turned up 113 species. Twelve of these species were not recorded on previous winter lists. Some were Minnesota residents during less harsh seasons, e.g. the Cowbird (1942), Long-eared Owl (1944), Killdeer (1953). Others were obvious strays as the Varied Thrush (1953). Thus censuses help determine a list of Minnesota winter avian fauna. Can they really give an accurate picture of the abundance of winter birds?

As Christmas censuses are now run, data from one year are very difficult to compare with data from another year. This is because so many factors vary. Coverage of the areas is often incomplete and spotty because the area is too large. Since the area is covered by different people each year, a consistent method is not developed. No census counts 100 per cent of the birds and it is difficult to guess what percentage of individuals is counted.

Varying weather is another factor which cannot be controlled. Neither snow, gale, nor sub-zero temperatures halt a census because a time must be set when the most members can participate. There can be no waiting for standard weather conditions.

Correlating birds with the type of habitat in which they are found, i.g. open farmland, deciduous woodlots, is not possible since each census area shows many types of land use. Perhaps the effect of suburb development on bird populations could be shown. Reports giving proportions of land types are few and far between, and often the newly

developed suburban areas are ignored by census takers.

Our winter censuses are like an advance photo for a motion picture. They give a glimpse of the characters but there is no way of telling what direction the action will take. Were birds just moving through the census area or did they remain there throughout the season? How many birds does an area support during a given winter? What is the ratio of first year birds to adults? Does this ratio change during the winter? There are many questions these censuses cannot answer. Perhaps we will find some questions which they can answer.

This year 63 species were reported from seven areas in the state. As usual more than half of the reports were from areas clustered around the Twin Cities. This distribution is a better measure of bird clubs than of birds. Eighty-eight observers, in the field for an unknown number of hours, recorded approximately 9313 birds. Weather conditions favored a good count. After a rather mild November and December many lakes and creeks remained open much longer than usual, allowing records of the Common Loon, Horned Grebe, Whistling Swan, Red-breasted Merganser, and an unusually large number of Mallards.

During November and December precipitation was extremely light and the long mild spell in December reduced snow cover to an average of only an inch or so. This exposed some previously covered grass seed toward the end of December (Climatological Data, 1954). Perhaps this increased food supply helps account for the large numbers of Tree Sparrows, Goldfinches, and Juncos reported. Twenty Bronzed Grackles were found by three widely scattered clubs: St. Paul, St. Cloud, and Duluth.

There were several observations of exciting owls. The St. Paul Audubon Society had the good fortune to see Minnesota's largest and smallest owls, Great Gray and Saw-whet, on the same trip. Long-eared Owls, not normally seen here during the winter, were reported from three areas.

Flickers were seen in Northfield and in Duluth, and Red-headed Woodpeckers in three other areas. Pine Grosbeaks were reported from five of the seven areas, including the most northern and the most southern. Only Red Crossbills were found at Duluth. The White-winged, so plentiful throughout the state the preceding fall, was reported from the Canadian Lakehead region by the Thunder Bay Field Naturalist club. That club discovered a Mourning Dove as well as its usual Brown-capped Chickadees and Ravens. In our state nine Mourning Doves were reported from Northfield, quite a distance from the 84 in the 1953 census. The Canadian group saw 107 Robins on its December 26 census while all Minnesota censuses turned up just one. To console us, large numbers of Bohemian Waxwings and Evening Grosbeaks were reported in Duluth.

This article has attempted to answer some questions about the winter census. Now here are the data for you to make your own comparison of winter bird-life in the regions represented:

DULUTH BIRD CLUB (Lake shore of Lake Superior from Gooseberry River to Fond Du Lac on the St. Louis river, including Minnesota Point and all Duluth parks; city parks 15%, sand dunes 10%, streets and highways 75%). Jan. 3; 7:30 a.m. to 4 p.m. morning clear, temp. 2°; afternoon partly cloudy, 17°; wind very light; snow absent on streets and in parks, light to 3 inches in wooded areas. Twenty-two observers in nine parties. Participants: Joe Antonio, Joel Bronoel, Margaret Brown, Bob Cohen, O. A. Finseth, Sam Cox, Henry Gilbert, Lloyd Hackl, P. B. Hofslund, Steve Hedman, John Hale, Dolphe Johnson, Olga Lakela, Joseph Lakela, Catherine Lieske, Evelyn Palmer, Harvey Putnam, Evelyn Putnam, Joan Shoberg, Larry Snider, Robert Ulvang, Wm. Ulvang.

ST. CLOUD BIRD CLUB (Campus of St. John's University, campus of College of St. Benedict, an area east of Sauk Rapids and the region along the Mississippi River at St. Cloud State Teachers college.) Dec. 26 and 27; sun shone; temp. 10° to 15°; wind light. Participants: Harry Goehring, Mr. and Mrs. George Lehrke, Mrs. Rudolph Misho, Hildegard Misho, Monica Misho, Loretta Rosenberger, Sister Remberta.

MINNESOTA BIRD CLUB (4 square miles

of Cedar Creek Game Refuge; open farmland 14%, white pine and hardwood 45%, white cedar, tamarack and alder 40%, cattail marsh 1%; land adjacent to road leading to the area for 11 miles.) Jan. 2; 9 a.m. to 4 p.m. temp. 11° to 25°; wind calm rising to 10 mph with gusts to 20 mph; 2 inches of old snow, flurries about noon; Cedar Creek frozen, a few springs open. Eighteen observers in 4 parties. Total party-hours 13 (12 on foot, 1 by car), total party-miles 13 (11 on foot, 2 by car): Participants: Walter J. Breckenridge, Mrs. Albert Corniea, John Erickson, Emmett Hermanson, Wally Jiracek, Harold E. Johnson, James Lundgren, Mary Lupient, Theodora Melone, Mr. and Mrs. Carl R. Nelson Jr., Bob Nordgren, Bill Parrish, Jessie Richardson, Martin Sandel, Jim Thompson, Don Waite, Arthur C. Wangaard.

MINNEAPOLIS BIRD CLUB (7½-mile radius from Camden park to Anoka on both sides of the Mississippi river; open farmland 55%, town suburbs 25%, deciduous farm woodlots 15%, deciduous river banks and valleys 2%, marshes and sloughs 2%, sand dunes 1%.) Jan. 2; 8 a.m. to 4:30 p.m. Cloudy; temp. 11° to 25°; wind SW, 3 mph, 4 inches of snow, practically all creeks in area had open water, Mississippi River open in spots below Coon Creek dam. Eighteen observers in 7 parties. Total party-hours 30½ (13 on foot, 17½ by car), total party-miles 306 (27 on foot, 279 by car). Participants: Lewis Barrett, Del Cahoon, Amy Chambers, John Futcher, Mr. and Mrs. Edward Harms, Severena Holmberg, Elizabeth Jerabek, Henry Jerabek, O. V. Johnson, Peter Johnson, Mr. and Mrs. Boyd M. Lien, John Pavek, John Pratt, Charles F. Wright, K. C. Wright, G. P. Wright.

AVIFAUNAL CLUB (7½ mile radius centering on the Minneapolis golf course and extending to the junction of highways 55 and 101, Robbinsdale, Edina, Hopkins, and including Theodore Wirth Park and Roberts Bird Sanctuary; town suburbs 45%, open farmland 25%, deciduous woodlots 17%, lakes, marshes and creeks 8%, city park and golf course 5%.) Dec. 26; 8 a.m. to 4:30 p.m. Sunny with scattered clouds; temp. 21° to 25°; wind NNE, 11 mph, 2 inches of snow; 1/5 of Lake Harriet and 1/8 of Lake Calhoun open, parts of Minnehaha and Bassett's creeks open. Ten observers in 5 parties. Total party-hours 36½ (13½ on foot, 23 by car), total party-miles 317 (17 on foot, 300 by car). Participants: Jeremy Berman, Richard Duxbury, Geo. Fisher, John Futcher, Ray Glassel, Burton S. Guttman, Elizabeth Jerabek, Mr. and Mrs. H. S. Jerabek, Wm. Nelson.

ST. PAUL AUDUBON SOCIETY (7½ mile radius from the Mississippi River at the Armour plant, sewage plant, Pig's Eye, fish hatchery, across country in fields to Fort Snelling and Izaak Walton bass ponds on the Mississippi River bottoms.) Jan. 2; 9 a.m. to 4 p.m. a short period of light snow; temp. 11° to 25°; wind E to ESE, 5 to 17 mph; 5 inches of snow in the woods; rivers and streams open, ponds frozen. Eleven observers: Marjorie Allie, Herman Brown, Wm. Cummings, Katherine Jansen, Caroline Larson, Kermit Piper, Richard Ryan, Medora Sanford, Mr. and Mrs. Robert Walsh, Dr. Vernon Whipple. The Great Gray Owl was again reported near the bass ponds area by Mrs. Wm. Whiteford on Jan. 7, 1955.

NORTHFIELD, RICE COUNTY. Dec. 26. Orwin A. Rustad.

	Duluth	*St. Cloud*	*Minn.*	*Minneapolis*	*Avifaunal*	*St. Paul*	*Northfield*	*Total*
Common Loon					3			3
Horned Grebe	2							2
Whistling Swan					1			1
Mallard				49	336			385
Black Duck				6	3			9
Lesser Scaup Duck	3				3			6
American Golden-eye	194	18		169	6	114		501
American Merganser	2	7			9			18
Red-breasted Merganser	1							1
Goshawk					1	1		2
Red-tailed Hawk						1		1
Red-shouldered Hawk							1	1
American Rough-Legged Hawk					1			1
Sparrow Hawk				1			1	2
Ruffed Grouse	9	3	8					20
Ring-necked Pheasant	1			108	164	11	4	288
Coot					8			8
Wilson's Snipe						1		1
Glaucous Gull	3							3
Herring Gull	584							584
Ring-billed Gull					5			5
Mourning Dove							9	9
Horned Owl	4						1	5
Barred Owl				1	2	1	1	5
Great Gray Owl						1		1
Long-eared Owl			1		2		1	4
Saw-whet Owl						1		1
Belted Kingfisher					2		1	3
Flicker	1						5	6
Pileated Woodpecker	2			1	2	1		6
Red-headed Woodpecker			3	1		1		5
Hairy Woodpecker	3	4	1	4	7	2	1	22
Downy Woodpecker	81	19	1	20	26	22	3	172
Blue Jay	18	31	10	167	143	15	10	394
Raven	9							9

	Duluth	*St. Cloud*	*Minn.*	*Minneapolis*	*Avifaunal*	*St. Paul*	*Northfield*	*Total*
Crow	11	3	3	72	32	6	20	147
Black-capped Chickadee	87	59	71	136	157	54	30	594
Tufted Titmouse			2		1			3
White-breasted Nuthatch	2	6	6	34	47	10	10	115
Red-breasted Nuthatch	9	5			5			19
Brown Creeper		2	3	4	2	2	1	14
Robin						1		1
Golden-crowned Kinglet			1		9	2		12
Bohemian Waxwing	185							185
Northern Shrike	7		3		2			12
Starling	267	53		90	59	34	50	553
House Sparrow	215	69		550	1082	200	100	2216
Meadowlark							5	5
Red-wing					2			2
Brewer's Blackbird						3		3
Bronzed Grackle	2	12				6		20
Cardinal		6		6	18	13	2	45
Evening Grosbeak	160	6						166
Purple Finch		2		1	90	7	6	106
Pine Grosbeak	154	4		4	1		2	165
Redpoll	13	14	17	80	14			138
Pine Siskin	13		10					23
Goldfinch			37	372	158	7	10	584
Red Crossbill	3							3
Slate-colored Junco		77	4	190	142	50	12	475
Tree Sparrow	1		8	419	547	200	6	1181
Song Sparrow					1			1
Snow Bunting	41							41
Total Individuals	2087	400	189	2485	3093	767	292	9313
Species	32	20	18	24	38	28	25	63

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HAWK

by P. B

Each fall, the attention of the M.O.U. is drawn to a vast migration of hawks over the city of Duluth.

During a Broadwing flight, there may be several hundred in the air at once.

Young of the year, such as this light form of the Peregrine, usually go through first.

FLYWAY

Hofslund

The adult Peregrine, as well as most other adult hawks, go through the latter part of September or in October.

Rare color phases, such as this Krider's Red-tail are occasionally seen.

A banding station to aid in the study of this flyway is planned for the future.

Zoogeographic Relationships of Minnesota's Mammals[1]

by

James R. Beer

Since Minnesota has large areas, which before the coming of white man were covered with coniferous forest typical of the north, hardwoods representative of the south and southeast, and prairies demonstrating floral relationships with the west, it is of interest to examine the distributional relationships of our local mammals. In the following discussion, scientific names will be used sparingly. The common names used are from Gunderson and Beer (1953).

The list of recent mammals native to Minnesota includes 78 species which are representatives from 57 genera, 20 families and seven orders. When we examine the individual ranges of these 78 species we find that only seven species are typically mid-continental (Thirteen-lined Ground Squirrel, Richardson Ground Squirrel, Franklin Ground Squirrel, Mississippi Valley Pocket Gopher, Pocket Mouse, Rock Vole and Bison).

This list is composed principally of mammals associated with the prairie and the prairie-forest border. Another 16 species are found to have very extensive ranges, often from the Atlantic to the Pacific and from Mexico to the Arctic (Beaver, Deer Mouse, Common Meadow Mouse, Muskrat, Black Bear, Mink, Otter, Striped Skunk, Red Fox, Gray Wolf, Elk, White-tailed Deer, Little Brown Bat, Keen's Little Brown Bat and Silver-haired Bat). These two groups tell us relatively little about the general relationship of Minnesota's mammals to the mammals of other areas. The first group which is composed of seven species (about nine per cent) makes up a small proportion of the total. The indemic or strictly local species are relatively unimportant. The second group of 16 (about 20 per cent), while important from the standpoint of its number, tells us little about geographical relationships because they are so adaptable that only the most extreme environmental factors limit their distribution. Thirty-eight of the remaining 55 species reach the limit of their distribution within the limits of Minnesota and have rather extensive ranges associated primarily with one or another of the surrounding zoogeographical areas. The remaining 17 species while having ranges which extend beyond the boundaries of Minnesota in all directions are primarily associated with one or another geographical region. It seems most profitable to combine these two groups for the discussion of area relationships.

Fourteen species reach their southern limits in Minnesota while another seven species have ranges which extend somewhat to the south of Minnesota (Cinereus Shrew, Saddle-back Shrew, Water Shrew, Pigmy Shrew, Snowshoe Rabbit, Woodchuck, Red Squirrel, Northern Flying Squirrel, Northern Lemming Mouse, Red-backed Mouse, Phenocomys, Meadow Jumping Mouse, Porcupine, Marten, Fisher, Short-tailed Weasel, Least Weasel, Wolverine, Canada Lynx, Moose, Caribou).

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1 Paper No. 904 Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

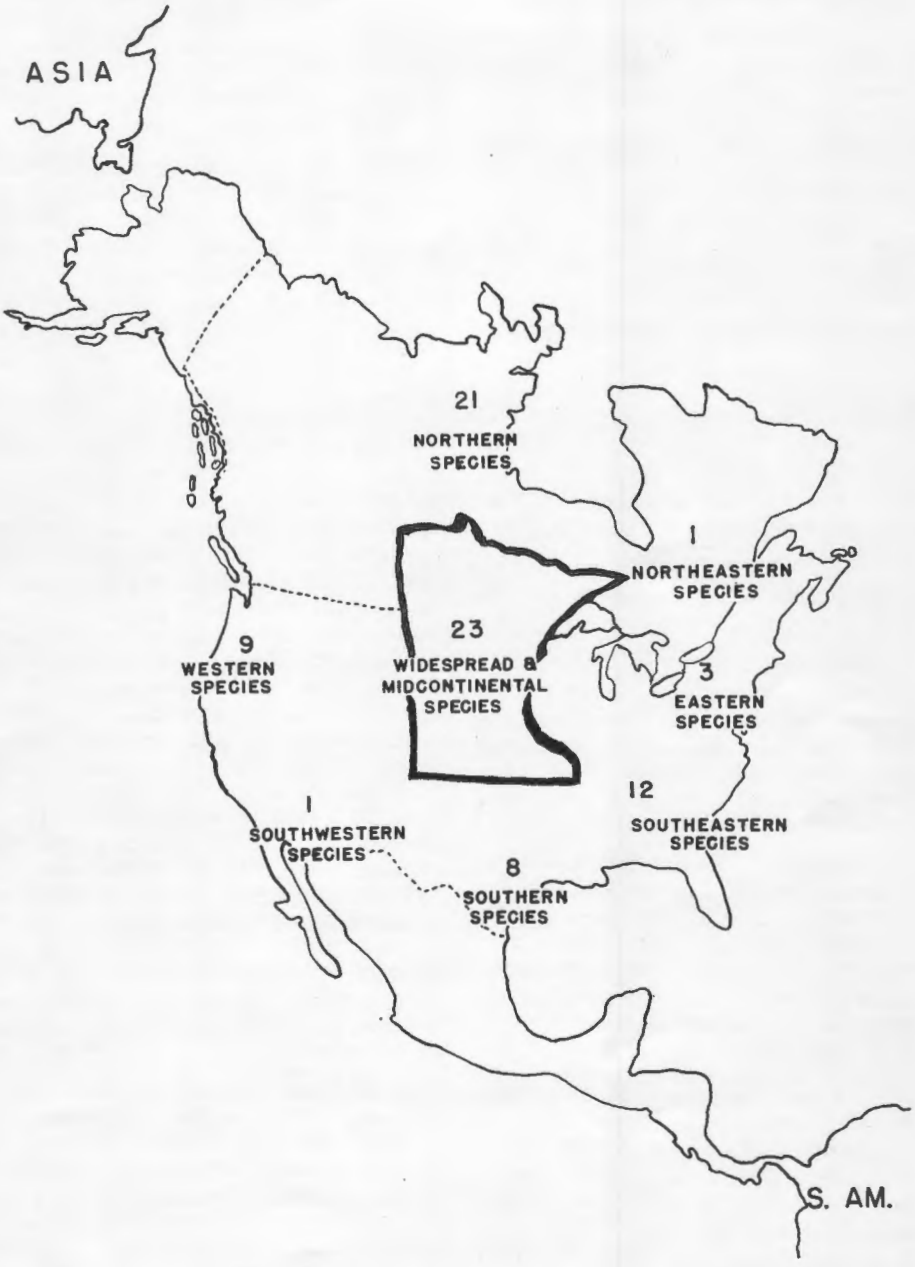

Fig. 1. The state of Minnesota is enlarged as an overlay on a map of North America to show the geographical relationship of Minnesota's mammals.

A single species, the Star-nosed Mole, can be considered typically northeastern.

Three species are typically eastern in their affinities (Eastern Chipmunk, Lemming Mouse, Rock Vole).

Twelve species are typically southeastern with only four of these extending their ranges beyond Minnesota's boundaries (Opossum, Common Mole, Least Shrew, Short-tailed Shrew, Pipistrille, Red Bat, Cottontail Rabbit, Gray Squirrel, Fox Squirrel, Southern Flying Squirrel, White-footed Mouse and Pine Mouse).

Only eight of our mammals can be considered typically southern (Big Brown Bat, Hoary Bat, Raccoon, Long-tailed Weasel, Spotted Skunk, Gray Fox, Cougar, and Bobcat). Four of these reach their northern limits in Minnesota.

The White-tailed Jackrabbit is the only form that is typically southwestern.

Nine species are typically western (Least Chipmunk, Northern Pocket Gopher, Harvest Mouse, Grasshopper Mouse, Grizzly Bear, Badger, Coyote, Mule Deer, and Antelope) while none seem to be definitely associated with northwestern America.

It appears that the best picture is obtained by combining the northern and northeastern forms as showing the northern influence, the southern and southeastern to show the southeastern influence, and the western and southwestern as showing the western influence (see Fig. 1). Thus we find that Minnesota's mammal fauna is influenced from four directions. We find that the major influences come from the north with 22 species and the south with 20 species while the west with 10 species and the east with three species play much less important roles.

To examine this list further we find that five species (Least Weasel, Short-tailed Weasel, Gray Wolf, Moose and Elk) have circumpolar distributions. Five other species (Marten, Canada Lynx, Caribou, Wolverine and Grizzly Bear) have close relatives in Eurasia. Only three of our species (Cougar, Raccoon, and Hoary Bat) are also found in South America.

From the list of 57 genera we find that 26 are also found in Eurasia while only 14 are found in South America. Nineteen of the genera are found exclusively in North America.

The distributional history of the 20 families represented by our mammalian fauna is often obscured by the lack of paleontological evidence. It seems clear that four families, or one fourth of those present in Minneosta, evolved in North America. These are the *Heteromyidae* (pocket mice and kangaroo rats), *Geomyidae* (pocket gophers), *Procyonidae* (raccoons) and the the *Antilocapridae* (pronghorn antelope). Two families: the *Erethizontidae* (porcupine) and *Didelphidae* (opossum) were definitely products of old line South American stock. From Eurasia came the *Soricidae* (shrews), *Talpidae* (moles), *Cricetidae* (mice), *Zapodidae* (jumping mice), *Ursidae* (bear), *Cervidae* (deer) and *Bovidae* (bison). Several groups are difficult to assign to a definite area but their origin, but can be assigned to the northern hemisphere. These are the *Sciuridae* (squirrels and marmots), *Castoridae* (beaver), *Mustelidae* (weasels, skunks, badger, otter and wolverine), *Canidae* (dogs, foxes and wolves) and *Felidae* (cats). There is little to suggest what the distributional history of the bats might be.

In summary we find that the species of mammals found in Minnesota are derived from groups which developed in several parts of the world. Only two species representing two families were derived from South American stock. Five species representing four families are from families which developed in North America. Thirty-one species representing seven families come from

Eurasian stock while 30 species representing five families are difficult to allocate but most certainly developed in the tropical areas of the world.

At the present time our mammal fauna is composed primarily of forms typical of three geographical areas in North America and with a lesser influence from two others. Nearly an equal representation is to be found from species considered to be mid-continental, northern and southeastern with minor contributions being made from the east and the west.

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Department of Entomology and Economic Zoology, St. Paul 1, Minnesota

THE NORTH SHORE TRIP — The annual meeting of the Minnesota Ornithologists' Union and the Thunder Bay Naturalists' club will be held at the Shoreline hotel in Grand Marais, Saturday, February 19, 1956 at 3:00 p.m., C.S.T.

This is the occasion of the winter field trip up the North Shore to see the winter birds and to meet with our Canadian friends for a banquet and social get-together.

The field trip will start at 8:00 a.m. from the J. K. Bronoel home at 2010 East First Street, Duluth. Main stopping points will be:

John Bero's 3645 E. 4th Street

Lester bridge

French river

Two Harbors Lighthouse bay

Encampment forest

Beaver Bay; lunch about 11:00 a.m.

Temperance Bay and along the way whenever one sees birds.

Reservations

Dinner: Mrs. Harvey Putnam, 1407 Woodland Avenue, Duluth 3, Minn. Price $2.00.

Room: Friday night. The Arrowhead hotel has been a popular place for the birders from outside of the Duluth area. Saturday night. Make reservations early, because the skiing season is in full swing during this time. The Shoreline and East Bay hotels have been the usual stopping places in Grand Marais.

Seasonal Report

by

Mary Lupient

The hot weather of the summer continued on into the fall. The temperature often rose above 90 in September and around 80 in October, it was 82, October 26, the warmest in history for that date. Precipitation was below normal in southern sections, but heavy rains in the north reduced the forest fire hazard to a minimum. Duluth was deluged by four inches September 16 and the next day recorded a temperature of 90. There were very few storms or high winds and the southern movement of birds was leisurely and in some instances later than usual. Frosts occurred in the north September 25 and a heavy frost covered the state October 23, the temperature dropped to 19 in Bemidji and Detroit Lakes. On the whole, October was a golden month but on the 29th, a cold 25 mph wind blew in from the northwest bringing with it snow that blanketed the whole state. Several inches fell in the north, and driving was hazardous everywhere. Procrastinating birds in southern areas migrated, except blackbirds, great numbers of which still remained.

A record on White Pelicans was received too late for the September number. It is important because it indicates the possible tendency toward migration through eastern Minnesota. At Spring Lake north of Hastings, Walter Jiracek saw 70 White Pelicans May 10. On October 15 he saw three. In western Minnesota the migration approximated astonishing numbers. On September 1, Gerald Bue, biologist with the state conservation department, counted 700 at Lake Chetek, Murray county; 750 at Big Stone lake, Big Stone county; 9000 at Mud lake, Traverse county, and on September 15, 25,000 at Heron lake. These were taken during an aerial census. About 25 White Pelicans remained all summer near Madison reported Mrs. C. E. Peterson.

Another colony of nesting American Egrets was reported by Forrest Lee and Gerald Bue. While they were taking an aerial census in Big Stone county early in July, they saw Egrets on an island in Marsh lake, south of Correll. There were about 25 or 30 adults and the young could be clearly seen on the nests, some with the parent birds. Nesting Cormorants also occupied this heronry. In areas near Madison small numbers of Egrets were seen by Mrs. C. E. Peterson from April 9 to October 2. Between four and five hundred were observed at Minnesota lake southeast of Mankato. They came to the lake at daybreak to feed each day and left at about 6:30 a.m. The first observation was August 20 and two weeks later they stopped appearing. This interesting report was sent by Cecelia Weaver.

The goose migration so far was apparently normal. Most of the flight was through western Minnesota. Several observers saw a large flock of Canadas over St. Paul, October 19. According to A. C. Rosenwinkel there are about 350 Canada Geese on Silver lake, Rochester.

Duck hunters were of the opinion that the shooting was somewhat better this season than last year, especially in the western and northwestern sections. Around Detroit Lakes and Ashby the most abundant ducks were Redheads and Canvasbacks. The peak of the Redhead arrival was about the middle of October. At date of this writing, October 31, a goodly number of the northern

ducks had arrived, but it is believed that the peak of the movement has not been reached. Biologists with the state conservation department checked bags of hunters on the opening day, October 8, and members of the M.O.U. may be interested in their records which follow: at Thief lake, Marshall county, Robert Farmes checked 172 hunters that averaged 2.45 ducks per bag, 35 per cent of hunters had their limit, only 3.3 per cent of bags were Blue-winged Teal compared to 23.2 per cent of Blue-winged Teal in 1954. Lester T. Magnus and assistants checked 229 hunters in Roseau river refuge, Roseau county. Hunters averaged 2.3 ducks apiece, 57 per cent of bags were mallards, 11 per cent were Blue-winged Teal compared to 22 per cent of Blue-winged Teal in 1954. Maynard Nelson checked 83 hunters at Swan lake, Nicollet county. There was a take of 115 ducks which averaged 1.4 ducks per hunter. Walter H. Petraborg and Clare Johnson checked at Rice lake near Remer and said the hunting was best in that area in years, 131 hunters took 353 ducks which averaged 2.7 ducks per hunter. William Longley checked 152 hunters at Weaver marshes, Wabasha county. There were 2.14 ducks per hunter and there was a reduction of 31 per cent in the number of Blue-winged Teal over 1954. Norman J. Nordahl, Grady G. Mann, Gordon Neilson and Morris L. Patterson checked 257 hunters in the general region of Fergus Falls. There was an average of 2.83 ducks per bag, the three leading ducks were Blue-winged Teal, Redheads and Mallards.

Forest Lee, waterfowl biologist with the state conservation department, was of the opinion that the decreased number of Blue-winged Teal taken, indicated that a later opening date did have the desired effect of saving some of our local ducks.

An interesting and timely article on algae poisoning by Theodore A. Olson, professor in the school of public health, University of Minnesota, was published in the September *Flicker*. This fall there was an outbreak of algae poisoning in Lake Reno, Pope county. It was serious and hunters were warned by means of radio and television announcements and newspaper items to take great care in this area.

The hawk flight over the Minnesota River valley from Ft. Snelling to Shakopee was poor this year. Immense migrations in this area in spring and fall have been observed formerly, but the air bases have been greatly enlarged and planes including thundering jets are still rising at low altitudes when they pass over the river lowlands, so apparently the hawks avoid this region. Dr. P. B. Hofslund sent the following interesting report on the hawk count in Duluth. Other of his records appear also. "As to this date, October 18, the hawks are still going through. On October 13, for example, over 800 hawks were counted in about three hours, and Mrs. Richard Evans reports that on that afternoon she saw an average of one Red-tail a minute over a period of an hour. In fact she counted 100 in the sky at one time. The Sharpshins were still coming through in large numbers on that date, 378 being counted in the three morning hours, and on October 6 we counted 1135 in about three and one-half hours. Today we saw only five in an hour, two Rough-legs and three Red-tails. The Rough-legs have not started coming through as yet so I'm anticipating a heavy flight of them later on in the month. I haven't the exact total as yet, but so far this season I believe we have counted over 7200 in roughly 63 hours of counting. This is quite a good count since there were no real big Broad-wing flights.

One of the outstanding things about this fall has been the large number of Canada Jays in town. It is difficult not to see them if you are birding. Bob Cohen counted 35 in about a month. Right now the Fox Sparrows, Snow Buntings, Lapland Longspurs, Juncos and Northern Horned Larks are quite common. We found a Saw-whet Owl

living in a garage this past week. A beautiful specimen that has been in the same location for several days. No shore birds on the point last Sunday. Quite a few Ravens using the hawk flyway. Golden-crowned and Ruby-crowned Kinglets fairly common now. Saw several flocks of Evening Grosbeaks on the flyway last Sunday."

An immature Goshawk was shot while chasing chickens and brought to John Futcher, October 4, at MacGregor. John reported, too, that Les Dundas, Rice Lake refuge manager had a Cardinal in the refuge October 16 to 22. There is only one other record of the Cardinal in this area. One appeared six years ago.

Hunters found that grouse shooting was better than anticipated. Ring-necked Pheasants were plentiful in western and southwestern areas.

The Water level was low which dried up ponds and mud flats, but it provided muddy shores and flats in other places so the shore bird migration was readily observed. A few Yellowlegs, Pectoral Sandpipers, and Golden Plovers were feeding on the exposed marginal bottoms of Mother lake, Minneapolis, as late as October 26, and 13 Wilson's Snipes were at the bass ponds on that date. On September 28, several Dowitchers and two Sanderlings lingered at Mother lake.

Huge flocks of Franklin's Gulls roamed about the Minnesota River valley during September and the first part of October. On September 22, a few Bonaparte's were with them. On October 10, a large flock of Franklin's Gulls circled high over Minneapolis for several hours. Their flight resembled the Nighthawk's as they appeared to be catching insects.

A few Nighthawks remained on into September. Theo. Zickrick saw two on September 15 in Minneapolis. A large migration occurred down the St. Croix and Minnesota River valleys the first week in September.

A large wave of several species of Warblers and Olive-backed Thrushes passed along the North Shore at Little Marais, September 1, reported Theo. Zickrick. In Minneapolis a heavy migration of Warblers, Vireos, Flycatchers, Thrushes and Ruby-crowned Kinglets occurred September 9 and again on September 26. Smaller waves were reported from various sections of the state from time to time between these dates. The first report of returning Myrtle Warblers was sent by A. C. Rosenwinkel, August 22, from Interstate park. The peak of the Myrtle Warbler migration in the south half of the state occurred in the first week of October and the peak of the sparrow migration about the middle of the month.

Tree Sparrows appeared in the Twin City area the second week in October. A. C. Rosenwinkel sent the earliest date October 8, seen at the Hill Farm, St. Paul. He reported Snow Buntings and Lapland Longspurs northwest of Little Falls, October 21. John Futcher saw a flock of Snow Buntings at MacGregor, October 18. Lapland Longspurs and American Pipits were seen October 26 in the fields along 24th Ave. S., Minneapolis, by Ray Glassel.

Robins were very abundant this season. They flocked the first part of October and there was a conservative estimate of about 800 on the grounds around Lake Nokomis, Minneapolis, October 12. Large flocks were seen elsewhere in the state in early October. Warm weather and an abundance of food was the possible reason that so many stayed most of the month.

There are several records of Canada Jays in the southern part of the state. Two were seen in Anoka county, October 25, and one in Chisago county, October 27, by Harvey Gunderson and John Jarosz. Two were seen at Cedar forest, October 23, and one on the same date in Carlos Avery game refuge by James Lundgren, October 23. A Canada Jay was reported by John Futcher from the

Rice Lake refuge, October 19. There was an influx of them in Duluth as stated above. This is an exceptional southerly movement. Dr. Roberts in his *Birds of Minnesota* told of a similar movement in 1929. Records of this bird so far south are extremely rare.

A Tufted Titmouse was seen in Anoka county by Dr. Dwight E. Minnich, October 14.

Tree Swallows are still abundant during the first part of October. One was still flying about after a hard frost at the Cedar Ave. bridge, October 25. There was a very heavy migration over the Minnesota River valley, September 15. Thousands flew against a very strong south wind, so strong at times that they were thrown back, but they kept steadily on. What urge kept these birds struggling forward with so much perserverence? Next day the weather was calm.

Rusty Blackbirds arrived in all their beauty the third week in September. There was a superabundance of Red-winged Blackbirds and, judging by the number of immatures, there must have been a good crop this year. One day in early October, they covered several acres of a plowed field near Minneapolis. There were tens of thousands milling about, rising two or three feet then dropping back. When they left it took seven minutes for them to pass my car and the flock appeared as dense as smoke.

Two Nelson's Sparrows were seen near Lake Reno, October 1, by Robert Dickerman. *Minneapolis, Minn.*

Drawing by J. M. Idstrom

The Canadian Lakehead

Edited by
A. E. Allin

The summer of 1955 was the warmest and driest on record. The temperature from April to August averaged 57.5° compared to a long term average of 52.7°. September was an average month, but October was very mild and cloudy with a precipitation of 4.09 inches compared to an average of 2.45. Although there appeared to be a good crop of fruit on the Mountain Ash trees, it was eaten by summer residents and little now remains for Pine Grosbeaks. As usual there is a heavy crop of keys on the Manitoba Maples. Locally this is the principal food of the Evening Grosbeak. The winter supply of other seeds would appear to be an average one.

With mid-summer temperatures in the eighties and nineties primarily one does not think of migration, yet a Pectoral Sandpiper and 13 Lesser Yellow-legs appeared on July 27. A heavy movement including Cedar Waxwings, Purple Finches, Yellow and Magnolia Warblers was seen on August 2. The poor light of a cloudy evening precluded the identification of other species. Three White-winged Crossbills appeared in our garden on August 6. Migrating flocks of Night Hawks were reported on August 25 and September 7, and an injured bird was seen on September 13. M. Speirs saw Red Crossbills at Dorion on August 24. There was a very heavy movement of Olive-backed Thrushes, beginning September 5. The usual shore birds were noted. Upland Plovers were common and lingered later than usual. C. E. Garton saw ten on September 4. We again failed to find evidence of a local hawk flight. Mrs. Hogarth saw three Peregrines on September 8. These were in the vicinity of extensive mud flats where there was a large concentration of shore birds.

There were few reports of summer birds lingering beyond the usual time. We saw a Robin on November 2 and two Red-winged Blackbirds on November 11. C. E. Garton had the unusual experience of seeing a Catbird on November 6. A large flock of Cedar Waxwings is still present in mid-November.

The Mockingbird is one of our rarer visitors, although they are being reported more frequently than formerly. L. S. Dear saw one on June 18. One reported in Fort William during October, is still present and appears to be thriving on a diet of Mountain Ash and Virginia Creeper berries. It will be recalled we saw one at Two Harbors on June 24. Baillie has reported a minor irruption in the eastern portion of Northern Ontario last spring. (*Audubon Field Notes, Vol. 9:329*).

Remote from the Lakehead, but of possible interest to ornithologists in western Minnesota was the summer occurrence of Evening Grosbeaks again at Kenora. This time they were established as breeding. Dr. Alexander Klots saw five young in late July. A few days later K. Denis saw four young in the same general area.

Owls have been scarce throughout 1955. Dear noted a Long-eared Owl on July 16. A Snowy was found dead on October 28, and we saw the first Short-eared on October 30. C. E. Garton was fortunate enough to see a Great Grey Owl on October 15. The Great Horned appears to be uncommon, the only 1955 report being seen by Garton on October 8.

Canada Jays, of course, are local residents but there has been a heavy

movement into the area and the species has been very common this fall. The Raven has already appeared about the cities where it has become a regular winter scavenger. American Pipits were first seen on September 7 (M. Hogarth) and Lapland Longspurs September 5 (Robbs). The occasional Horned Lark was reported locally in October. Probably both Hoyt's and the Northern were seen as based on field identifications. Peculiarly we have never satisfied ourselves that the Prairie form either migrates throughout the area or breeds locally. None has been collected. Garton reported hundreds of Horned Larks as well as American Pipits and Lapland Longspurs, 100 miles northwest of the Lakehead on October 10. The occasional American Rough-legged Hawk appeared in early October and a few are still being reported. The only Snowy Owl to date was the one found on October 28. The Allins reported a Northern Shrike on October 9 and possibly the same bird on October 16. Rusty Blackbirds appeared in early September and were fairly common until late October.

There was probably a cold wave in the north the third week of October. On October 22-23 there was a heavy migration of Blue and Snow Geese. Pine Grosbeaks appeared on October 22 and were widespread on October 23 when Common Redpolls were also abundant. The former is now uncommon but numerous flocks of Redpolls are present. One of their principal foods consists of the seeds of the White Birch.

The occasional Harris's Sparrow is reported each fall. The Robbs noted the first for the season on September 25, and we saw both Fox and Harris's Sparrows on September 28. The Tree Sparrow was moderately common during October. Snow Buntings appeared in immense flocks beginning October 16, and many flocks are still present. In contrast to their scarcity last spring, Slate-coloured Juncos were particularly common from early September until late October. On September 25 we noted a flock of 12 juncos. One was a typical male Slate-coloured but the others were Oregon Juncos. This flock was in our garden, and the distinctive characteristics of the two species were unmistakable.

The Ruffed Grouse is again in the upswing of its cycle locally, and is generally abundant although there are still areas where it was once common, but now is scarce. Peculiarly, they are being found in wetter areas than in former years, possibly because of the dry summer. There was little evidence of their budding by November. Of 30 birds examined, four had the relatively uncommon copper-coloured ruff and the ruff of one was a rich seal brown. For several years there have been reports of partially white grouse east of the Lakehead, and some observers suspected they were ptarmigan. This fall two were seen near Dorion and on September 21, we received a third bird. This was a female grouse in the gray phase. The throat was white and there was much white on the under parts. The first four primaries on one side and all the primaries on the opposite side were entirely white. We have received numerous inquiries as to whether the Ruffed Grouse breeds twice in one season as many small birds were observed late in the season. We suspect these were the result of second nestings where disaster had overtaken first clutches.

The Spruce Grouse population continues at a high level in suitable localities somewhat remote from the cities. The Sharp-tailed Grouse has been steadily decreasing and we had only occasional reports of a few birds during 1955. The introduced Hungarians are relatively uncommon and the few covies still persisting are located about the elevators. The Ring-necked Pheasant plantings of several years ago have died out, but at Hymers a local citizen is attempting to reintroduce them. Due to our heavy snowfalls and subsequent lack of feed, I do not believe he will be successful,

except as he may take care of a few birds in a state of semi-domestication. On August 12 the Thunder Bay District Fish and Game association in cooperation with the Ontario Department of Lands and Forests introduced 21 Blue Grouse from Vancouver Island into the Sibley peninsula. These had been supplied through the courtesy of the British Columbia Game and Fish Department. Five were adult females; the remainder were young of the year. It will be interesting to learn whether they can acclimatize themselves to local conditions. The introduction of exotics is always a gamble and one questions the necessity of introducing Blue Grouse in a region where Ruffed Grouse, and to a lesser extent Spruce Grouse, are so common.

For the first time, Ontario had an open season on Mourning Doves. This is of little local significance since we rarely see more than one or two a year and we still lack evidence of their breeding here. The only record for 1955 was one seen in Fort William on September 5 by the Robbs.

The duck migration during the past fall was of some interest. As a whole, the pond ducks were scarce. The Blue-winged Teal left in late September and only a few Green-winged were reported. Baldpates were not common. There was a good crop of locally raised Mallards and Black Ducks but a few migrants were noted until prior to the freeze-up of November 2, when large flocks were seen. Formerly the Ring-necked Duck was abundant throughout October, but for the past few years the major migration has apparently missed the local marshes. This year, however, they again appeared in large numbers during the first few days of October and remained until the marshes were frozen. Lesser Scaups were relatively uncommon. Greater Scaups were first noted on October 8, and a few were present throughout the month. It is now recognized that this species travels ahead of the freeze-up from their northern breeding grounds, southeast to the Lower Great Lakes and the Atlantic coast, resting for a time on the larger lakes of northern Manitoba en route. Although we regularly see a few locally, the path of the majority is probably well to the east of the Canadian Lakehead. The Redhead was abundant throughout the entire fall, occurring in greater numbers than usual. All ducks were in excellent condition. One drake Ring-neck weighed 31 ounces, approaching the heaviest we have ever examined. Few Canada Geese were reported although a few were seen on September 19 and another small flock on November 9. As noted above, there was a mass flight of Snows and Blues on October 22 and 23. In general, the waterfowl would seem to have had a successful season. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

ERRATUM: A line of manuscript was omitted from *The Flicker*, Vol. 27: 121. The last sentence on that page should have read "Nipigon is the type locality for Macoun's Arctic and Hymers is the type locality for a form of the Bog Fritillary and a form of the Purple Lesser Fritillary".

Notes of Interest

YELLOW-CROWNED NIGHT HERON NESTS IN SOUTHEAST MINNESOTA — On Friday morning, June 24, while checking nesting birds in the river bottoms near LaCrescent, Minnesota, I saw a heron-like bird fly from a pool along old Highway 61. It disappeared among the trees in such a hurry that I took it to be a Green Heron. Never suspecting such a rarity as a Yellow-crowned Night Heron in this area, I continued on my way without the faintest realization as to how near I was to missing a state record.

Several hours later, when I returned to the spot where the bird had taken flight, I found a male Yellow-crowned sitting on a log near a pool of brackish water. I sat down to watch him for about 15 minutes as he perched comfortably on one leg, sunning himself and from time to time preening his blue-gray feathers. He seemed aware of my presence, but showed no fear. As a matter of fact, he outsat me, for I had to return to LaCrosse to keep an appointment in the afternoon.

Bright and early the next morning, I returned to the locale determined to find the nest. I covered the wooded area south of the highway first, and although I flushed the heron, I found no nest. Then taking the opposite side of the road, I started walking through the tall trees, circumventing woodland pools, Stinging Nettles and Poison Ivy, carefully scanning tree tops but especially watching the ground for any sign of droppings from a nest.

After almost two hours of search, I saw the female fly from a tall swamp tree directly in front of me and light in a nearby elm. I hurried to the spot from which she had flown and found droppings and parts of two egg shells on the ground. Looking up, I saw the nest in a large Green Ash tree, about 50 feet from the ground, placed almost ten feet from the trunk, on a horizontal branch extending toward the north. Only one of the young birds had his head raised over the edge of the nest, but within I could make out the form of at least one other bird. The nest, though a flimsy structure of twigs, was fairly deep, resembling that of the Black-crowned Night Heron, and more solidly built than that of the Little Green or Great Blue Heron. The remnants of the eggs lying beneath the nest were pale bluish-green. Neither of the adults approached for food, so I started to make my way out of the woods. The female remained perched where she had landed all the while I was beneath the nest, and as I arrived at the road, I saw the male sitting high in the branches of a partially dead Cottonwood.

On Saturday afternoon, Harold Schick, park commissioner of LaCrosse, accompanied me to the site and we saw two young birds in the nest and one adult near the pool along the road. The young birds presented a grotesque appearance, with their bristly feathered heads atop long, extended necks, their yellow, clown-mouth bills, and red eyes. Since this was my first experience with Yellow-crowned nestlings, I had difficulty determining their age, but I judged them to be about a week old.

On Monday morning, I called Dr. Dwain Warner of the University of Minnesota, and on the following Wednesday Dr. W. J. Breckenridge and James Wilke drove down to Saint Mary's college in Winona to pick me up. We proceeded in the rain to LaCrescent, reconnoitered the area, and as there seemed to be no hope of getting pictures at that time, we crossed the river to LaCrosse for lunch. Then occurred the good fortune that only too often eludes bird watchers, for at 12 o'clock

the rain stopped, the sun burst through the overcast sky, and we returned to the nesting area for photographic operations. Upon arrival, we found three of the young had their heads extended over the edge of the nest and the female was perched adjacent to it. Never was there a more accommodating bird; typical of her sex, she posed for two hours while being photographed in black and white, in color, and in motion. The male made no appearance at any time during these proceedings.

On July 1 Mrs. Gretchen Lamberton, Miss Dorothy Leicht, and I saw both adults feeding together near their favorite pool and three young birds in the nest. On July 5 Brother Vincent and I visited along with Mrs. M. Herz and Mrs. W. Davidson of the Twin Cities area. We discovered that there were five young, two still in the nest and three sitting on branches close by. Two of the youngsters seemed to be full-fledged, matching perfectly pictures of immatures in our bird guides. Since we saw neither adult, we returned the next day to find the female sitting at the nest, three young with her; the two older juveniles had now flown. A search of the nearby trees failed to produce them and we concluded they were out with the male feeding, since he was not in his usual haunts.

A further check on July 11 proved all the youngsters had left the nest, and since none of the birds was found in the immediate area, I surmised the adults had moved to more productive feeding grounds with their hungry family.

I am sure that all loyal Minnesotans like myself are filled with immeasurable pride that the Yellow-crowned Night Heron chose our state for its first recorded appearance this far north. I know from hearsay that our next-door neighbors are hoping that in 1956 the birds will move a mere three blocks further east to nest in Wisconsin. — *Brother L. Theodore, F.S.C., Saint Mary's College, Winona, Minnesota.*

* * *

MOURNING WARBLER IN OTTER TAIL COUNTY — On June 13, 1955, Gerald and Lester Duenow and I heard the song of the Mourning Warbler (*Oporornis philadelphia*) in Friberg township, southwestern Otter Tail county, about 15 miles north of Fergus Falls. We were on a country road and had just crossed a swampy area interspersed with patches of willow (*Salix sp.*). We heard distinctly the wren-like quality of the "Cheery, cheery, chory, chory" notes, as Peterson describes them (*Field Guide, p. 206*). Earlier in May I had heard the same song in Itasca State park when Dr. W. J. Breckenridge identified the singer as this species. We wondered about it's being as far south as Otter Tail county, for Roberts (*Birds of Minnesota, 1-223*) has Polk and Marshall counties for the southern range in the western part of the state and Morrison, Breckenridge and Herz (*Where to Find Birds in Minnesota*) do not list it at all for the western area. We had no further opportunity to investigate its presence that day. On June 26, Gerald Guenow and I returned to the same locality and again heard the song. This time we searched and found the male Mourning Warbler near the edge of the swamp. The gray hood, the dark purplish "bib" on the breast, the yellowish underparts, the somewhat olive back and the lack of eye-ring — all these features were easily discernible since the bird sat in a dead tree no more than 20 feet from us. While we hunted for the possible nest we heard the male singing repeatedly and several times saw him carrying food. Although we spent the better part of the morning searching, we failed to find a nest, if nest there was in the heavy growth of brushy shrubs. Neither did we see the female. Nevertheless, the singing in late June and the food carrying activities point strongly to the possibility that this species nested in the area. — *Herbert Krause, Department of English, Augustana College, Sioux Falls, S. D.*

AN UNSUAL NESTING RECORD IN KANDIYOHI COUNTY — Investigation of a Great Blue Heron rookery in the Crow river marsh north of New London, Minnesota, during the summer of 1954 brought to light an unusual nesting record involving not only Great Blue Herons, but Black-crowned Night Herons and Double-crested Cormorants as well.

The main nesting area was found to be centered in a single island in the northwestern section of the marsh, although subsequent winter visits provided evidence of further nesting activity in a neighboring island.

The first visit to the area was made on June 10, 1954 by Mr. and Mrs. Peterson and Larry Larson of New London. The nesting activity was judged to be so unusual that a report that evening brought by Dr. M. L. Partch and H. H. Goehring of St. Cloud State Teachers college to the scene the following day to verify what had been reported. Motion pictures were taken of the rookery by Dr. Partch and these films are now on file at the college.

The island was divided into three major nesting areas. The westward end of the island was occupied by a flock of Double-crested Cormorants which had built about 20 nests, most containing young birds, all of which were judged too young to band.

The middle portion of the island, containing the highest trees, was occupied by Great Blue Herons. These trees contained an estimated 150 to 200 nests. Loud noises coming from the nests gave evidence of young. The area under these trees was littered with whole and broken eggs.

The east end of the island, containing 12- to 14-foot second growth trees and shrubs, supported the third colony of birds. These were the smaller Black-crowned Night Herons. Ninety-five nests were counted as being in active use by these birds. Many eggs were found destroyed on the ground.

An off-shore view of the island showed that not more than four or five trees on the entire island were shared by more than one species, yet nearly all the trees available in the area were taken. Seldom was there a vacant tree between species.

Banding of these birds began June 23, 1954 when several of each variety were banded. Nearly a week later, on June 28, 1954, the bulk of the banding was completed.

Birds banded were as follows: 65 Black-crowned Night Heron, 11 Great Blue Heron, and 19 Double-crested Cormorants. All birds banded were nestlings.

The Crow river marsh rookery was revisited on June 16, 1955 by Goehring, Partch and Peterson. Nesting activity similar to that of 1954 was found and young birds were observed in the nest. A total of 91 birds were banded, the distribution being as follows: four Great Blue Herons, 15 Double-crested Cormorants, 69 Black-crowned Night Herons, and three American Egrets, all immature.

The nest of the American Egrets was found in a tree within the area occupied by Black-crowned Night Herons. (Egrets nesting with Black-crowned Night Herons also cited by T. S. Roberts). The nest contained three young birds which were banded on the nest. Motion pictures were taken of the young as well as of the adults. This film is also on file at the college at St. Cloud.

Four adult Egrets were observed at or near the rookery consistently during the spring of 1955. Subsequent observations revealed that the nest contained young on June 16 of this year.

If more of these birds can be encouraged to nest in other areas such as this, the population of these large birds may be more stable in the future. — *Meyers Peterson, Cambridge, Minnesota.*

MARBLED GODWIT AND FRANKLIN'S GULLS AT SWAN LAKE — While conducting waterfowl brood counts at Swan lake in Nicollet county, Maynard Nelson, division of game and fish biologist, noted a large shore bird in Courtland bay on July 14, 1955. The bird appeared to be a Marbled Godwit. On August 1, Maynard and I found the bird in the same place, on a muddy pastured shore. It allowed us to approach closely, and we verified the original identification.

Also in Courtland bay there were many Franklin's Gulls on July 14 and an estimated 284 on August 1. The possibility that the gulls may have nested somewhere on this large lake remains an interesting speculation. — *Wm. H. Longley, Division of Game and Fish, Kasson, Minnesota.*

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MOUNTAIN BLUEBIRD IN MOWER COUNTY — I noticed an unusual bluebird near Dexter in Mower county on March 16, 1955. The bird stayed near the road, flying from fence post to ground and back to fence post again in typical bluebird fashion. Its posture was quite different from that of the Eastern Bluebird. It was a grayish bird with just a flash of azure blue in wings, lower back and tail. It was a female Mountain Bluebird, and it brought back pleasant memories of the time when a pair nested on our porch in Idaho.

W. J. Breckenridge identified a female Mountain Bluebird at Bemidji on March 15, 1949 (*Flicker*, 21:1:p. 18) — *Wm. H. Longley, Division of Game and Fish, Kasson.*

Editor's Note: Mountain Bluebirds were reported on several occasions during the winter of 1954-55 from northwestern Wisconsin (**Passenger Pigeon**, 17:59). P.B.H.

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CENSUS OF HARBOR ISLAND IN ST. LOUIS BAY - 1955 — A census of Harbor island in St. Louis bay at Duluth was taken Saturday, June 18, 1955 by Evelyn Putnam, Flora Evans, Evelyn Palmer, Catherine Lieske, Robert Cohen, O. A. Finseth, Mr. and Mrs. Richard Evans and J. K. Bronoel.

Common Tern	3
Killdeer	1
Spotted Sandpiper	1
Redwing Blackbird	14
Piping Plover	1
Catbird	2
Veery Thrush	1
Yellow Warbler	1
Black-billed Cuckoo	1

Harbor island, long the main nesting site of the Common Tern in this area, is no longer suitable for that purpose and they have abandoned it for islands on the Superior side of the bay.

A check of the marshy area south of the Oatka Boat club resulted in 11 Black Tern nests and six Redwing Blackbird nests. This is a large increase in Black Tern nests. — *J. K. Bronoel, Duluth Bird Club*

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A WILLET AT ITASCA STATE PARK — A Willet was added to the list of Itasca park birds of the natural history museum of the University of Minnesota on May 20, 1955. In the early evening this big shore bird was viewed as it flew past the bathing beach and on down Lake Itasca. The Willet's flashy black and white wing pattern was very evident, and it repeated its "pill-will-willet" call. There are very few recorded observations of the Willet in northern Minnesota. — *Lewis L. Barrett, Minneapolis, Minnesota*

A PAIR OF HAWKS NEST WITH THE CLIFF SWALLOWS — In May, 1954, I discovered a pair of Red-tailed Hawks nesting in the midst of a Cliff Swallow colony on the eastern exposure of an 80-foot cliff overlooking the Columbia River in Benton county, Washington. The hawk's nest was situated on a ledge about half way up the cliff's side. The bulky nest was constructed with coarse sticks and lined with grass and bark. It contained four dull whitish eggs with chocolate-colored blotches on them.

On top of the cliff and about 90 feet to the north, a section jutting out from the rest of the cliff afforded an excellent view of the nest. I set up a blind there and spent many hours during the ensuing four weeks photographing and observing activity in and around the nest.

The swallows seemed to be disturbed by the hawks only when the "red-tails" were in motion. Whenever the male or female hawk flew to or from their bulky nest on the ledge, all the swallows would leave their nests in a swarm . . . emitting their single squeaky note. They would congregate about 75 feet from the cliff until the hawks either flew away or landed on their nest, then they would promptly return to their colony and resume their normal activity. While I sat in the blind, I could tell without looking whether the male or female hawk was leaving or approaching their nest, since the swallows always behaved in the same manner.

On one occasion when both the hawks were gone, the swallows swarmed from their colony and acted as they usually did on the return of the hawks, but instead . . . a Magpie made his bold appearance and headed for the hawks' nest. Apparently, the "red-tail's" eggs looked quite appetizing. The swallows swarmed around him and became such a nuisance that he landed on top of the cliff to gain a little respite from the squeaky adversaries. The Magpie tried to reach the hawks' nest a second time but the swallows drove him away again. On his third attempt he managed to reach the edge of the hawks' nest, and it looked as if the hawk's eggs would serve as a meal for this scavanger, but once again the swallows proved too much for him and he was driven away.

Whether the swallows were aware of it, by driving the striking white and black bandit away, they had made it possible for an extended co-existent period to flourish between themselves and their bird of prey neighbors. — *Robert Galati, Duluth, Minnesota.*

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BLUE JAY ATTACKS LITTLE BROWN BAT — On the morning of July 13, 1955, I heard a great commotion among the Robins, Bronzed Grackles, English Sparrows and Blue Jays in our yard. A Blue Jay was attacking a Little Brown Bat. The jay was pecking away at the bat like a shadow boxer. The bat lay on its back on the ground, producing a clicking sound with its jaws while staving off the attack. When I picked it up, it continued to make the sound. A female, she was carrying one young bat which clung to her ventral side. The young bat held on tenaciously, and the female cupped her tail around it in a protective fashion. When placed atop a bird feeder, the bat soon took flight. — *Lewis L. Barrett, Minneapolis, Minnesota*

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"SPORTSMEN" SLAUGHTER THE GREAT BLUE HERONS — During the first week in June, 1954, a raid was made by some hunters on the Great Blue Heron rookery of Island Number Two on Lake Koronis in Stearns county, Minnesota. Numerous adult and young birds were shot at that time. Apparently some of the hunters will not be satisfied until this picturesque bird is completely "wiped out" in the state. — *Robert Galati, Duluth, Minnesota*

THE HARVEST MOUSE IN DAKOTA COUNTY — The harvest mouse (*Reithrodontomys megalotes* (Baird)) is a western species which has been taken in but a few localities in southern Minnesota. On September 30, 1954 (Field No. R1093), and September 24, 1955 (Field No. 4363), adult males were taken at Rosemount, Dakota county, Minnesota. These specimens have been deposited in the collection of the University of Minnesota Natural History Museum. Both specimens were taken in oat stubble where the heads had shattered and a lush growth of volunteer oats had sprung up. The closest that the harvest mouse had been taken to this locality previously was Winona and Filmore counties in the southeast, Brown and Jackson counties in the southwest, and Lac qui Parle county in the west. To date the harvest mouse has not been recorded for areas north of the Minnesota River. Eventually it will probably be taken in all of the counties south of the Minnesota River. — *James R. Beer and Charles F. MacLeod, Dept. of Entomology and Economic Zoology, University of Minnesota, St. Paul 1, Minnesota.*

Drawing by J. M. Idstrom

Call Notes

The Minneapolis Audubon Society, whose membership has doubled in the past three years, held its first meeting of the 1955-56 season on October 7. It was an informal tea honoring Miss Frances E. Andrews, a life member, held at the home of Mrs. J. J. Holderman with the social committee, headed by Mrs. R. H. Whitsel, as hostess. (Miss Andrews made possible the first upper midwest Audubon camp by the gift of Hunt Hill farm, located near Sarona, Wisconsin, for years the weekend home of Miss Andrews and her father, the late A. C. Andrews.)

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The November meeting was held at the University of Minnesota in the Museum of Natural History building. The program was presented by Dr. W. J. Breckenridge, director of the museum staff. Motion pictures and recordings of "Life in Minnesota" and "More About Wood Ducks" were featured.

The meeting was of particular interest to all conservationists. A special report was given by George S. Titus, chairman of the sanctuary committee regarding the "Mother Lake" refuge in Minneapolis. This meeting was open to the public and many distinguished guests were present.

The 1955-56 season marks the 40th anniversary of the Minneapolis Audubon Society. In December an anniversary program will be given by Mrs. T. A. Peppard, historian, and Mrs. Mary Lupient, past president.

Mrs. Peppard assembled and recorded all the important events in the history of the society. She compiled several volumes of pictures, clippings and newspaper stories pertaining to the achievements of the society during the years of successful activity. The State Historical Society requested a copy of these records in the state files.

* * *

An event of great importance to conservationists and nature students of the upper midwest was the establishment of the National Audubon camp near Sarona, Wisconsin. Presented to the National Audubon Society by Miss Frances Andrews of Minneapolis, Minnesota, the 320 acre Hunt Hill farm has been transformed into an "out-door" classroom to provide scientific study of nature under the guidance of competent teachers. The Minneapolis Audubon Society takes great pride in this camp, the only one of its kind in this section of the country, and the privilege of participating in its development. A substantial financial contribution was made and a scholarship donated to a Minneapolis teacher.

Instrumental in the transformation of Hunt Hill into an Audubon camp for adult conservation education, have been many loyal and interested men and women who, as individuals, have given financial cooperation and considerable time and effort in making this camp a conspicuous success. Mr. and Mrs. Whitney Eastman, both life members of the Minneapolis Audubon Society, have been outstanding in this regard. Following is an excerpt from a letter written by Mrs. Eastman to Mrs. George O. Ludcke Sr., president of the Minneapolis Audubon Society:

"On our way home we stopped to visit the new Audubon camp in Wisconsin. Everything was clicking along as though they had been in operation for years. Enrollment was at capacity; the grounds and buildings were shipshape and attractive; natural history exhibits attested to what the various classes were doing; an excellent meal was attractively served; and the announcements were made about the afternoon's field trip. An atmosphere of enthusiasm per-

vaded the place. While we were there, Bob DeHaven, Twin City radio personality, came to make a tape recording of interviews with several staff members and students, for use on his popular radio program.

"Although our visit was brief, we could see that our midwest Audubon camp is carrying on the same fine work in conservation education that we became so enthusiastic about in Maine. The Minneapolis Audubon Society can well be proud to have had a part in building this camp, to have awarded a scholarship to a teacher and to number among our members Miss Frances E. Andrews, whose gift of the property made the whole thing possible."

* * *

Dr. A. E. Allin of the Thunder Bay Naturalists' club was honored by election to the active membership of the American Ornithologists' Union. He was one of eight new members elected at the annual meeting held in Boston. Dr. Allin has contributed the Canadian Lakehead report to *The Flicker* for the past few years.

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We would like to have regular notes from the affiliated clubs on special events of the year and noteworthy accomplishments of individual members. George O. Ludcke Sr. prepared the notes on the Minnesota Audubon Society.

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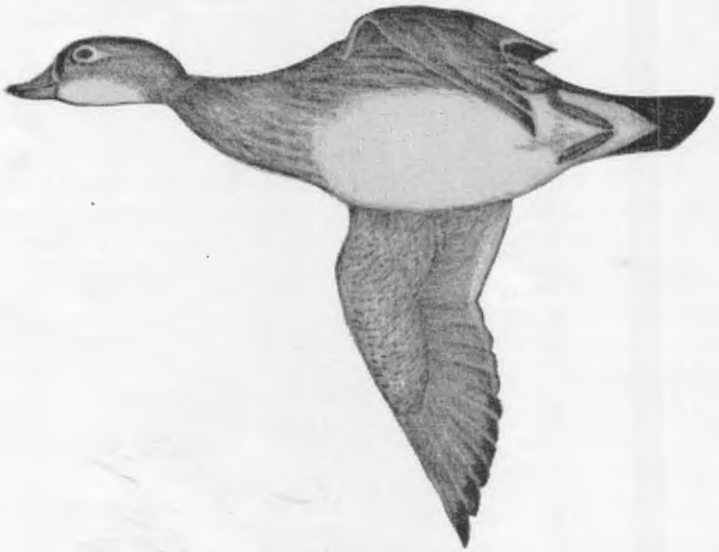
A revised edition of Dr. O. S. Pettingill Jr.'s *Laboratory and Field Manual of Ornithology* will be published in the near future by Burgess of Minneapolis.



Drawing by J. M. Idstrom

Book Page

COCKRUM, E. LENDELL, LABORATORY MANUAL OF MAMMALOGY. BURGESS PUBLISHING COMPANY, MINNEAPOLIS, MINNESOTA, 1955. $4.00.

The popular conception of a manual is that it is a series of exercises meant to keep students busy during a laboratory period. Since Pettingill's ornithological manual, at least those in field zoology have taken a different concept. They are textbooks as well and the exercises are so designed as to teach concepts as well as details.

Cockrum has written a manual in the style of Pettingill, in fact the publisher says that it is a "companion piece" to the ornithological work. It covers a wide variety of subjects: Classification and nomenclature, structural characteristics, laboratory identifications, pelages and molts, geological history, distribution and migration, life history, hibernation, territories and home ranges, reproduction and development, and mammalian populations. The appendices cover field methods, selected bibliographies, and suggested problems. In each of the chapters there are sub-headings and the information has been summarized quite well. Identification keys are quite adequate.

The manual may be of some disappointment to teachers hoping for more laboratory and field techniques as part of the exercises. For instance, identification of mammalian hairs, while not a perfected technique, still is important to the field zoologist. No mention is made of hairs in the identification of dens, nor is the literature on this subject given in the reference section. There is no exercise on dens or other mammalian homes, no techniques to show a beginning student how to recognize corpora lutea scars for their use in life history studies, no exercises showing live-trapping techniques. One could list several others. Perhaps a companion manual of techniques for wildlife study is needed.

Regardless of shortcomings an individual may find, this new manual should find a place in the library of many members of the Minnesota Ornithologists' Union, whether they are actively concerned with a mammalogy class or not. It will give in a summarized form the basic features of mammals and their study. The reference sections are very valuable and will provide the basis for more complete studies in any mammalian research. — *P. B. Hofslund*

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SAWYER, EDMUND J. BIRD HOUSES, BATHS AND FEEDING SHELTERS. HOW TO MAKE AND WHERE TO PLACE THEM. CRANBROOK INSTITUTE OF SCIENCE, BULLETIN 1, FIFTH EDITION. BLOOMFIELD HILLS, MICHIGAN. 1955. 50c.

Since 1931, about 21,500 copies of this little pamphlet have been printed. It is as widespread as probably any publication of this type, and it typifies the excellence of the publications from the Cranbrook Institute of Science. One could only wish that we were favored by such an institution for the promotion of instruction and research in the natural sciences.

The 36 pages are crammed with information on attracting birds through the use of simple feeding and shelter devices. Anyone interested in attracting birds to the yard will find it invaluable.

I was especially interested in the "bouncer", used to discourage English Sparrows and other undesirable tenants, and in the statements on hawks and owls as desirable tenants under certain conditions. — *P. B. Hofslund*


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3 Duluth Bird Club
4 H. J. Jager Audubon Society
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