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THE PRESIDENT'S PAGE

With the death of George W. Friedrich this summer, the M.O.U. suffered the loss of its only honorary life member. No one can accurately evaluate what this pioneering, conservation-minded educator has contributed to our organization. My activity in the M.O.U. has unfortunately been so recent that I have never had an opportunity to meet Mr. Friedrich. Any biographical account must be left to someone who knew him well. One can not be a member very long, however, without sensing that during its early, struggling years the M.O.U. was strongly rooted at St. Cloud and that the moving spirit there was George Friedrich. In his position as instructor in biology at the St. Cloud Teachers College he could and did kindle the interest of many in the great out-of-doors and stimulate their responsibility to the multiplicity of living things. He saw the educational value of an organization like the M.O.U. and his service, not only as an officer but as a guiding hand with enthusiasm for all that the M.O.U. stands for, has bolstered the morale of our membership, elevated our prestige and advanced our effectiveness as a conservation organization in a measure that could never be fully repaid. Making George Friedrich an honorary life member was a fine gesture of gratitude on the part of the M.O.U. Very fitting also is the plan to make this issue of *The Flicker* a memorial to him.

The grim reaper has taken a heavy toll of M.O.U. members this year. Many of you knew Dorothy Faber, ardent birder and outdoor enthusiast, who drowned in Winchell Lake 35 miles north of Grand Marais while alone in a canoe trying to retrieve some fishing gear. This fall we were all shocked by the passing of Lewis Barrett, our friend and companion, zealous conservationist and former M.O.U. president.

The policy committee has recommended that the M.O.U. honor Louis Barrett by establishing a memorial fund to furnish subscriptions to *The Flicker* for high school and college libraries throughout the state. We hope that the M.O.U. will act favorably on this recommendation at their December meeting. We still have to deal with the knotty problem of financing *The Flicker* and here is a chance to do that and at the same time bring our magazine to the attention of a much larger reading audience.

We have *The Flicker* "out of jail" now and in a very attractive format, but we must devise ways to support it. At the Duluth hawk count last September our hard-working membership chairwoman, Mrs. Harvey Putnam, set a good example by selling new memberships right and left among the hawk watchers. She may have missed seeing a few Sharp-shins but I doubt that she missed any membership prospects. Let's all follow her example.

We must also strive to improve the quality of *The Flicker*, good as it is, by showering the editor with enough copy material to give him some choice in setting up each issue.

Sincerely,
Charles Flugum

George Friedrich—Honorary M.O.U. Member

by

Forrest B. Lee

George W. Friedrich, Minnesota's Grand Old Man of Conservation, passed away in June 1956. The loss is felt not only by the Minnesota Ornithologists' Union but by the whole field of conservation and education. The purpose of this article is to present some of the highlights of the career of the M.O.U.'s first and as yet, only, Honorary Member.

George W. Friedrich was born August 26, 1885 at Fond du Lac, Wisconsin where he spent his boyhood and received his grammar and high school training.

He attended Ripon College, Ripon, Wisconsin, graduating in 1909 and then went on to earn the Master of Science degree at the University of Chicago. Extensive post graduate work was done at the University of Chicago and Cornell University.

Early in his career he taught in high schools in Wisconsin and Illinois including University High School in Chicago.

During World War I he served in the heavy field artillery. Following World War I he engaged in chemical engineering work as a pioneer lubrication engineer with Western Electric.

The Friedrichs came to St. Cloud in the fall of 1921 when Mr. Friedrich began teaching at the St. Cloud Teachers College which was then a two year institution. Hired as a biology instructor, he found his duties consisted of teaching three courses in hygiene and one elective course in biology.

Within a few years biology became so popular a subject at the teachers college that the order of teaching was reversed to three classes in biology and one in

hygiene. Before long biology became a required subject.

George Friedrich had taken his master's degree in botany at the University of Chicago, but now he felt the need for more training in the outdoor aspects of biology. Accordingly he studied for a year and a half at Cornell University from 1929 to 1931 under the Charles Lathrop Pack Fellowship.

He subsequently introduced into the St. Cloud Teachers College curriculum courses in ornithology, outdoor vertebrate zoology — mammals, fish, reptiles and amphibia — and contemporary problems in conservation.

The years from 1930 and on were busy ones, characterized by an intensive schedule of writing, speaking and organization. He worked first to develop an interest in nature and then to stimulate thinking along the lines of conservation. From 1930 to 1935 he wrote daily articles on nature subjects for "Boss" Eastman's *St. Cloud Journal Press*. Later from 1935 to 1938 he wrote syndicated articles of a similar nature for the Associated Press which were published by a number of the newspapers in the state. Many of these articles dealt with bird life.

The study and appreciation of our natural resources naturally led to the conservation of these resources and conservation education. As early as 1932 George Friedrich had begun a crusade for conservation education by giving a talk on the subject at the annual meeting of the Minnesota Game Protective League.

This was followed by articles on the same subject in the *Conservationist Magazine*, then the official publication of the

Conservation Department. At the same time he was writing articles in this magazine on conservation of our state's natural resources in which he advocated game and fish research. Later when the *Conservation Volunteer* became the official publication of the department he continued to write on conservation and nature topics including a series of articles on conservation education.

George Friedrich's reputation and leadership in the field of conservation led to his appointment to the State Conservation Commission in 1935 by Governor Floyd B. Olson. He served on the Conservation Commission for three years, being elected chairman of the commission in 1936. It was during these years that a number of new policies were established for the state. Whereas the clear cutting method of lumber harvest from our forests had been practiced, selective cutting and a sustained yield program were introduced. At the request of Professor E. W. Davis of the University of Minnesota the commission was able to persuade the legislature to create a ten year iron ore research program to replace piecemeal appropriations every two years.

One of his outstanding attributes as a member of the commission was his realization of the importance of operating on the basis of facts. These facts, he pointed out, should come from systematic research studies made by individuals well qualified by training in various fields of specialization. Through his efforts the beginning of a fishery research program was established in spite of much opposition.

Through the years George Friedrich campaigned continuously for legislation to permit the state to grow and sell at cost, trees for farm shelter belts and windbreaks. In 1947 the Nursery Tree Bill was passed. In 1942 he helped to put through the bill which established the Sand Dune Forest in Sherburne county, a sandy area comprising the

greater part of 12 square miles. Between 3,000,000 and 4,000,000 trees have been planted in this sandy stretch of ground and the planting program continues.

The great popularity of George Friedrich's biology classes may have been due in part to the outdoor approach which he employed in his teaching. Students were taught in the field to know and understand the plants and animals, and somehow they became inspired with a great enthusiasm for nature and the out-of-doors. This enthusiasm was then directed to the subject of conservation of natural resources so that conservation was correlated with all his classes.

Having this outdoor approach, George Friedrich recognized the possibilities for enriching the college life through the acquisition of large outdoor areas. Accordingly in 1932, in cooperation with and encouraged by President George A. Selke, the College Islands were acquired. These islands, located in the Mississippi River near the college became a center of outdoor recreation as well as natural history study. Later and again in cooperation with President Selke a large abandoned quarry area was acquired. Under his supervision the W.P.A., N.Y.A. and college biology students had planted 40,000 trees on the quarry land by 1939. Many of these trees are now over 25 feet high. Upon his retirement the teachers college board designated the quarries as the George W. Friedrich Park.

When the Friedrichs visited us in the summer of 1955 we spent a long evening talking of things past and the good old days. The discussion led to the College islands and quarries and to pleasant memories of life at the St. Cloud Teachers College. In this connection, Mr. Friedrich talked of his association with Dr. Selke and I quote from my notes as follows: "Without the great understanding of President Selke this could not have been accomplished. I could propose but he had to dispose, and he disposed magnificently."

George Friedrich had a very special interest in bird life and much of his time was devoted to the study of birds and also in the organization of and association with bird groups. It was about 1933 that he, with a group of interested students, organized the T. S. Robert Ornithology Club at the teachers college. He served as advisor for this club for many years.

Several years later he and a half dozen students met with Dr. Breckenridge, Mr. Rysgaard, and several other Twin City ornithologists on the College islands to organize the Minnesota Ornithologists' Union.

He served as president of the Minnesota Ornithologists' Union in 1940 and also in 1940 he took part in the organization of the St. Cloud Bird Club.

Throughout the years he was very active in the affairs of the M.O.U. In recognition of his service to the union

he was designated in 1952 as its first honorary member.

Unique among organizations with which he associated was the Midwest Conservation Alliance. Having impressed upon his students the need for conservation measures to counteract the rapid decline of our duck population, several students enlisted his aid and advice in attacking the problem. Through the efforts of this small group and with a generous financial contribution by Dr. William T. Hornaday, a 54 page booklet was prepared in 1935 for the benefit of the President of the United States, the Secretary of Agriculture and members of Congress, which bore the names of thousands of members of sportsmen's clubs and interested persons petitioning for a curtailment of the duck hunting season. The result was a drastically reduced season and a subsequent upswing of the duck populations. Directors of the Midwest Conservation Alliance were



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Cyril W. Plattes, Clifford R. Sakry, John J. Cochran, and John J. Tessari.

George Friedrich helped to found the Minnesota Conservation Federation and was active in the affairs of the federation practically up to the time of his death. In recognition of his service, the federation presented him with a life membership in the organization.

In the later years of his teaching career much time and energy were devoted to the advancement of conservation education. In 1940 he had written a 52 page booklet entitled, "The Study of Conservation", which was published jointly by the state departments of education and conservation, to be used in the public schools of Minnesota. Many of his students who had taken his conservation course at the teachers college either taught conservation outright or incorporated it into their other subjects. Other students entered into professional conservation work such as game and fish research or soil conservation service positions.

In 1940 he was appointed to a committee of three to write a comprehensive curriculum on conservation for the elementary grades. "A Guide for Instruction in Science and Conservation" was published by the department of education in 1951.

After retirement from the St. Cloud Teachers College the Friedrichs spent the greater part of the year in Florida for reasons of his health. He continued, however, his interest and activity in conservation through membership in the St. Petersburg Rod and Gun Club. He contributed articles to the monthly publication of the club and also served as its delegate to the Florida Wildlife Federation.

During the summer months while in Minnesota, he continued his activity in the Minnesota Conservation Federation and other conservation matters.

His health declined steadily during the early months of 1956 and death came on

June 22, 1956 at Bay Pines Veterans Hospital in St. Petersburg, Florida.

While the main intent of this article is to present a brief story of Mr. Friedrich's life and contributions, the author wishes to take the liberty of writing the last paragraph in a more personal vein. As a teacher, Mr. Friedrich was rare indeed in having a great impact upon his students. He was not only well liked by his students but many of them became his personal friends and kept contact with the Friedrich family through the years. I am one of those many students who were befriended by the Friedrichs. I came to the St. Cloud Teachers College in 1939, and like many others was making my way by doing my own cooking and working at odd jobs on the side. The Friedrichs started taking me in for a square meal now and then, and I was not alone in receiving such treatment. In those days when his health was good he gave freely of his own time, and most week ends were spent in some kind of activity with his students. I recall field trips to Lake Traverse and many other places, and trips to meetings such as the M.O.U. and Minnesota Academy of Science. His car would be packed with interested students and their interest was enhanced by his enthusiasm. To these students he was known as the "Chief". The Chief had an unusual ability to analyze a situation and give sound advice. Students and former students frequently stopped in at the Friedrich home to discuss some problem. During World War II he corresponded with many of his former students who were away in the armed forces. The Friedrich home was always open and it seemed that hardly a week passed but what some former student or other friend stopped by. While this article has been about Mr. Friedrich it should be pointed out that without the interest and help of Mrs. Friedrich many of his accomplishments probably would not have been possible. — *Minn. Dept. of Conservation.*

The Inspiration of George W. Friedrich

There is nothing unusual in being a teacher, but it is a rare distinction indeed to be a truly great teacher. George W. Friedrich was such a man.

His was the gift of inspiration which he passed along with learning. This stamp of challenge, of motivation to noble goals, of meaningful purpose to life, came as a natural bounty to every student privileged to study under Friedrich.

A hallmark of Friedrich's technique was the easy informality, the personal concern, the poignant observations that came from meeting the student on his level, in terms of his interest and aspirations.

As one student at St. Cloud Teachers College phrased it in 1933 — “. . . a class with George Friedrich is really a refreshing experience. In fact, it's exhilarating.”

Friedrich's biology field trips to the Mississippi island chain south of the college campus were truly exhilarating. He helped develop these islands with the then college president, George Selke. This scenic wonderland of natural history was really one large outdoor laboratory, and Friedrich made the most of it.

Philosophy came as naturally to Friedrich's classroom as the biological precepts that were a part of the course. From time to time, he spoke of opportunity. It was his first conviction, graven on classroom sessions throughout the year, that youth should aim high and never lower the sights until achievement day.

“ . . . and you don't have to go far for your opportunity. It's right in your own back yard. There are your acres of diamonds,” he said on one occasion.

As chairman of the Minnesota Conservation Commission during the term of

Floyd B. Olson, Friedrich fought doggedly for the natural resources he so loved. As he voted on commission issues, he preached — always on the same subject of “Research.”

“More wildlife research is needed!” Friedrich heralded the cry that later became federal law in the famous Pittman-Robinson aid statute. He was instrumental in maintaining the first coordinated research between the conservation department and the University of Minnesota.

But, first and foremost, George W. Friedrich was a teacher. Proudly, he referred to his class members, young men and women, as “My boys” and “My young ladies.” Nothing delighted him more than the occasional reunion, or a progress report on an unusually notable achievement.

It has been said that the greater the teacher, the greater the measure of reward that is his from the achievement and progress of those who have known his classroom.

Little wonder, then, that the rewards of George W. Friedrich were great, in fact, quite boundless. For he was one of the greatest teachers of them all. — *By C. W. Plattes. Mr. Plattes, who is now director of Creative Services for the Advertising Department of General Mills, Inc., was a student under George W. Friedrich at St. Cloud Teachers College in 1932-33.*

* * *

The “Chief”, as I best wish to remember Mr. Friedrich, provided me with an extra-curricular education in a way of life few have been privileged to enjoy. College course work was important in attaining a career after graduation, but his teaching has given me, and many other of his students, a philosophy to carry throughout our lives. His consideration of conservation involved more

than wise use of natural resources. Much more important to him was the conservation of human resources. Because of his high ethical standards, we who were closest to him were able to have a part in his philosophy permeate our very being. None of us, as his students, were able to attain his stature, for we were not worthy of such honor. We were as lumps of clay which he was able to mold over the years into superficial likenesses. Our minds were empty vessels; he filled them to overflowing. We wanted to be as great in goodness and personality, we hoped to be, but we never could be. There could be only one Chief.

As his assistant at St. Cloud Teachers College, and for many years afterwards, I was able to spend many hours outside the classroom discussing, and yet, heatedly arguing a variety of subjects. All was not biological, and in the end would reflect a philosophy for worthy living. Chief had little time for selfish, bigoted, hypocritical personalities. With the wisdom of the sages of old he was able to separate the wheat from the chaff, which meant people and thoughts alike.

So it is that his ideas and ideals of conservation are only now beginning to filter in ever increasing quantity into the professional conservationists, the conservation educators, and the laymen with an interest in the way of life expressed by Chief's definition of conservation two decades ago. Conservation is the wise use of natural and human resources to the end that the greatest number of people are best served. — *Jack Maloney, Fisheries Section, Minnesota Dept. of Conservation, Brainerd.*

* * *

I shall never cease to remember George Friedrich as the greatest teacher and source of inspiration I have ever known.

In college days, he gave me and all of his students courage to carry on when spirits were at low ebb. Later when I was teaching I found and still find myself comparing what I am able to give to my students with what George Fried-

rich gave to his students. I must admit I am sadly lacking in the comparison. He had a most wonderful way of bringing his subject matter to life and awakening in his students a lasting urgency to do the same.

I have seen his kindness and compassion change many a struggling boy and girl into mature, alert, self confident individuals ready to go out and do a truly fine job of teaching. He gave of himself untiringly and unceasingly. Even his home was always open to students to come night or day with their problems or just for friendly visits. His wonderful tact, enthusiasm, understanding and spirit of helpfulness endeared him to every one.

His work with the State Conservation Commission and his civic projects in the field of conservation and recreation for the city of St. Cloud were outstanding to say the least. Much more could be said about his splendid qualities, but always one is impressed by the fact that whoever came in contact with him in any way whatsoever was enriched by the experience.

He will always remain with us in spirit and his teachings will be passed on to those still to come. — *Barbara I. McKillips, Oswego, Oregon.*

* * *

Prior to my graduation in 1939 I worked as a lab assistant to Mr. Friedrich. I found this in one of my notebooks dated December 3, 1937. It was my only "pep talk" before starting work in his lab and office:

Mr. Friedrich says,

1. Don't be a clock watcher.
2. Have initiative.
3. Help me as much as possible.
4. Have things handy for me.
5. Don't have to be "shoved".
6. I'm glad to have your help.

I look back upon my classes and work for Mr. Friedrich with pleasant memories. He was interesting and understanding and inspiring to work for and with.

I remember the fun and enthusiasm he put into his classroom lectures. I remember the many times he got up for early morning nature hikes with his classes. I remember the nature trails on the islands he had helped to lay out for use by the whole college.

I remember a wonderful bird-study trip ten of us took with Mr. and Mrs. Friedrich into northern Minnesota and Canada (reported in *The Flicker*).

I remember a man who worked to promote recreation and conservation. He had a part in planning the lovely recreational area now called Friedrich Park. He got the pine seedlings from Itasca State Park in 1938 which were planted here. Fifteen years later I had the thrill of seeing trees grown from these seedlings.

I remember especially the feeling that Mr. Friedrich had love and respect for all of God's Outdoors. Perhaps what he desired most was that his students gain a deeper appreciation of nature from his teachings. Many will remember him jokingly but reverently saying, "Isn't Nature Grand", and I know he truly believed it. — *Erma Spotts Evans, former student and lab assistant, Swartz Creek, Michigan.*

* * *

During my junior and senior years, 1936-1938 I had most of my contacts with George Friedrich. Of his courses I found the course in ornithology the most interesting. He had a wide knowledge of the habits and habitats of the birds of Minnesota and also wild life conservation problems. I believe he did much for the conservation of wild life for the state of Minnesota.

You had to make an effort not to catch some of his enthusiasm and sincerity. I especially remember the early morning field trips; damp or dry, nice or not nice weather; and the rare places he took us. The non-hardy soul had no place in his field classes. I especially remember the spring quarter of 1938 — out before

6 a.m. for ornithology and in sometime around 6 p.m. from Local Flora. All will remember his classic remarks such as when someone made a real blunder — "It's a good thing the Lord takes care of those who haven't sense enough to take care of themselves".

Mr. Friedrichs gave me much help when I tried to write one of my first scientific articles — an article on bird arrival, temperature, weather and food conditions. Without his help this article would probably never have been prepared and presented in the Minnesota Academy of Science. — *E. L. Grove, Assoc. Prof. Chem., Univ. of Alabama.*

* * *

It was natural that George Friedrich should be a teacher in the biological sciences. It was natural because he had a tremendous active enthusiasm for life. To him the living world had an ever present relationship to humanity.

He was not content to hoard his enthusiasm, for he had a sincere interest in people and wanted them to share his discoveries in the world about him. This is how I best remember him — as a teacher.

In the classroom there was always an air of excitement. Lectures, demonstrations, examinations, lab time — he was there and that meant new discovery, new insights, and old things were made new. He was life itself.

To some, life can be seen, studied, and experienced in books, test tubes, jars of formaldehyde, or in cages. He had to seek life in the outdoors. And it was here that he took his classes. I say took, for that is what he did. Whether it be seining for fish with his ichthyology class, or tramping through woods and marsh with young ornithologists, or handling snakes, or just exploring the campus learning its trees and flowers, he was leading. And his energy left many a college student puffing when the field trip was over.

He knew of the millions of people who

went along their way each day not even noticing the living world everywhere around them. At the same time he knew of thousands of classrooms filled with boys and girls that impelled him to teach until he was even unable to climb stairs to the second floor laboratory. He lectured and discussed his warm philosophy in a lower floor room. This, too, was a tribute to his enthusiasm, for here in a room with no lab equipment — alone with future teachers — he inspired an interest in living things from the microscope and up through the phylogenetic kingdom to man himself.

And when he came to the study of man he saw him at his best in future teachers who would have the opportunity of a lifetime — showing boys and girls how to live and appreciate the world only a living God could create. Mr. Friedrich was not a blind naturalist who thought he or anybody else was the master of all intelligence. He was a man of great faith in the Creator of the fields he roamed, the streams he fished, and the skies he scanned.

Here, too, was the strength of his leadership in the conservation of natural resources. He was a creative conservationist. As commissioner of conservation he led plans far beyond preventing waste of natural resources so important to man's economy. While on conservation commission business I taught his classes. On his return it was a cinerama of real life as he told of conservation plans and developments — plans for the use of many wild products of the woods, more efficient use of present resources, and hope for a full share for all future generations.

He wasn't so busy, or so efficient, or so out of fellowship, or so unapproachable that students in his classes became lost in the crowd or became a statistic on his class record. He didn't treat people only in terms of their service to his larger plans. Nor did his service in the name of humanity give him the

right to "get rid" of those who tried to thwart his plans.

He believed that all his students had a right to be recognized as a person in his own right and as an end in himself. I knew because I was one of those students. — *Mark Erickson, California Teachers Agency, San Francisco.*

* * *

George W. Friedrich was the person most instrumental in the organizing of a group of interested people in St. Cloud into a bird study club. The organizational meeting was held at Central Junior High School August 5, 1952. Mrs. A. J. Trainer was elected president. Mr. Friedrich refused to take an office, but he did consent to be advisor to the club and acted in that capacity as long as he lived. Mr. Friedrich was a member of the St. Cloud Park and Recreation Board. It was during his terms as board member that emphasis was shifted



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to using parks for recreation in all its forms, rather than having parks only for landscape.

Members of the St. Cloud Bird Club wish to express their appreciation of the work of George W. Friedrich and his example as a naturalist and his service for the good of the community. — *George W. Lehrke, President, St. Cloud Bird Club.*

* * *

It was in "Old Main", the building in which practically all of the classes of the then St. Cloud Normal School were held, that I first met George Friedrich in the fall of 1946.

At first it was just another old building on another campus. Little did I know the warm and cordial student-faculty relationship which had been promoted within this structure; a climate which made former students want to come back; a climate which encourages the second generation to attend the institution; a climate which is promoted

best by such persons as George Friedrich.

Little did I know that persons who had been graduated from this college would care enough to take time out to visit their former instructors. Somehow during the next few years, after greeting former students in the corridors and the common biology office, I came to realize that the bond had been developed more between the former students and Mr. Friedrich than between them and the institution.

The student-teacher relationship enjoyed by George may best be illustrated by the married couple, both former students, who had come to the biology office asking for Mr. Friedrich. In the discussion which followed it was evident that they had come primarily to show Mr. Friedrich their two lovely children. In their minds, it was obvious, Mr. Friedrich would be as concerned and interested in their children as he had been in them when they had been in his classes. From similar and repeated incidents I gained the impression that this was a characteristic relationship, not an accidental one.

Imprints of Mr. Friedrich's philosophy of science instruction are evident at St. Cloud State Teachers College. The College Islands and Quarry region, acquired through his promotion as an outdoor laboratory, are utilized for training students in more meaningful experiences. The quarry region, incidentally, has been officially designated as the George Friedrich Park. The college museum collections of birds, mammals, and other vertebrates were secured through his federal collectors permit.

The merit of his philosophy, seen, copied, and passed on by his colleagues, is influencing the type of instruction of teachers who have never known George. This, I think he would agree, is immortality. This, I think, is all that George would ask from life.

To be like George, to me, would be a complement. — *Hurry H. Goehring, Biol. Dept., St. Cloud Teachers College.*

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George Friedrich was a member of the faculty of the St. Cloud State Teachers College at the time I joined that faculty in 1925. During the period from that time until his retirement my admiration for his work as a teacher and leader of young people grew with the years. As an instructor he was able to inspire thousands of students with an abiding love for the beautiful world of nature. Later as teachers these students passed on this love of the outdoors to still greater thousands. In this way the influence of George Friedrich will go on expanding throughout the years.

As a leader in the conservation movement in Minnesota, George Friedrich has left a deep impress on the development of the state. In years to come the forests, the waters, the birds, the fish and the wild animals will all be more numerous, better cared for and more useful because of his labors. He served well as Commissioner of Conservation but when his term of office expired he went right on working earnestly for the cause which was so close to his heart. The people of the state of Minnesota owe a great debt to George Friedrich. — *D. S. Brainerd, past president, St. Cloud Teachers College.*

* * *

My recollection of Mr. Friedrich dates back to the fall of 1930 when I entered St. Cloud Teachers College. While I did not take Mr. Friedrich's general biology class, I remember him as the professor who took his biology classes out of doors and taught them the trees, shrubs, flowers, birds, and animals found in central Minnesota. His was a class that took the students away from books to the outdoors and taught them an appreciation of nature and the outdoors.

In advanced courses of zoology, ornithology, plant morphology and conservation, he built on the basic biology course. Much of the class time of both general and advanced courses was spent in the fields, woods, and along the streams and lakes around St. Cloud. Here he never

failed to inspire his students with a love of nature and the outdoors, and a desire to utilize, conserve, and perpetuate the natural resources of the state. He had the ability to instill the same appreciation of the outdoors and need for conservation that he possessed.

I remember Mr. Friedrich as always giving of his personal time and services to help others, his community and the state. At the college he always had time to spend with needy students. He served on many college committees and through his efforts the islands in the Mississippi were acquired and developed as an outdoor laboratory for the college. He spent much time with civic, youth, and conservation organizations. Through his efforts the T. S. Roberts Ornithology Club was organized. The use and beauty of the city parks was improved through his work on the park commission. His knowledge of conservation, his public spirit and vision of the needs for conserving Minnesota's natural resources led to his appointment as chairman of the conservation commission.

Most of all, I remember Mr. Friedrich as the professor for whom I worked for three years and who made it possible for me and others to continue at college during the depression years. For three years I worked as an assistant in the biology department for Mr. Friedrich. Mr. Friedrich was a very congenial boss, his inspiration and guidance have been helpful in my work in soil and wildlife conservation during the past 20 years. — *Louis M. Moos, Biologist, Soil Conservation Service, Billings, Montana.*

* * *

It's not the fact that George Friedrich was an excellent biology professor that makes him so memorable to me, for that goes without saying. It's the little personal things that count, as that well-worn adage so aptly puts it. The twinkle of his unusually bright eyes, as he said something humorous is perhaps my fondest recollection of him. My twin sister and I, both lovers of biology, had much

to do with Mr. Friedrich. We are identical twins and Mr. Friedrich, though quick at perceiving details, was as confused as anybody else in separating the two of us. However, his sense of humor rescued him from what may have been a frustrating situation. He just said to either one of us questioningly, "Tis Gladys?" If it happened to be my twin sister, Marion, he would laugh and say, "Taint Gladys!" and that was that! His none too proper use of the English language in our case always served to amuse the students and many of them quickly picked up the same way of identifying us. His excitement upon the discovery of a newly arrived bird was something to behold. Always energetic, even under more uneventful conditions, at the sight of a feathered arrival, he fairly jumped with happiness. One had a feeling that he was seeing his favorite friend whom he had not seen in years. And of course, his extreme kindness always shined through. Those who flunked his course were the ones who just didn't care enough to try again.

I only know one thing. His inspiration led me to the love of biology and that love, having taken hold, will inject itself into my own children and who knows how many, many more generations to come, all through the infectious interest of one unforgettable person — George Friedrich. — *Gladys Tirrell Nelson, St. Cloud, Minnesota.*

* * *

George Friedrich was a great teacher and a great conservationist because he was a great man. He was a conservationist by temperament before he was such by training or by profession. Or rather, he became a professional conservationist just because he was kind, gentle, courteous, and because he had vision and a true sense of values. He had deep convictions; thus he was convincing as a teacher and a friend.

I always associate Mr. Friedrich with the "Teachers' College Islands", a string of small islands in the Mississippi just

below teachers' college at St. Cloud. I met him for the first time when I was a member of a group that toured these islands with Mr. Friedrich acting as our guide. I made many such tours later. I soon learned that Mr. Friedrich loved those islands and that he knew them as well as the rest of us know our own back yards. When guilding a tour he went ahead enthusiastically, eager that we should not miss anything. He would stop abruptly, usually in a tough spot, pointing out to us something of special interest, making his point in a slow, deliberate, precise way, very characteristic of him. What he had to say was simple and basic. I often wondered why I had not noticed it before. He was never dictatorial, as if he knew everything and we knew so little. In his humble, unassuming way he was ready to learn from others and led them on to express themselves. He was a very good listener.

The bridges connecting these islands with the mainland and with each other, erected largely through his influence and effort, have fallen into disuse, much to my regret and the regret of many of us. I miss the trips my classes and I used to make there, thanks to the unfailing courtesy and thoughtfulness of Mr. Friedrich.

The last time I saw him he had come to St. Benedict's with a group of ornithologists when the warblers were migrating in spring. He was already suffering from a heart ailment. I found him sitting by himself on a bench in a shady spot. When I sat down to join him he protested because he did not want me to miss the trip with the others. It was only when I convinced him that I too needed a respite that he was willing for me to stay. We had a pleasant hour together before the rest returned.

News of his death came as a shock to me, though I had known of his serious condition. I never pass teachers' college or come within sight of the islands without thinking of Mr. Friedrich. I feel

that his spirit still hovers over the islands which he loved so long and so much. I hope that the day is not far distant when the islands will again be made accessible in memory of him. — *Sister Remberta, O.S.B., College of St. Benedict, St. Joseph, Minn.* R

* * *

My associations with George Friedrich were primarily in two connections, through the Minnesota Conservation Commission and the Minnesota Ornithologists' Union.

As a trained biologist Mr. Friedrich brought to the Minnesota State Conservation Commission a great increase in interest in having the commission operate on a sound biological basis. This came out in a number of illustrations which I remember very clearly. Under his stimulation the commission asked me to assist in preparing an examination on matters of game biology for the game warden force, as a means of determining how to proceed with an in-service training program. It was recognized that the game wardens were the chief field representatives in most parts of the state of the entire conservation commission, and that it was extremely important to have them understand some of the important elements of game biology.

I recall that the commission respected George Friedrich's opinion on technical matters so clearly that it was as though I, in my capacity as game biologist working for the commission, had a definite ally on the commission itself as well as a sympathetic listener. Among the topics I remember discussing with the commission during that period were the serious over-population of deer in Itasca park, the need for a written game policy for the state, and the desirability of a vigorous research program, to be conducted in cooperation with the university as well as some phases independently. On all these matters, which were rather new topics to the state of Minnesota in 1935 and 1936, the commission gave care-

ful, sympathetic consideration, and much of their attitude I attribute to the influence of Mr. Friedrich.

The other topic, formation of the Minnesota Ornithologists' Union, was one in which Mr. Friedrich played a key role. He had a very active group of bird students at St. Cloud which had banded together to form the T. S. Roberts Ornithology Club, and had published a rather impressive "Journal of Minnesota Ornithology" in 1936 and 1937. Professor Friedrich's St. Cloud group, together with local bird clubs in Duluth and the Twin Cities, all recognized the advantages of affiliation and generously agreed to disband publication of their magazine and throw their support to *The Flicker* as the official organ of the new Minnesota Ornithologists' Union. In our dealings with him in this connection as in many others I found him to be generously interested in furthering the general good, rather than adhering, as so many of us do, to our own special pet interests. — *Gustav A. Swanson, Head, Dept. of Conservation, Cornell University, Ithaca, N. Y.*

* * *

Does some physical feature of the body affect personality or is it that because of personality we note the physical feature? A certain shape of the nose is "supposed" to be associated with financial prowess. Long, slender, and supple fingers are "characteristic" of the artistic. But tycoons as well as merchants are equipped with assorted noses and we've seen stubby fingers on concert pianists.

In the case of George W. Friedrich it was a square and jutting chin and his oft demonstrated tendency to "stick out his chin." Not only did he do so himself, but he vigorously advocated to his students that they do likewise. Many of his students will vividly recall George Friedrich sticking his chin away out, pounding the table with the heel of a tightly clenched fist and, speaking through clenched teeth, saying, "The trouble with

a lot of you is that you haven't the guts to act on your convictions. If, on the basis of the best evidence available, you believe we should do something about a problem *stick out your chin.*"

There were other times, with smaller groups of students in the more advanced courses, George W. would ruefully admit that, "Of course you'll get bopped on the chin sometimes, but that's the price you pay for trying to help people do what you know they ought do."

His aggressive leadership for things in which he ardently believed — and George W.'s beliefs were always ardent — caused St. Cloud State Teachers college and the state of Minnesota to bear indelible imprints of George W. Friedrich. Those wonderful island laboratories in the Mississippi River, increasingly valued by succeeding generations of students, are STC's because of George Friedrich. Numerous quarries, now highly prized as aquatic laboratories as well as for recreation, became parts of STC's diversified outdoor laboratories because of George Friedrich. Thousands of planted trees grow on STC's George W. Friedrich Forest. They call it Selke Field but the ground and the granite in the walls were obtained because Friedrich "stuck out his chin."

Meetings of the Minnesota Conservation Commission were most certainly not tranquil during those many years Friedrich was a member. Minnesota's present conservation policy bears the imprint of biologist Friedrich who, in addition to knowing a great deal of biology, had deep appreciations of human values and was also brave enough to stick his chin out. Among other things, he who himself found little time for research activity, so highly vaunted in the college teaching field, pressed strongly for more research for several natural resource areas.

Among the earliest "conservation curricula" in my collections is one for Minnesota schools, *The Study of Conservation* by George W. Friedrich. In the

foreword John Gunderson Rockwell, then commissioner of education, says "It is no exaggeration to say that almost any section of Minnesota will show people who have studied under Mr. Friedrich, or have come in contact with him. *Such people display much of the same vital interest in conservation as Mr. Friedrich himself.*"

Commissioner Rockwell was not exaggerating for Friedrich-inspired people are found in many states as well as in all sections of Minnesota. In their teachings and practices are found imprints of that "vital interest" George Friedrich had in "the study and practice of wise utilization of resources to the end that the greatest number of people of the present and future generations may be served best" — that having been his definition of conservation. And in that imprint left so strongly in so many of his students George W. Friedrich possesses immortality.

George W. was also a very human being. Many among his students recall flashes of anger, but they also recall warm praise. Many of us have been thrilled by the warmth of his greeting when he'd meet us. Only very recently have some sociologists discovered that people are "good" mainly because they themselves think they are good and other people, in whom they have confidence, let them know that they think likewise. Friedrich "knew" that and his beaming, "Gee, I'm so glad to see you . . ." is treasured memory for a great many people.

Among the few notes still treasured from undergraduate days is a 12-page mimeograph entitled "The Naturalists and Poets Contribute to the Fine Art of Living" and bearing the initials G.W.F. On handing this to his general biology classes he'd read some of those poems. Broader vistas were thus opened for his students. He was not an English teacher's poetry reader, but on the margin I've retained his pithiest comment, "Great stuff."

Said Friedrich, "To be sensitive to the environment is to be close to God."

He was and he is, and the poet, Samuel Walter Foss, whom he then quoted said:

A boy was born 'mid little things,
Between a little world and sky,
And dreamed not of the cosmic rings
'Round which the circling planets fly.

He lived in little works and thoughts,
Where little ventures grow and plod,
And paced and ploughed his little plots,
And prayed unto his little God.

But as the mighty system grew,
His faith grew faint with many scars;
The cosmos widened in his view,
But God was lost among his stars.

Another boy in lowly days
And he, to little things was born,
But gathered lore in woodland ways,
And from the glory of the morn.

As wider skies broke on his view,
God greatedened in his growing mind;
Each year he dreamed his God anew,
And left his older God behind.

He saw the boundless scheme dilate,
In star and blossom, sky and clod;
And, as the universe grew great,
He dreamed for it a greater God.

Friedrich's wife, Hildegard, wrote in conveying the news of his passing, "He lived a rich and full life."

Hildegard was so right. George W. Friedrich was the second kind of boy. All we who had the good fortune of having had him among our teachers have benefited immeasurably. — *Carl J. Johnson, Asst. Prof. Conservation, Ohio State Univ.*

* * *

George W. Friedrich, the "Dean of Minnesota Conservationists," is dead.

His passing from the conservation scene leaves a gap that will be hard to fill. Not only in the field of education, where his influence upon conservation learning was monumental, but also in the more private realm of personal dedication and effort, he stands in memory as one of the greatest conservationists of our time.

He is especially esteemed by those of us who know what an important part he played in the founding of the federation as we know it today. Without him, the reorganization of MCF and its subse-

quent growth into the largest conservation organization in the history of Minnesota would not have happened. He was the spirit and the guiding light behind that original upheaval of the old system which culminated in the creation of the new federation.

It is to his early foresight and his steadfast belief in the need for mass conservation action that we owe the development of the federation's method for organized statewide effort. His wise counsel, and his inspiring courage and optimism were a constant unseen force that held the federation together and kept its spirit alive during the first three crucial years of its hard rebirth and struggle for existence.

Yet because of the way he worked . . . quietly, unpretentiously, selflessly, always too busy to stop and take bows or accept the credit and praise he so richly deserved . . . few persons will ever know the true immensity of his service to the federation and to the state. Nor will the full magnitude of his great good influence upon the whole course of conservation thought and action ever be measured.

To the federation he was a hidden pillar of strength; to the world he was a lighter of candles.

But while his contribution as a founder of MCF is in itself worthy of the highest regard, it comprises only a very small part of his achievements. He made his real mark in education, that vital field in which conservation leadership is so badly needed.

George Friedrich's influence as a teacher and as a leader in conservation education can hardly be overestimated, for it goes on multiplying itself in ever-widening waves through the host of students and teacher-trainees who once passed through his classrooms.

He was essentially a teacher of teachers. During his many years as a biology professor at the St. Cloud State Teachers College, he gave to the field of education

an army of inspired conservationists who have carried his brilliant message into many a farflung stronghold of indifference. Those who knew him most intimately knew that they had been privileged to bask in the warm glow of a rare human greatness. Few great instructors are so affectionately remembered, so genuinely esteemed by their former pupils.

What made Friedrich outstanding was the material between the lines, the interpretations and the homely everyday philosophy (frequently seated in some conservation concept) with which he gave meaning to learning. From what the students learned about birds, bugs and bacteria, they also learned something of the deeper mysteries, the universal relationships in the ordered world of being. Not that the underflowing philosophy was ever too profound to be understood. On the contrary, the thing that made a Friedrich lecture a fascinating and never-to-be-forgotten experience was that however philosophical it became, it was always simple, understandable, useful, enriching and applicable to daily living.

Long out of patience with man's foolish misuse of his God-given gift of intellect, George Friedrich always felt that destruction and wastefulness are the invention of the intellectual animal, man. In observing the brute world of sub-human left, he found a kind of natural economy at work, a balancing out of species in which nothing of the earth's life-giving substances is actually wasted. Out of this realization, as it contrasted sharply with human wastefulness, he caught the spark of a great human need: Conservation!

It had been easy for George to become an ardent conservationist. Beneath the surface of things he had recognized that nature, when left to its own devices, was its own best conservationist. Despite the eternal disintegration and wearing away of things, there seemed always to be ample replacement and regrowth. For each erosive river which carved out a

barren Grand Canyon, there was, somewhere, a forest developing, somewhere a verdant prairie, and somewhere plant and animal life in abundance.

It was only where man moved in to disrupt the delicate balances of nature that the wastefulness exceeded the replacement. And this, protracted indefinitely, could one day bring on the end of human civilization.

Conservation of the natural resources thus assumed an importance far beyond the mere concerns of a few sportsmen and nature enthusiasts; it became the key to survival . . . a prime motivator in the affairs of men.

George Friedrich had learned long ago what too many people don't know yet . . . that conservation assures (not inhibits) the continued pleasure of the nimrod and the angler; that conservation enriches (not impoverishes) the farmer and his failing land; that conservation stops drought and floods alike, not with gigantic costly army impoundments but with little dams and water retardation projects at the headwaters of the rivers; that conservation reduces (not increases) taxes through improved forestry and mining practices; that, broadly speaking, conservation is as practical and as vital as the periodic grease jobs on one's automobile.

The successful diffusion of this philosophy, out of all the bits of enlightenment which enriched the Friedrich pupil, stands out as this teacher's greatest contribution to society.

Through his numerous converts he set up a chain reaction of conservation thinking that continues daily to expand farther afield. Not only an army of enlightened teachers, but a legion of inspired citizens active in many other fields have caught his spark. Through his gifted tutorage they have discovered that rare satisfaction meant only for those who have made themselves useful through service.

As a former chairman and member of

the old Minnesota Conservation Commission, he was an inveterate fighter for the high objectives he believed in. His steady influence has been a force widely felt in the progress of Minnesota conservation. He survived the bitterest scorn of the thoughtless and the selfish. He had his share of persecution for advocating practices and policies common today in which, just a few decades ago, only the bravest thinkers dared to voice their beliefs.

He was once evicted from an unenlightened sportsmen's club for favoring certain game and fish laws and regulated seasons now commonly in use. An "impractical theorist" they called this man who preached systematic replacement, preservation and sound regulation of resources use. At least a few myopic farmers marked him as an enemy for espousing the then misunderstood and unpopular cause of soil conservation. He later had the last laugh.

For his enormous contributions to con-

servation, not merely through education but in his actual labors and in his immeasurable influence upon a host of leaders in many fields, George Friedrich truly earned the thanks of countless thousands as one of our conservation pioneers.

If, through growing conservation consciousness, the state of Minnesota today has better farms, a better game and fish program, a belated but promising land, water and forestry policy, and a general realization that wise use, preservation and restoration are vital to the future welfare, then it must be said that few men have fought harder or given more of themselves toward assuring these things than the late "Sage of St. Cloud," the honorable and beloved old professor, George W. Friedrich.

The world is surely a little better for his having been here. How many men can claim such a noble distinction? — *Cliff Sakry in the Minnesota Outdoors, Sept. 1956.*



Pileated Woodpeckers nest on the property, to mention only one of the 184 species of birds you may see while attending this camp.

For teachers, other youth leaders and those with a hobby or professional interest in nature and conservation, demonstrating the best methods of good teaching and group leadership; observing living plants and animals in a variety of natural habitats; learning how wiser use of our natural resources contributes to human progress. The fee of \$98 for each two-week session covers meals, lodging, tuition and transportation on regularly scheduled field trips.

Five two-week sessions in 1957, as follows:

June 16
June 29

June 30
July 13

July 14
July 27

Aug. 4
Aug. 17

Aug. 18
Aug. 31

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Ask Anyone Who Has Attended the **AUDUBON CAMP OF WISCONSIN**

The Audubon Camp of the **MIDWEST**, located at Hunt Hill, near Sarona, Wis., 125 miles northeast of Minneapolis and 250 miles northwest of Milwaukee, Wis.

There is a relatively small class of teachers that can be put in the same niche with the Chief. He made his students feel like people, at the same time was our friend. His friendship and interest in us didn't end when we left school. I can still hear his words from my first freshman class. He impressed on us, that which we were to study was not a man made world. We could only go into our books and research so far. A Being greater than ourselves took over. We were given more than the printed textbook contained. His terrific energy, enthusiasm, and love for his work was very contagious. It left its mark on all of us. The proof of that is in tracking down past students. So many are doing important work in wild life and conservation.

A year ago last August, Mr. and Mrs. Friedrich sat with me in our back yard and watched with interest the activities of the six Broderick children. Two of my sons were playing with their new pet — a boa constrictor. The Chief had been pleased before on other visits, about the boys' knowledge of birds, snakes and insects. I feel as if I owe it to the person behind my interest never to discourage what my children bring into their home to put in jars, buckets and cages.

The same afternoon I told him of the new wilderness camp I had just visited. To hear his reaction and see the sparkle in his eyes, made me feel at last that I was on the right track. He was so in favor of the idea and hoped it would interest more parents. My work with teen-age girls at Lake Trails on Lake-of-the-Woods is to help them learn to live in the wilderness and love it, not fear it. Opening their eyes and ears to see and hear the beauty of nature that is actually around us every day. It is wonderful to see the change in these girls during a rough canoe trip and portages; their excitement when they see their first Osprey, Turkey Vulture

or Eagle; wanting to know about the different game trails and signs we see. That is my opportunity to say, "Thank you!" to the Chief for giving me the knowledge and the love of the out-of-doors. Good sportsmanship and conservation are also put into practice on these trips. — *Mrs. Audrey (Mudpuppy) Broderick, St. Paul, Minn.*

* * *

Mr. Friedrich was one of those rare inspirational teachers which one occasionally meets in the course of his schooling. I believe that a major portion of this faculty of his came from his inherent love of life and his belief that others too should "live" life fully and not just go through it mechanically and unaware of their surroundings. I think it was this type of personality which he used to refer to as the "Lizzie Glutz" type. The unthinking type with the half-dead personality.

He certainly inspired his students to do their best. They are scattered all over in various educational and conservation agencies. At the time I was at St. Cloud Teachers College under him in 1943-1944 there were few men students on campus but there was a constant stream of servicemen stopping back to see "Chief" as many of his students and former students called him. He used to talk about some of these students and the letters he'd received from them concerning their war experiences. I think this a major tribute to the man — that so many former students should write their old teacher while in the various theaters of the World War II.

Personally, he is at least indirectly responsible for me being here at the University of Michigan. I had brought him some pocket mice one time from the sandy areas east of St. Cloud. I had never seen any before and he told me what they were and got me interested in trapping small mammals. Later I did graduate work on these mice while at the University of Minnesota. After

several years of wildlife work I have now decided to continue work on mammals and get into teaching. One of the reasons, although it was partly subconscious before I had thought of it, is that I think I might be able to do more good in the world if I could, through teaching, pass on some of my experiences and get

others interested in their natural surroundings and what they may have been missing. Perhaps my interests in this could be traced back to Mr. Friedrich. Certainly a poor biology teacher in my early experiences would not have inspired me to get into the game. — *Edward A. Hibbard, Univ. of Michigan.*

Help Wanted

The Library of Cornell College, Mount Vernon, Iowa needs Volume I, Nos. 3 and 4 (1929) and Volume VIII, No. 2 (1936) of *The Flicker* to complete their files. It would be appreciated if any member of the M.O.U. could fill their request. Correspondence should be made with J. Harold Ennis, Curator of the Memorial Library of Ornithology, Cornell College, Mount Vernon, Iowa.

Magazine Subscriptions

Any person who wishes to subscribe to a magazine, or to renew their subscription, can benefit the M.O.U. by sending their subscriptions to C. C. Prosser, 5051 Upton Avenue South, Minneapolis 10, Minnesota. A certain percentage will be returned to the M.O.U. Please include the following information: your name and address, the name of the magazine, the number of years for which the subscription is requested, and whether or not it is a new or renewal subscription. A check should accompany the request.

38th ANNUAL MEETING, WILSON ORNITHOLOGICAL SOCIETY

The Minnesota Ornithologists' Union, the University of Minnesota, Duluth Branch, and the Duluth Bird Club are serving as joint hosts for the 38th annual meeting of the Wilson Ornithological Society. This national meeting will be held June 13-16 on the campus of the University of Minnesota at Duluth.

The events scheduled will include movies and a reception on Thursday night, paper sessions on Friday and Saturday mornings and afternoons, early morning field trip on Friday, and an all day trip to the Ely-Buyck area on Sunday. The annual banquet will be held Saturday night.

The meeting will provide an opportunity for M.O.U. members and other readers of *The Flicker* to meet and hear many of the outstanding ornithologists of the United States.

Call Note

Arnold Borsheim, aged 51, passed away December 9, 1956 after a long illness. He was born in Kandiyohi county and was buried in Nordlund Lutheran cemetery, rural Paynesville. For the past 14 years he was a resident of St. Cloud. His keen interest in outdoor life and his knowledge of county and state history were shared by his wife and daughter Janet, a recent graduate of St. Cloud State Teachers College. Mr. Borsheim was present at several M.O.U. events and was an active birder from the St. Cloud area. — *Mrs. George W. Lehrke*

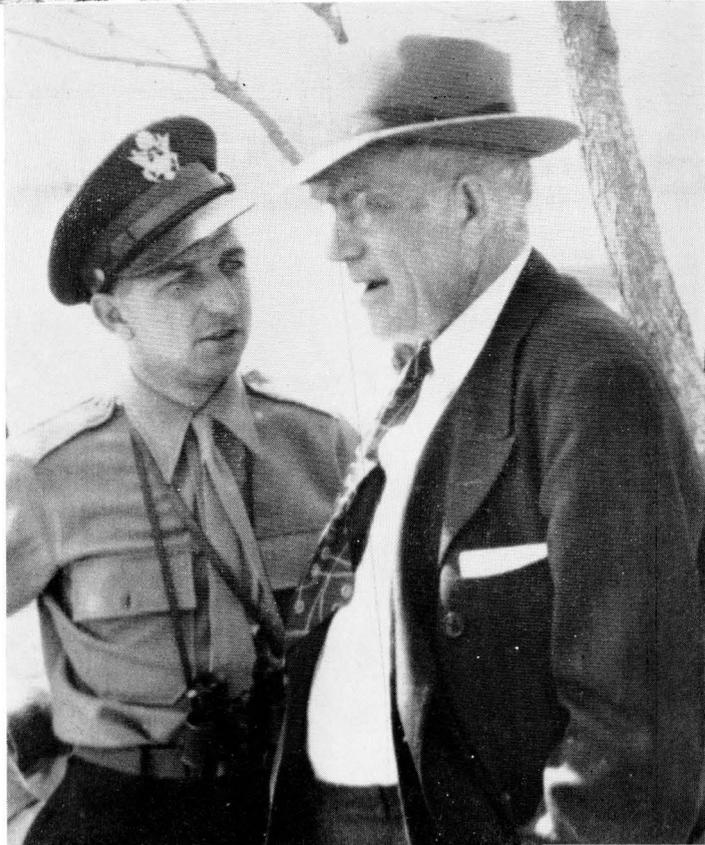
George W

Photos from several source
St. Cloud Times and Forrest



George W. Friedrich and
wife. Mrs. Friedrich was
an active partner in his
career.

He was a friend and
counselor of many of
his former students.
During World War II
he corresponded with
m a n y s e r v i c e m e n
whom he had had in
his classes.



Friedrich

including John Voth, The
Lee.



He was an inspiring teacher and his biology classes were very popular.



He was active in Bird clubs and Ornithological circles. Here he makes a mid-winter bird census with the St. Cloud Bird Club.

He loved to teach in the field. His classes stimulated many students to embark on careers in conservation and wild-life.



A Study of Ring-Necked Duck Nesting in the Pothole Region of Mahnomen County, Minn.

by

Arthur B. Goodwin

The Ring-necked Duck is a very important waterfowl species in Minnesota. It ranks third in spring breeding pair counts year after year and third or fourth in production of young. In recent years there has been an increased kill each hunting season until in 1955 the Ring-neck composed seven per cent of the total bag. Of the ducks raised in Minnesota the Ring-neck in 1955 ranked third in the season kill.

In 1955 a study of the nesting habits and cover preferences of the Ring-necked Duck was completed by the author at Itasca State Park. West of Itasca park in Becker, Mahnomen, Polk, Norman, and Marshall counties, spring breeding pair counts, brood counts, and banding operations indicate that considerable numbers of Ring-necks nest there. The present study was made to determine the nesting requirements and preferences of the Ring-neck in the pothole areas of these northwestern counties. These counties lie in a transition zone between the true prairie to the west and the forest to the east. The potholes and other wet areas are dominated by hardstem bulrush and cattail much like a prairie pothole but the shallow water and shore cover are dominated by sedges like a forest pond.

The study area was limited to the western half of Mahnomen county, as previous banding records showed that this area was the best producer of Ring-necked Duck broods in the last two years.

Procedure

The study was conducted from June 7 to June 18, 1956. Working from a base map of the area, with the best Ring-neck producing ponds previously located, 22

water areas were checked for breeding pairs of Ring-necks. All waterfowl were noted and recorded by species and composition. Six water areas were chosen for intensive study of Ring-necked Duck nesting. Only the ponds with two or more pairs of Ring-necks were selected.

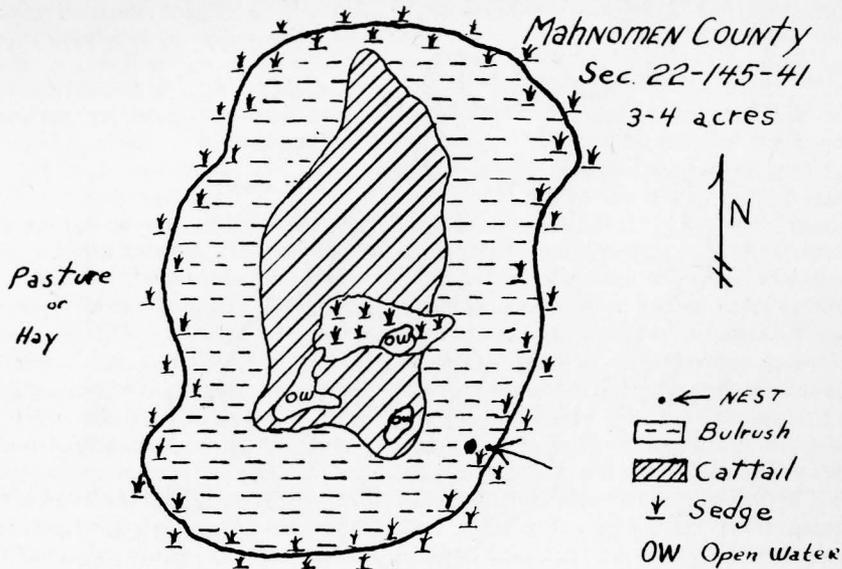
Intensive observations of female Ring-neck activity were begun immediately. Observations were carried out at all periods of the day to obtain a complete picture of the activity. All movements away from the feeding ponds by females or pairs were noted and recorded on a sketch map of the area. Special note was made of the locations at which the females entered marshes, presumably nesting areas, away from the feeding ponds.

Nest hunting was conducted by wading the marsh areas into which females had been seen to fly, and concentrated effort was centered about the area of the marsh that the female entered. Nest hunting was begun only after a female was seen flying to the marsh or when the males were loafing on the feeding pond. This procedure assumed the female was on the nest and not feeding elsewhere without the male.

When a nest was located, photographs of the nest and the cover type were taken. Measurements of the nest, height above water level, distance from shore, and water depths were recorded to the nearest inch or foot.

The clutch size was recorded at the time of first observation. Because of the limited time of the study the nests were not rechecked or were rechecked only once to see if laying was complete.

NESTING MARSH



Relation of Nesting Marsh to Open Water Area

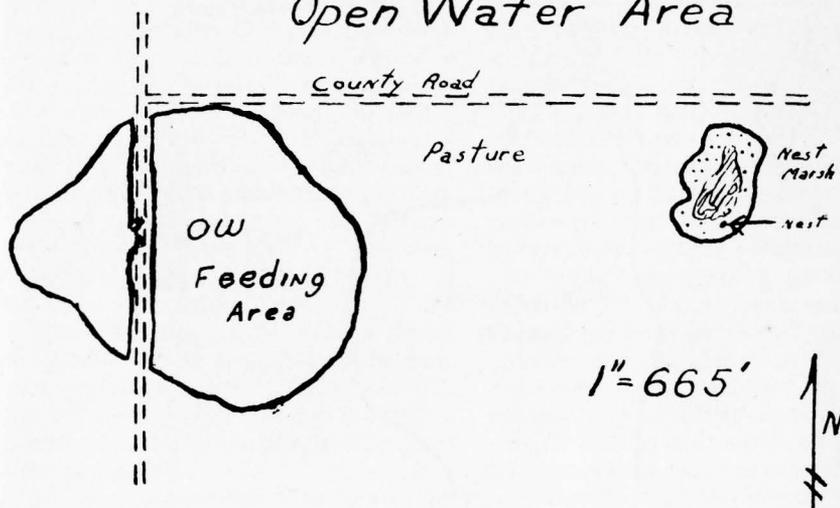


Figure 1.

NESTING MARSH

Mahnomen County

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Est. 25-30 acres

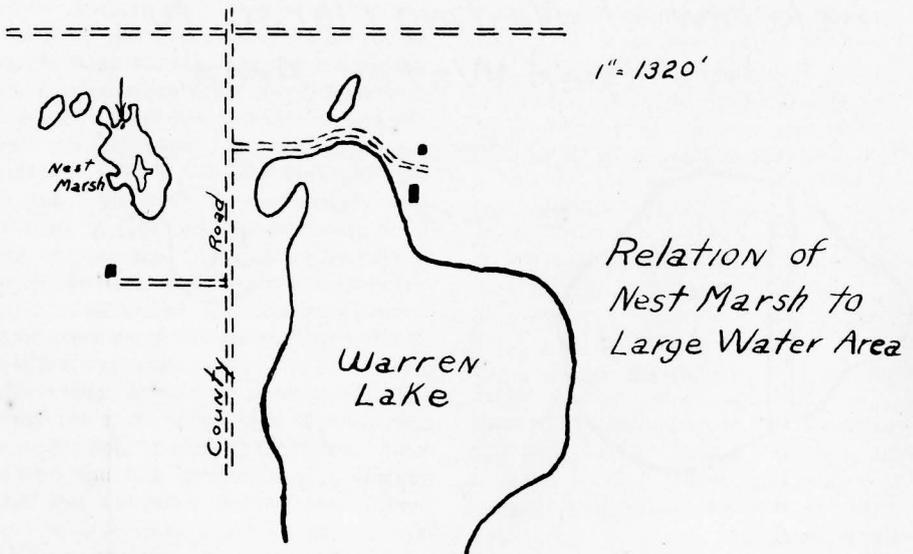
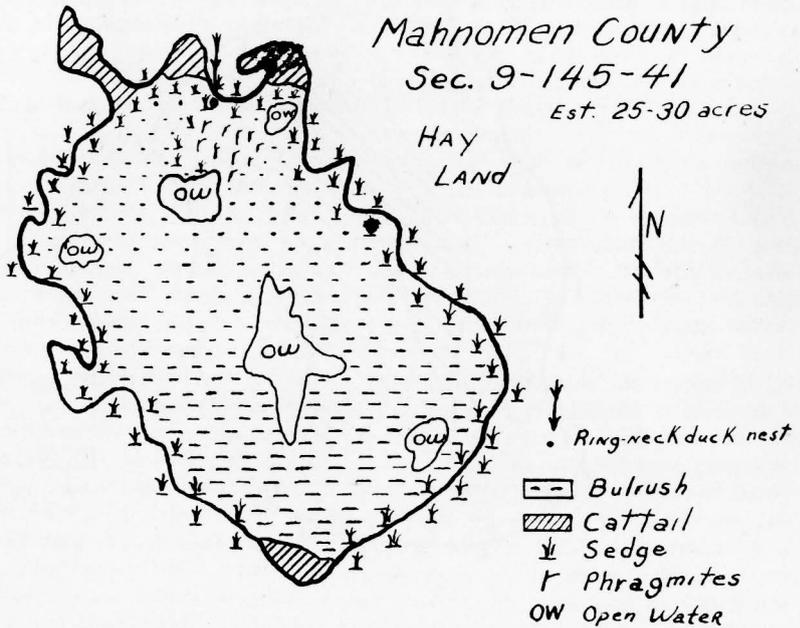


Figure 2.

It was assumed that all the nests were well into the incubation period at this late date.

Each marsh area that was studied was cover mapped even when no nest was found. A rough sketch of the marsh was made in the field. A finished map was made later from aerial photos. Only the dominant emergent vegetation was recorded for each marsh.

Observations

Twelve species of waterfowl were observed on the study area. These were Mallard, Pin-tail, Blue-winged Teal, Green-winged Teal, Baldpate, Shoveler, Canvasback, Redhead, Ring-neck, Lesser Scaup, Ruddy Duck and Coot. Mallards and Blue-winged Teal were the most common puddlers and Ring-necks and Redheads were the most common divers.

Activity observations of the Ring-necked Ducks at the beginning of the study indicated that nesting had already begun. Early morning checks found only the males present on the ponds feeding and loafing together. By mid-morning the females began to appear. Then the male Ring-neck activity pattern changed. As soon as a female arrived all the males would fly to her and land near her. At this point one male would attempt to drive the other males away from the female by chasing them. The protecting male always succeeded and the pair would move off together to feed and loaf leaving the other males who again formed a close acting group. Throughout the rest of the day the lone males and the pairs could be seen with the females coming and going at all hours.

When returning to the nesting marsh the female was accompanied by the male who sometimes landed in the marsh with the female and remained for a time, or sometimes returned to the loafing pond without landing.

Six nesting marshes were located by watching the activity of the female Ring-necks. These nesting marshes were all similar in appearance and vegetation. The dominant vegetation on each

marsh was hardstem bulrush and cattail with species of sedge in the shallow water and damp shoreline. The amount of open water was small and scattered throughout the marsh. On five of the areas open water was surrounded by cattails, on the sixth by bulrush. The water depth did not exceed 2½ feet in the marshes except in some of the open water areas. Hip boots could be used to cover the entire marsh in every instance. In size, the six marshes averaged approximately 20 acres. The largest was slightly over 40 acres and the smallest about three acres. The water level of the marshes is maintained by run-off. None of the marshes has an inlet or outlet so water levels depended on precipitation. Marked decreases in marsh levels with a resulting increase in the amount of dry shoreline were noted during the study period of 12 days. Figures 1 and 2 are cover maps of two nesting marshes. They also show the relationship between nesting marshes and open water feeding areas.

Adjacent land use practices ranged from hay to row crops to pasture. Wild grasses and sedges grew on the very edge of all the marshes because of the inaccessibility to farm equipment in the spring. Alfalfa was the most commonly planted crop on the lower fields. Oats and corn were planted in the fields that were higher and drier at the edge of the marsh. Land use did not seem to affect nesting unless it was pasture and cattle tramped in the shallow shore waters disturbing the vegetation.

Only two Ring-necked Duck nests were found in the six marsh areas studied. Because of the large size of some of the marshes and the heavy cover, one man could not do a complete job of nest hunting. The flushing distance for the females on the two nests was less than ten feet on all observations. The type location, however, was not the same for the two nests. One was in and upon a large clump of dead bulrush surrounded by water eight to ten inches deep, shown in Plates 1 and 2, and Figure 1. Only a



Plate 1. Ring-necked Duck nest location beneath the hat. Cover in the foreground and at the nest is Hardstem Bulrush.



Plate 2. Ring-necked Duck nest in Hardstem Bulrush. Nest material is bulrush and sedge.



Plate 3. Ring-necked Duck nest location in a clump of sedge.



Plate 4. Close up of the nest in the clump of sedge.

few scattered sedges surrounded the nest site. The other nest was on a small earth and sedge root mound in a clump of sedge about 12 inches in diameter, surrounded by water five inches deep. Plates 3 and 4 and Figure 2 show the location of this nest.

The nest in each case was made entirely of the surrounding vegetation and lined with down. In the bulrush the nest was lined with fine sedge over which were the feathers; in the sedge clump nest the lining was water moss mixed with the feathers. Large patches of this moss were common in the open water of the bulrush marsh. The size of each nest was the same. The cup or bowl was seven inches in diameter and three inches deep. The outside diameter was 13 inches, and the top edge was six to seven inches above water level. Clutch sizes were ten and 12 eggs, and the eggs in each nest were in a single layer.

A third nest was found by another crew of conservation department men working just to the north and west of the main study ponds. This nesting site, however, was still in the designated study area. The nest was located at the shoreline in a clump of narrow sedges, shown in Plate 5. At the time of discovery the nest site was only damp, but it had been surrounded by water. The nest was made completely of the narrow cover type sedge and lined with down, Plate 6. Its inside dimensions were the same as the other nests, and it held ten eggs. The stage of incubation was checked on one egg and the embryo was found to be about $\frac{3}{4}$ of an inch long.

All three of the marshes used for nesting were not connected to the open water ponds used for feeding and loafing or to which the broods were taken. The distance from marsh to open water ponds ranged from 200 to 1500 feet in this study. The relation of the nest marshes to the feeding and loafing areas is shown in Figures 1 and 2.

Summer trapping and banding operations were carried out by conservation department crews on five of the six open

water areas checked during the nesting study. All of the areas produced young Ring-necks. Twenty-nine pairs of adult Ring-necks were counted during the nesting study on the five ponds. Seventeen broods of young Ring-necks, presumably the progeny of these adults, were accounted for during banding in July, although all the broods were not captured on some of the larger water areas. Even with incomplete catches of individual broods, 108 young were banded.

Conclusions

1. Nesting of Ring-necked Ducks took place in shallow bulrush marsh areas separated from the loafing, feeding, and brood raising ponds. Distances up to a quarter of a mile separated nesting areas from feeding and brooding areas.

2. The marshes used for nesting had little open water and were usually quite shallow. Water levels dropped in mid-summer until the marshes were dry or nearly so. The shallow water near shore and the shore itself was dominated by sedges.

3. Nest sites occurred in the sedge clumps near shore or in the sedge bulrush transition zone.

4. The nests were all made of the surrounding cover type vegetation. Inside dimensions were nearly uniform, seven inches in diameter and three inches deep. The height above water was only three to five inches from the bottom of the nest cup.

5. Trapping and banding of young Ring-necks showed an apparently high nesting success on the ponds studied.

6. This study, besides giving some information on the nesting preferences of the Ring-necked Duck in the prairie forest transition zone, points out the value of the temporary marsh areas in the pothole country. It also shows the dispersion of such areas can be over a fairly wide area and still be of great value. — *Minnesota Division of Game and Fish Bureau of Research and Planning, Pittman-Robertson Project W-11-R-17.*



Plate 5. Ring-necked Duck nest at the right of lath in a narrow sedge clump.



Plate 6. Close up of the nest at right of lath. Shows nest on the clump of sedge as well as within the clump.

Seasonal Report

by
Mary Lupient

The season was marked by mild, fine weather until January when the thermometer for a few short periods fell below zero, as far as 30 to 40 below in the north. There was some snow there too, but in the south half of the state the only snow was a light fall at intervals. There was a paucity of birds. Very few flocks of Waxwings, Grosbeaks, Longspurs, Redpolls or other birds from the north roamed about. Pine and Evening Grosbeaks were largely absent even at feeders. In a letter dated January 25, Dr. P. B. Hofslund stated as follows: "Bird life is very scarce this winter in Duluth. For instance, we counted only 49 Evening Grosbeaks on the Christmas census, and we usually get that many at one of Bero's feeders. I haven't had a bird at my feeder since November, and many others report the same thing. I don't see or hear birds on the way to school. We have a few reports of some birds that are rather unusual here, but these reports have been scattered throughout the winter. A Cardinal flew into the window of one of my acquaintances, perhaps the one that has been reported from several places in the same neighborhood. Gary Kuyava captured a Richardson's Owl, which later died. Food is abundant in town and in the woods, so I suspect that the lack of severe weather has more or less kept birds from moving into areas where they would be encountered most frequently. I doubt even if this very cold weather will move them, because the snow cover is exceptionally light."

John Bero in Duluth stated that he had fewer Evening Grosbeaks than usual. The largest count this winter was 56, and he has had many more than that every season, sometimes 125. The Beros

established their first feeder 12 years ago and now have three; one of them is a self feeder which holds in excess of 100 pounds of sunflower seed. These feeders are stocked the year around, and many bird-watchers from all parts of the state visit them, where they can observe woodpeckers, nuthatches and other common birds besides Pine Siskins, Waxwings and other rarer species that normally feed there in winter. Sometimes sunflower seeds fall to the ground. This winter they attracted a large rat which was swooped down upon, captured and eaten by an owl. The Beros' sanctuary harbored two Golden-crowned Kinglets this winter.

The Paul Beckers at Walker, who build and sell excellent feeders, stated that there is a scarcity of birds in that area and that the fall migration was nil. They had one interesting visitor, a Hudsonian Chickadee.

Mrs. Edward Harms, whose home overlooks the Minnesota River opposite Savage, operates feeders with which she has had success. Any disturbance causes a shower of red birds to rise and fly over the hill to the woods below. She had 21 Cardinals and a goodly number of Purple Finches, also Goldfinches, Tree Sparrows and woodpeckers, including the Red-bellied and Pileated. A Sharpshinned Hawk harassed her feeders all winter.

Three Tufted Titmice appeared November 24-26 at a feeder owned by Dr. W. R. Hiller, Crystal Village suburb of Minneapolis, and also an Oregon Junco arrived January 6 and a White-throated Sparrow, January 7. They all found the provisions so much to their liking that they are still there. Mrs. J. H. Reisinger reported a White-throated Sparrow and

an immature Harris's Sparrow at her feeder, November 20. At Gibbon two Harris's Sparrows fed for several weeks at a feeder owned by Albert Testor. The following important record was received from H. H. Goehring, St. Cloud. He stated as follows: "One Tufted Titmouse stayed at my feeder stocked with sunflower seeds, December 6 to 9, 1956. It was not disturbed or banded. Previously, the only authenticated report of this bird in St. Cloud was the arrival of three birds November 17, 1953. All were banded. Two remained until August 27, 1954 during which time they nested and brought five young to the feeder. Four of the five were banded. No reports between 1954 and 1956."

An Oregon Junco appeared in January at a feeder owned by Mrs. Frederick Bradford, St. Paul. Of interest is the record of a Baltimore Oriole at a feeder belonging to Ivan Sorenson in Minneapolis as late as November 28. The St. Paul water department operates seven feeders in the Lake Vadnais area. A. C. Rosenwinkel visited these feeders several times and reported a White-throated Sparrow, January 4, and on several occasions in January three Tufted Titmice were present. All of the common birds frequented these feeders. At her cabin in Cedar Forest, Mrs. A. D. Cornica keeps her feeders stocked the year around. Black-capped Chickadees and White-breasted Nuthatches fly to meet her when she arrives. They feed on her hand and accompany her on walks in the woods. She was thrilled to have a Varied Thrush at her feeder, December 1 and 2. It stayed only two days. James Lundgren, living in the same area, fed a Flicker all winter. Mrs. R. E. Whitesel, Minneapolis reported two Flickers. From Morris, Sheridan Flaherty sent the unusual record of a male Cardinal at his feeder, and Marie Aftreith reported one at Schroeder. She was one of the very few to report Pine Grosbeaks. Her record was dated November 30.

Red-bellied Woodpeckers are increas-

ing somewhat. This winter they were reportedly patronizing feeders in greater numbers than formerly. Pileated Woodpeckers were also reported by several observers. Red-breasted Nuthatches were scarce; very few were reported. Last year they were quite abundant especially at Vadnais Forest.

Some of the Christmas bird counts listed fewer individuals than usual. Interesting items on a count by the St. Paul Audubon Society were Golden-crowned Kinglet, 14; Cardinal, 22; Wilson's Snipe, 8; Killdeer, 1; Belted Kingfisher, 1; Pin-tailed Duck, 1. The Minnesota Club listed a Golden Eagle and one Pine Grosbeak. Less than the usual number of Ring-necked Pheasants were counted. Dr. and Mrs. Mahle censused the birds from Plainview to Kellogg. The most interesting items on their count were Bob-white, 18; Cardinal, 28; Turkey Vulture, 2; Tree Sparrow, 100. Normally that is not an exceptional number of Tree Sparrows, but elsewhere they were reportedly scarce. This writer took a census south of Minneapolis between Cedar and Penn avenues. Most interesting records were two Wilson's Snipes and four species of hawks, Red-tailed, Goshawk, Sharp-shinned and Sparrow. Sparrow Hawks were apparently quite abundant this winter to date of this writing. A Duck Hawk was seen flying near the outskirts of Minneapolis January 10 by Bruce Harris.

Several hundred Whistling Swans spent the first two weeks of November on Whitefish Lake, Crow Wing county, reported by George T. Ryan. December 12, two were still lingering at Weaver Marsh, Wabasha county, and in the same area there were an estimated 1500 Mallards and 75 Black Ducks. This report was made by Rev. Forest Strnad. There were several large concentrations of Mallards in November, December and early January. A small strip of water was still open on Lake Harriet, Minneapolis, January 8, and approximately 400 Mallards crowded into it. They

remained until the lake was completely frozen over. Mrs. E. W. Joul said there were 80 Mallards and one Pin-tailed Duck on Lake Calhoun, Minneapolis, January 17. On Thanksgiving day, a very large flock of approximately 800 Mallards drifted about in broken formations and finally landed in a field of corn stubble very near to dwellings and the highway. They rested without feeding and without making a sound until some children appeared. They then arose in a cloud of wings and circled just above my head. It was a thrilling experience. Mallards were seen near Red Wing and on the Zumbro River, December 28, by Bruce Hayward. On December 27, I went to Rochester to observe the ducks and geese on the lake there. Several hundred Mallards were being fed by observers and were so tame they came up to our car doors and apparently would have entered the car if we had allowed it. When they found we had no food for them they shouted at us with loud indignant quacks as they waddled heavily away to the next car. There were about 1000 Canada Geese. It was an interesting and beautiful sight, so many wild birds in the heart of a city. While large numbers of them rested on the shores, many swam about in stately grace, and all the time conversed in low musical honks. Like the Mallards they, too, were very tame, and some of them approached to be fed.

There were reports of a large goose migration over the Twin Cities, November 9. At Highwood, St. Paul there were seven high flying flocks of undetermined species, reported by John Hall, Sr. On the same date, Mrs. Sylvester Koontz saw a large migration over Minneapolis.

Very rare is the following record. Near Fairmont, Martin county an American Brandt was flushed from woods and shot

in flight by Maynard Nelson. The head, neck and wings were sent to the Museum of Natural History, University of Minnesota. Two immature White-winged Scoters were observed in Rice Lake in November by William Longley.

More than the usual number of Meadow Larks and Mourning Doves were reported. A Meadow Lark, two Mourning Doves, one Migrant Shrike and one Bluebird were seen on the North Shore, November 11 by the Duluth Bird Club and reported by Joel Bronoel.

Usually Robins are present in winter, sometimes in large numbers, but only one was reported to this writer this winter. It was seen in Como Park, St. Paul by A. C. Rosenwinkel, December 8.

A flock, mostly Red-winged Blackbirds but which included a few Bronzed Grackles and Cowbirds was seen by Dr. D. W. Warner the first part of January near Red Wing. Except for one Rusty seen along the Minnesota River near Minneapolis, December 27, this is the only record of blackbirds received after the migration. Ravens were reported near Onamia, October 23, by M. Evanous. He stated that they appear in that area every fall. He also observed a Turkey Vulture near Onamia, November 6.

Occasionally interesting reports are received from members at large that live outside of Minnesota. On January 11 one such report came from Mrs. Amy Baldwin, Chicago. She reported the following from that area: female King Eider, Western, Eared and Horned Grebes, hundreds of Old Squaws, one Harlequin Duck, White-winged, American and Surf Scoters. Of course all these birds sometimes appear on the Great Lakes, but it must be a joy to see so many of them at one time. — *Minneapolis, Minnesota.*

The Canadian Lakehead

Edited by
A. E. Allin

The beautiful, dry, mild weather of October continued into early November becoming colder towards the end of the latter month. The precipitation for November was 3.31", or two inches above normal and the average temperature was also two degrees above normal. Only six days were sunny. Despite the apparently favorable conditions, few migrants lingered longer than usual. A Lapland Longspur was a surprise on November 18. The winter residents were tardy in their appearance. The marshes froze on November 10 when we received our first snowfall and the temperature fell to 12°. This drove out the majority of the ducks and only the occasional Black, Mallard, and American Golden-eye lingered after November 15 when 24" of snow fell in the Whitefish Lake area.

The December temperature was normal; the low of -15° on December 12 equalled the previous low for that date. Towards the end of the month it became much colder; it was -28° and -23° on December 18 and 30 respectively. It was cloudy on 21 days and the snowfall of 37.6" was a record. Most of it fell in early December and brought the total to 58.9". A few flocks of Redpolls, and one flock of Pine Siskins were reported during the month but no Tree Sparrows or Slate-colored Juncos. Evening Grosbeaks were conspicuously absent as they were reported to be in eastern Ontario. Two Bohemian Waxwings were seen; Cedar Waxwings were common.

January was the coldest since 1912. The average temperature was -2.5° in contrast to the normal 6° above. On 24 days the temperature fell below zero and on five days to 30° or more below! On January 25 it was -37° officially but

temperatures at outside points were consistently 50° or more below. Only 8.3 inches of snow fell compared to a normal of 23 inches and last year's 56.4 inches. Despite the severe weather Pine Grosbeaks and Cedar Waxwings were abundant throughout the month.

The all-time low temperature for Fort William is -42° established January 30, 1951. On January 22, 1935, Iroquois Falls set an all-time Ontario low of -73°. Canada's record is -81° at Snag, Yukon Territory, February 3, 1947. Ontario's highest temperature was 109°, July 3, 1911. Even locally, temperatures vary greatly due to the prevailing winds and the influence of Lake Superior. At Fort William the average dates of last and first frosts are June 2 and September 7, but at Port Arthur, four miles away, the corresponding dates are May 26 and September 23. Whereas Fort William's frost-free period is 97 days, White River, some 200 miles to the east, can expect only 42 days.

There were few records of interest during the fall and early winter. A Northern Shrike was reported on October 13 and C. E. Garton saw two more on December 26. On the same date he saw a Glaucous Gull. A Magpie was taken in a trap near Longlac, 150 miles to the northeast on November 13. On January 10, when an unofficial temperature of -62° was reported at Kaministiquia, a female American Golden-eye was seen feeding in the rapids of the river of the same name.

Mr. Garton reported a Goshawk in South Gillies on November 17. It had been shot by an irate grouse hunter who saw it take, and attempt to carry away, a Ruffed Grouse. The hawk be-

came a specimen; the grouse made a meal for the hunter! We saw one Goshawk at Whitefish Lake in October and the Muries and Allins saw one on November 30 at Grand Marais when driving to the M.O.U. meeting.

Few owls were reported during the period but those seen were of some interest. A Barred Owl was caught in late November. This is one of our rarest owls, but peculiarly the only nests with eggs of the species for the Province were found by us locally. A Richardson's Owl was captured on November 22. Every spring and fall we hear of one or two of these little owls, often dead, but it has not yet been found breeding here. Snowy Owls have been very scarce. We have had but three reports. A Hawk Owl was repeatedly reported in late December and is probably still present. On two occasions it has been seen killing Rock Doves of which, as in most cities, there is a plentiful supply. Two Hawk Owls were reported at Longlac in the early winter.

An American Three-toed Woodpecker was seen by the Robbs on December 27 and the occasional Arctic Three-toed Woodpecker has also been recorded. Three has been a major movement of the latter, with a minor movement of the former in southern Ontario this winter. Other woodpeckers are present in their usual numbers. The only Brown-headed Chickadees reported are the two frequenting, as usual, a feeding station in Chippewa Park. For the second winter in succession Red-breasted Nuthatches have been very scarce. Blue Jays have been very common; Canada Jays are present in their usual numbers. Crows are very scarce and Ravens are common but less so than a year ago.

As noted above, Evening Grosbeaks were uncommon in late 1956 and are still scarce in the cities but are now reported in large numbers at Dorion Fish Hatchery. Pine Grosbeaks did not appear in numbers until early December and did not become really abundant until Christ-

mas week. Probably they had still found plenty of food in their northern breeding grounds. We counted 316 on our Christmas census, December 26. They were present in unprecedented numbers until the third week of January. By then, they and the Cedar Waxwings and wintering Starlings had eaten all the Mountain Ash berries. Their numbers gradually declined, those remaining turning to other food sources. A favorite was the fruit of a species of crab-apple of haw-size. The larger crab-apples were neglected. The seeds of Lilac were also eaten. On January 28, for the first time I saw Pine Grosbeaks feeding on the seeds of White Birch, tearing them from their "cones" and feeding on the seeds which fell to the ground. About the same time the Grosbeaks began feeding on the Rowan berries which had fallen on the snow during the previous weeks.

Bohemian Waxwings were common visitors to the Lakehead during the early forties, usually appearing in mid to late winter. During recent winters they have been less common. They were recorded on two Christmas censuses, 1939-1945, every census, 1946-1950, but only once 1951-1956. This year two were seen by C. E. Garton in early December and one by the Robbs in January. Cedar Waxwings, on the other hand, were formerly very rare winter residents, not being seen from late fall until late May. The few we encountered looked unhealthy. None was seen on a Christmas census 1939 to 1946 but during the period 1947 to 1950 it has appeared on four such lists, and we have learned to expect them in increasing numbers. This season they have been very abundant, large flocks appearing in the cities in mid-November. On November 26, 300 were reported. They have remained in large numbers and, despite the severity of the weather, appear healthy. Like the Pine Grosbeaks they fed principally on the Mountain Ash berries and on the small hawthorn-like crab-apples.

On October 6, a Lesser Scaup was shot at Whitefish Lake, which had been banded on February 3, 1956, on the Neuse River, North Carolina. Another Lesser Scaup was found dead in Port Arthur on May 13, 1956, which had been banded on March 9, 1956 at Great South Bay, Blue Point, New York state.

Conservation should be important to all of us. During the past year the six provincial parks have been increased to 122. These range in size from a few acres to 2750 square miles. In Algonquin Park, commercial institutions and private holdings are being bought up as rapidly as possible and the park being returned to its original condition. Locally, Quetico and Sibley Parks are our largest and most important but many smaller ones have been developed along our lakes and rivers. The government has set aside outlying areas for future development. On the debit side there were 1014 forest fires during 1956, burning over 234,800 acres. Locally 120,375 acres, with 27,000,000 cubic feet of timber were devastated. One at Black Sturgeon burned from June 14 to August 21, destroying 80,314 acres of woods. Lightning was said to be the source of 48 per cent of the fires and 35 per cent were the result of careless campers and other travelers.

The annual Christmas census was taken on December 24, 13 observers participating. The temperature ranged from 15° to 34°. There were 38" of snow on the ground. Twenty miles were covered on foot and 174 miles by auto. A record 4358 individuals of 21 species were seen. The Glaucous Gull was seen for the first time and the Hawk Owl was reported on our first census since 1939. The complete list follows: Glaucous Gull, 1; Herring Gull, 210; Rock Dove, 346; Snowy Owl, 1; American Hawk Owl, 1; Pileated Woodpecker, 1; Hairy Woodpecker, 7; Downy Woodpecker, 17; Arctic Three-toed Woodpecker, 1; Canada Jay, 3; Blue Jay, 37; American Ravens, 39; American Crow, 10; Black-capped Chick-

adee, 54; Brown-headed Chickadee, 2; Cedar Waxwing, 156; Northern Shrike, 2; Starling, 854; House Sparrow, 2140; Pine Grosbeak, 316; Common Redpoll, 160.

The Thunder Bay Field Naturalists' Club had a very successful year, with Robert Robb as president. Regular evening meetings were held throughout the year as well as four special gatherings. The latter included the Grand Marais trip in February, and the annual dinner in April when Dr. C. H. D. Clarke, superintendent of wildlife management for the Ontario Department of Lands and Forests, was guest speaker. In May we held our annual spring field day and the fall field day took the form of our joint meeting with the M.O.U. in September. Four newsletters were published. Members attended the annual meetings of the M.O.U. at Albert Lea and Minneapolis, the Wilson ornithological meeting in Buffalo and the American Ornithologists Union meeting in Denver. At our annual business meeting, Robert Robb was re-elected president. Other officers include Col. L. S. Dear, honorary president, K. Denis, past president, C. E. Garton, vice president, J. Murie, treasurer, and Joan Hebden, secretary. The executive board consists of Mesdames Bryan, Penwarden, Bocking, Ryholm, Knowles and Morton and Messrs. A. E. Allin, J. A. Bailey and J. W. McGregor. It was reported that 213 species of birds were identified locally during the year. The only new species was the Wilson's Phalarope, two of which were seen on our spring field day, May 26. During the year, there were many reports of Cougars being seen in the district but as usual their authenticity could not be confirmed.

On July 1, James Thompson took several Northern Creek Chub, *Semotilus a. atromaculatus*, (Mitchell) in Brule Creek. Although the species occurs in tributaries of the Kaministiquia River below Kakabeka Falls, this is the first record of its occurrence above that 128

foot obstacle. Probably it has been introduced by bait fishermen and has become established as Thompson reported specimens of all sizes from small young to large adults. More unusual was the capture on August 31, off Black Bay, in Lake Superior, of an Alewife, *Pomolobus pseudoharengus* (Wilson). An inhabitant of the Atlantic Ocean, it has long been abundant in Lake Ontario where its death in millions each summer is an unsolved mystery. We failed to find it in Lake Erie in extensive investigations in 1928-29, but Dr. Carl Hubbs, now of Scripps Institute of Oceanography, La Jolla, California, took specimens there in 1930. It has moved up the Great Lakes, and the rare specimen has been reported from the eastern end of Lake Superior, but the above specimen is the first to be taken from the western end of the lake. It was a green male with standard length of 166 mms. This fish is of no commercial value. Probably it provides food for carnivorous species and along Lake Ontario it is one of the main foods of the Black Tern. In summer it dies in immense numbers polluting bathing beaches so that they cannot be used without a daily gathering of the dead fish. The cause of that phenomenon has never been determined.

Since Minnesota borders for such a distance on Ontario, the following unusual records should be of interest despite the fact the majority of these areas were remote from Minnesota. In mid-August, a Ruff was seen on Lake Erie. A Snowy Egret, at Oshawa, on June 10, was a first for the north shore of Lake Ontario. A White Ibis appeared at Ottawa on October 13, 1955. Four broods of Holboell's Grebes were seen at Cochrane in northeastern Ontario in 1956. A few colonies now nest regularly at the

western end of Lake Ontario. It was only two decades ago that Whitefish Lake was the only lake in Ontario where they were known to breed. Blue Geese were found breeding for the first time in Ontario (and their fifth known breeding area), 15 miles west of Cape Henrietta Maria in extreme northwestern Ontario during the summer of 1956 by H. L. Lumsden. He saw three concentrations of Snows and Blues with young in a ratio of fifty-fifty. He counted 530 adults and small young. The local Indians stated they had been present for many years.

The Western Meadow Lark continues to extend its territory eastward. We saw one at Rochester, New York, on April 29, another was seen on Grand Island last April and in the same month there were four records in southwestern Ontario at London and at St. Thomas. Warblers formerly expected further south are moving northward. A Blue-winged was seen feeding young on July 3 and a male Blue-winged paired with a female Golden-winged was feeding young on July 10, north of Lake Erie. The young had Brewster's type plumage. A Worm-eating Warbler was seen on May 11 and 13 near London. Another was seen near St. Thomas where a Hooded Warbler was also seen on May 21. On April 2, a full-plumaged European Goldfinch was found in a flock of American Goldfinches near London. At Point Abino on the Ontario shore of Lake Erie, a male Prothonotary Warbler was found mated to a female Yellow Warbler on June 24. The young were taken to Professor A. A. Allen, Cornell University, and raised. Their plumage confirmed the fact they were authentic hybrids. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

HAWKS ALOFT

'Sharpie' in the valley
'Marsh' over the hill
You name the hawk
And Duluth can fill the bill!

Amy Chambers

Notes of Interest

EXPEDITION TO OBSERVE THE GRAY-CROWNED ROSY FINCHES ON THEIR NESTING GROUNDS — Having been in the Gray-crowned Rosy Finches' territory both winter and summer on several occasions, this species always evaded us.

So, in June 1955, we decided to pay them a visit on their nesting grounds in Florence Pass in the Big Horn Mountains in Wyoming. We communicated with Dr. Oliver K. Scott and John C. Warkley of Casper, Wyoming, and they told us how to plan our trip.

We arrived at Meadowlark Lodge on Meadowlark Lake, 48 miles west of Buffalo, Wyoming, on U.S. No. 16, on June 26.

The lodge is 8,500 feet elevation, and we were advised by our guides to adjust ourselves to the altitude before making the ascent to Florence Pass. So they took us on a combined jeep and horseback ride the next day to about 10,500 feet elevation and then rested the following day.

Rather than use our sleeping bags and make the trip in two days the guides recommended that we make the round trip in one day. On June 29 we arose at 3:30 a.m. with the temperature close to freezing. One of the guides started a day ahead with the four horses and we met him in the West Tensleep Lake area about 5:30 a.m. Then we started on a 20-mile round trip horseback ride, having come up this far in a truck. We followed a beautiful chain of lakes — Helen, Marion and Misty Moon into Florence Pass.

At and above timber line — about 10,000 feet, we observed many Horned Larks, American Pipits, Mountain Bluebirds, White-crowned Sparrows and a sprinkling of Robins, Pine Grosbeaks, Canyon Wrens, Rock Wrens and Clark's Nutcrackers, as well as two Golden Eagles.

We began to encounter the Rosy Finches at about 10,500 feet elevation. From this elevation to Florence Pass — elevation 11,900 feet — there was a great deal of snow. Some drifts were 25 feet deep. Inasmuch as the temperature was below freezing we could ride our horses across the snow. We found about 600 Rosy Finches in flocks of 25 to 30 from elevation 10,500 feet to 11,900 feet.

They were apparently still moving up the mountain, following the receding snow. They were feeding on succulent seeds at the very edge of the snow. It appears that these summer wind-borne seeds provide food for the finches until a crop is produced at high elevation or more seed is blown to the mountain top from the valleys below. We did not see a single pair of mated birds until we reached Florence Lake at about 11,900 feet elevation. There we found the birds feeding in pairs. We could get very close to them. They appeared to be too busy to notice us. We were the first group to enter Florence Pass this season. Florence Lake was about one-third frozen over.

There were numerous American Pipits singing their nuptial song — suspended high in the air.

Since the snow starts to melt around mid-day, making it impossible to ride our horses over the snow, our trusty guides recommended that we leave the pass about 11:00 a.m.

This trip was a thrilling experience — long to be remembered. While it is a rugged trip, with such experienced guides and such sure-footed horses, we strongly recommend it as a thrill of a lifetime. — *Whitney and Karen Eastman, Minneapolis Audubon Society.*

NOT ALL RED BIRDS ARE ROBINS — Red Polls. These pretty little sparrows come in large flocks and settle down near us. Last winter some of them came to the feeding shelf opposite our picture window and we could examine them closely. Their crimson caps are really bright red. The male is more like snow and quite gaily striped. The female could easily be mistaken for a Chipping Sparrow, which is about the same size, 5¼ inches. Her (The Chippy's) red cap is russet colored and not bright red.

Pine Grosbeaks are much larger, 8½ inches; and not only have red caps but red heads and bodies. They are often mistaken for Robins, 10 inches. Robins, however, have black heads and russet breasts. Our Robins are not really red like the English Robins.

American Crossbills, six inches, are probably too small to be confused with Robins. The males are very red except their wings. They have not visited us nor have we seen them in our pine trees.

Purple Finches, 6¼ inches. This spring we have had the pleasure of examining these very pretty red birds closely, and of learning something about their habit. They are about the size of Crossbills, but their bills are not crossed. We found their Latin name *Carpodacus purpureus* and learned something about them in "Birds of Western Canada" published as Bulletin No. 41 of the National Museum of Canada in Ottawa.

One of the pleasant things about using this book is that, for the benefit of readers in the Quebec and Winnipeg suburbs, the names of the birds are given in the French language as well as in English. The little red bird that mimics is "Mimi pinson" or "pinson fourfore". The Red Poll is a "Sizerin", a sizerin "a tete ruge".

The female Purple Finch is not red at all and the first time you see her you are sure you have found a new kind of sparrow, but she always travels with the gaily dressed gentleman who wears such gorgeous raspberry tinted clothes. He has a big appetite. You could even call him greedy, and she is even more so. Their table manners are very bad. They settle down on the feeding shelf and help themselves to everything in sight. Their behavior is quite a contrast to that of the dainty Chickadees who take a little morsel and are gone again, only to find the finches still there when they return. — *Arthur Laird, Duluth.*

* * *

CLIFF SWALLOW COLONY — On August 14, 1956 I visited the farm of Julius Becker in Section 16, Leigh township, Morrison county. There were about 125 to 150 Cliff Swallows on the farm. Some of the birds were adults but most of them were young.

The swallows had built nests under the eaves of the barn which overhung the barn on each side and ran the full length of the barn. The nests could not be seen, but the birds could get in under the eaves of the barn by flying through the narrow gap between the eaves and the sheds right under them. Thus, the eaves of the barn formed what amounted to two long tunnels which completely protected the nests. I would assume that it was fairly cool under the protecting eaves and that the wind tended to channel through, thus creating a constant breeze whenever the wind was blowing.

The Cliff Swallow colony on Mr. Becker's farm may be an additional local group which could be added to the list of Dr. James Beer who presented information on Cliff Swallows in *The Flicker* recently. — *Arnold B. Erickson, Game Research Supervisor, Bureau of Research and Planning, Minnesota Dept. of Conservation.*

A NEW COMMON TERN COLONY — For a number of years members of the Duluth Bird Club have been checking a colony of Common Terns nesting on a sand bar island on the harbor side of Park Point. Encroaching vegetation on the nesting sites has finally discouraged the terns so they have been gradually abandoning it as a nesting place.

Last year another sand bar was pumped up by a dredge working on the Superior side of the bay. On July 15 I found 57 Common Terns' nests on this new sand bar. Not any of the nests contained young even at this late date. On my next visit on July 21 I counted 53 young hatched during the week. Evidently these terns like nothing as much as a bare sand bar for their very rudimentary nests. — *O. A. Finseth, Duluth.*

* * *

SPARROW HAWKS ACCEPT MAKE-SHIFT NEST — Early in June I removed from one of our elm trees a dead stub which had been well hollowed out by Red-headed Woodpeckers. When the stub hit the ground, I was suprised to see that it was being used by both Starlings and Sparrow Hawks as a nesting site. Five young Sparrow Hawks, very small and helpless and covered with a soft white down, came out of the nest. I located an old pail, filled it with chaff, drilled a few holes in the bottom for drainage, and placed the five young hawks in it and hung it on a limb of the elm. In the morning I was pleased to see that the adult birds had accepted the makeshift nesting site and were feeding the young.

From the very beginning the young hawks were not in the least docile. Upon any intrusion they would lie on their backs with extended claws and snapping beaks. Within a few weeks they left the pail to climb about the elm, even though they could not fly. Their diet was composed largely of mice, and I could find no evidence of songbirds being fed to them. At one time I observed the parents birds bring what appeared to be a small snake to the nesting pail. After leaving the nest, the birds stayed close together as a family group in a grove of trees a short distance from the nesting site. — *Robert Bystrom, Elk River, Minnesota.*

* * *

HAWK FLIGHT IN MINNEAPOLIS — On Sunday, September 16, being unable to participate in the Duluth hawk count, I decided to make my own count from my back yard near 43rd and Zenith in Minneapolis. There was a strong northwest wind which sent the clouds scudding across the sky. Between 11:30 a.m. and 2 p.m. I counted 50 hawks in groups of from 1 to 10. Some soared straight across the sky, with hardly a flap of wings, and others circled in a general southeasterly direction. Although all looked like Buteos, only 10 were low enough (and well enough lighted) to be identifiable as Broad-winged Hawks. — *Jean McIntosh, Minnesota Bird Club.*

* * *

RED SQUIRRELS WITH WHITE TAILS — Several times this summer I have observed in the city of Glenwood, Minnesota, two red squirrels which have white tails. One of the squirrels has a completely white tail while the other has only the posterior half of its tail white. They are usually seen in the company of each other.

Perhaps this condition is not as rare as I think, but I have not seen it on any other squirrels. — *Robert I. Benson, Game Biologist, Minnesota Dept. of Conservation, Glenwood, Minnesota.*

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THE FLICKER

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THE COVER

Bald Eagle by W. J. Breckenridge

THE PRESIDENT'S PAGE

It is 17 years since the Wilson Ornithological Society held its first annual meeting in Minnesota. That meeting, the 26th annual meeting, was called to order in the new Minnesota Museum of Natural History building on November 21, 1940. A review of some of the changes that have taken place, ornithologically and conservationwise, since 1940 may be in order here.

Dr. Thomas S. Roberts, director of the museum at that time, was in his 82nd year, and "The Birds of Minnesota" had gone through its second edition. William Kilgore, Dr. Roberts' friend and colleague of many years, was then curator of the museum.

These two founders of Minnesota ornithology have passed on, Dr. Roberts on April 19, 1946, at the age of 88, and William Kilgore on Thanksgiving day, 1953 at the age of 74.

More recently Minnesota lost two of its ablest teachers and bird students with the passing of George Friedrich and Lewis Barrett in 1956. Both were past presidents of the M.O.U.

We are happy to welcome members and friends of the Wilson Society back to Minnesota. They will undoubtedly notice that many changes have occurred since 1940. Some of the older bird students, for example, are no longer with us. The youngsters of 17 years ago have matured and are now leaders in many fields of biological work; and a whole new generation of bird watchers has come to the eager "seeing and identification" stage of bird study.

During these 17 years and especially since the end of World War II, the aspect of our countryside has changed. And these changes are having their effects on birds and bird watchers.

Motorized farming and the systematic destruction of native cover by spraying, burning, draining, and cutting have eliminated living space for many of our birds. Our birds have decreased in numbers, and many of them now are to be found only in the wilder portions of the state.

Duluth and the North Shore of Lake Superior are one of the doorways to the back country. But even here change has come. The demand for steel brought the great taconite plant at Beaver Bay into being and with it the pollution, however slowly, of Superior the mightiest fresh water lake of all. Pipe lines now run through the north country, and oil refineries have sprung up near Duluth and Superior. Pollution is inevitable. Fish, birds, and mammals will have less space to live in and there will be fewer of them for man's use and enjoyment.

It is gratifying, however, that more and more persons are finding that bird study and a knowledge of the out-of-doors are fulfilling a need in their busy lives. In Minnesota, for example, the number of bird clubs has increased from five to eight in the 17 years between the first and second meetings of the Wilson Society in our state. The membership of the M.O.U. in 1940 was approximately 80. By 1943,

(Continued on next page)

when the first list of members was printed in *The Flicker*, the membership was 201. At present there are approximately 700 paid members in the M.O.U.

Our magazine, *The Flicker*, has come of age. Having passed through the mimeographed stage, it was later printed at a St. Paul high school, then at the St. Cloud Reformatory, and now finally at a modern plant in Grand Rapids, Minnesota. The December, 1940 issue of *The Flicker* was distributed as a special number in commemoration of the 26th annual meeting of the Wilson Society at the Museum of Natural History. The present issue is likewise dedicated to members and friends of the Wilson Ornithological Club gathered here in Duluth, June 13-16, 1957. In order to maintain the present high standard of *The Flicker* many new memberships in the M.O.U. must be obtained this year.

As membership in the M.O.U. has grown and more bird watchers have been afield, knowledge of the numbers and distribution of Minnesota birds has increased. In 1940, the state list stood at approximately 329 species. At present if sight records are used it is 341 species. The 12 new species are as follows: Little Blue Heron, Yellow-crowned Night Heron, Brant, Great Black-backed Gull, Ivory Gull, Least Tern, Black Phoebe, Varied Thrush, Brewster's Warbler, Black-throated Gray Warbler, Hooded Warbler, and Oregon Junco.

In 1940 there were 207 species nesting in our state. The list has now increased to 214. New birds that have nested in Minnesota during the 17 year interval are: Yellow-crowned Night Heron, Avocet, Magpie, Raven, Bewick's Wren, Philadelphia Vireo, and Lincoln's Sparrow.

Not all has been gain however. The outlook for many of our birds is not favorable. Habitat changes that come with human occupation have shrunk the ranges and the numbers of many of our birds.

When next the Wilson Society meets in Minnesota, we hope that by wise laws, reasonable conservation practices, education, and an increasing interest in and appreciation of the out-of-doors, Minnesotans will have shown that through foresight they have stayed the ravages of "progress" and human occupation. We hope that a decade from now there will still be room for our wilder birds and mammals as well as the commoner ones. We are looking forward to meeting with our Wilson Society friends again in 1965 or whenever they choose to return to Minnesota.

In the meantime we wish them a most successful meeting and fruitful hours of bird watching in Duluth and along the shores of Lake Superior.

Sincerely,

Arnold B. Erickson

A WORD OF THANKS

As local chairman for the Wilson Ornithological Society meeting, I would like to express my sincere appreciation for the hard and conscientious work of the members of the committee. In addition such people as Helmer Olson, manager of the Hibbing Chamber of Commerce, Harold Grinden of the Duluth Chamber, and members of the University of Minnesota administration and maintenance staff should receive special thanks for their cooperation and attention to many details. — *P. B. Hofslund.*

Survey of the Birds of Rice County, Minnesota

by

Orwin A. Rustad

This is the first intensive bird survey of the Rice County, Minnesota area to be published. Its purpose is to provide a permanent record of occurrence, breeding status and migration of local bird life. It is hoped that this study may encourage future bird studies on a county basis.

All records and observations were made by the writer unless otherwise stated. The survey area includes the 14 townships of the county and any adjacent areas to Rice County necessary to make a given habitat complete, such as the north end of the Carleton Arboretum and Wildlife Refuge at Northfield which extends into Dakota County.

Previous studies and observations have determined in a preliminary way the composition and size of the bird population at several locations in the county. Very few of these studies and observations have been published. Most of the information is in the form of lists of birds, and very little annotated material is known.

Dr. Thomas S. Robert's *Logbook of Minnesota Birdlife, 1917-1937* makes two reference to Rice County. On page 61 a reference is made to an observation by Professor J. W. Hornbeck of Carleton College, Northfield, who reported that "Red-breasted Nuthatches remained there until late in December, 1921". On page 78 reference is made to another observation by Prof. Hornbeck on April 5, 1923 of a "large flock of Red Crossbills, including a few Pine Siskins" at Northfield.

In 1920 and 1921 the late Prof. J. W. Hornbeck of Carleton College, Northfield published two papers entitled: *Fall and Winter Birds of Northfield, Minnesota, 1920-21* (*American Midland Naturalist*,

Vol. VII, No. 3, May 1921); and *Spring and Summer Birds of Northfield, Minnesota, 1921* (*American Midland Naturalist*, Vol. VIII, No. 3, May 1922). These two papers were the culmination of six months active field work in Rice County, especially to the vicinity of Northfield, from September 1, 1920 to March 1, 1921.

Professor Hornbeck described the Northfield area for bird study thus: "It is a most favorable locality for bird study. The Cannon River, which flows through the heart of the city, provides timber, thickets, and weed patches, within short walking distance to the north and south. On the east the cemetery furnishes 18 acres of pine, spruce, balsam, and other evergreens. Carleton College campus with its chain of lakes attracts water birds as well as land birds; while St. Olaf campus, spreading over the hills on the west, harbors species which frequent the open woods. The outlying country is a typical dairy-farming region, spotted here and there with patches of timber land."

His *Fall and Winter* observations included 66 different species and 122 were seen in the *Spring and Summer*. Seven White-winged Crossbills, observed on November 14, 1920, were recorded as rare winter visitants. This is the only known record of this bird in the county. The Tufted Titmouse was seen occasionally between December 30, 1920 and February 28, 1921 and was referred to as a very rare winter visitant. Prof. Hornbeck stated that "the Tufted Titmouse is very rare in this state." So far as the writer has been able to ascertain, this is the fifth published record of the Tufted Titmouse in Minnesota. The four pre-

ceding records are found in the *Review of the Ornithology of Minnesota*, by T. S. Roberts, professor of ornithology and curator of the zoological museum in the University of Minnesota. The four are all winter records of single individuals, and in three out of the four cases the bird was seen with Black-capped Chickadees. Strange enough, our visitor this winter brought along one of his relatives, and he was invariably found keeping company with the chickadees. Correspondence with Professor Roberts has brought out his confident opinion that the Tufted Titmouse will soon be found nesting in southern Minnesota. "It is generally resident wherever found." The Orchard Oriole was found nesting in the area between May 24-27, 1921. As far as known, this is the first and only nesting record for this species in the county. He indicated that the Orchard Oriole was a summer resident. The quail was recorded as a permanent resident but rare, with no nesting record in the area.

In a recent publication *Where to Find Birds in Minnesota* by Morrison, Breckenridge and Herz (1955) three areas in Rice County are included: *Shield's Lake* with Olin Sewall Pettingill, Jr. and Orwin A. Rustad contributors; *Carleton Arboretum and Wildlife Refuge* with Olin Sewall Pettingill, Jr. and Harvey E. Stork contributors; and *Nerstrand Woods State Park* with Olin Sewall Pettingill, Jr. and Harvey E. Stork contributors. The same three areas are included in *A Guide to Bird Finding West of the Mississippi* by Olin Sewall Pettingill, Jr., Oxford University Press, N. Y. (1953).

The nomenclature used in this survey follows that approved by the A.O.U. Committee on Nomenclature as published in supplements to the American Ornithologists' Union *Checklist of North American Birds*, number 19 to 30 inclusive, which appeared in the A.O.U. official publication, *The Auk*, during the years 1944-55.

The bird population of one locality may differ a great deal from that of another locality found only a short distance away. This is especially true of the summer residents and transients. Some species that are considered permanent residents in the state may be only winter visitants in Rice County. Also, some species that are transients in the southern half of the state are common residents in the coniferous forests of northern Minnesota. Some birds that are common to the southern half of the state are rarely found in the northern part. What is peculiar of the Rice County bird population may not be typical of an adjoining county, and certainly not of another part of the state. Therefore, a need for a concentrated bird study in a local area is important in order to give a more complete picture of the total bird population of the state. For this reason, your carefully checked observations may be of great value and records should be kept.

During the past 25 years the writer has made general observations of the bird life in Rice County; however, during the years 1951, 1952 and 1953 a more intensive faunal study was conducted. In graph number one the total number of species seen in the county at the end of each month, during the year 1952, is shown by an upright bar which corresponds to the number of bird species recorded for the month. In the month of May, 109 species were recorded for the county. The trend in migration is shown in graph 2. This does not include the permanent residents but only the new species arriving in the area each 15 day period during migration. Even though the total number of species is much greater in May, as shown in the first graph, the largest number of migratory species arrive during the latter part of March and the first part of April. This should indicate that normally, good birding can be expected in Rice County from about March 15 through the month of May.

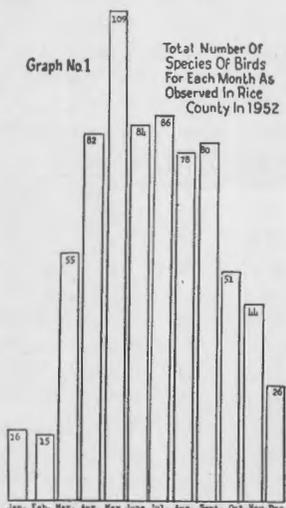
The Christmas Bird Count has been taken in the Northfield area for the past five years in cooperation with the National Audubon Society and recorded in the *Audubon Field Notes*, Christmas Bird Count, Volumes 6 to 10, No. 2, 1951 to 1955. The county area is within a 15-mile diameter with Northfield (Carleton Arboretum and Wildlife Refuge) the approximate center. State highway number 19 extends approximately through the center of the count area beginning at State Highway 56 to the east, going west through the city of Northfield to State Highway 165 and Union Lake at the west.

A total of 41 species have been recorded during the five year period. Eleven of these birds were seen each of the five years: Ring-necked Pheasant, Hairy Woodpecker, Downy Woodpecker, Blue Jay, Crow, Black-capped Chickadee, White-breasted Nuthatch, Starling, English Sparrow, Cardinal and the Slate-colored Junco. Three other species were seen four out of the five years: Great Horned Owl, Belted Kingfisher, and the Brown Creeper. Nine birds were observed three years out of the five year: Red-shouldered Hawk, Sparrow Hawk,

Mourning Dove, Barred Owl, Red-bellied Woodpecker, Meadowlark, Purple Finch, Goldfinch, and the Tree Sparrow. Seven birds were seen twice during the five year period: Rough-legged Hawk, Yellow-shafted Flicker, Pileated Woodpecker, Horned Lark, Tufted Titmouse, Golden-crowned Kinglet, and the Song Sparrow. Eleven of the 41 species recorded were observed but once in the five years: Cooper's Hawk, Red-tailed Hawk, Killdeer, Long-eared Owl, Robin, Bluebird, Cedar Waxwing, Northern Shrike, Rusty Blackbird, Pine Grosbeak and the Redpoll.

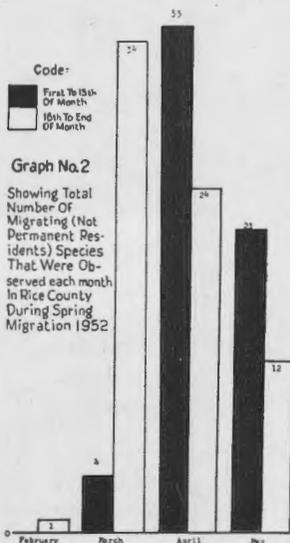
The Carleton Arboretum and Wildlife Refuge had the largest number of species in each of the five years. Only seven out of the 41 species recorded were not found in the refuge at one time or another during the Christmas Bird Count. The other 34 species were found there in most cases, each year. This is attributed to the excellent cover provided by the refuge, together with an ample natural food supply and open water during most of the winter. These are the three essential items for the winter survival of most wildlife. Outside the refuge the meadowlark was occasionally

Graph No.1
Total Number Of Species Of Birds For Each Month As Observed In Rice County In 1952



Code:
 ■ First To 15th Of Month
 □ 16th To End Of Month

Graph No.2
Showing Total Number Of Migrating (Not Permanent Residents) Species That Were Observed each month in Rice County During Spring Migration 1952



seen wintering in the area to the west of Northfield along State Highway number 19, and to the south of Dundas near highway number 218. The Rough-legged Hawk, Sparrow Hawk, Long-eared Owl, Horned Lark, and the Northern Shrike were all found to the east of Northfield near State Highway number 19.

The total number of different kinds of birds that are known at present time to occur in Rice County is 208 species. To this number are added 18 species that are rare or accidental and seven species that occurred but are no longer found in the county, making a total of 233 species.

An analysis of the regular list of 208 species shows the manner of occurrence to be as follows: 12 species are *permanent residents* (birds that do not migrate but remain in the area throughout the year); 86 species are *summer residents* (birds that normally migrate each spring and fall and nest in the area); 95 species are *transients* (birds that pass through the county in the spring and fall to and from their northern nesting grounds); 11 species are *winter visitants* (birds that visit the area during a portion of the winter, usually coming from the north, such as the Snowy Owl; or southern birds that are extending their range northward, such as the Tufted Titmouse); four species were *introduced* (the Hungarian Partridge, Ring-necked Pheasant, Starling, and English Sparrow).

The remaining 25 species show the manner of occurrence to be as follows: 18 species are *rare or accidental* in the area (Ruffed Grouse, Black Rail, Yellow Rail, Florida Gallinule, Willet, Long-billed Dowitcher, Whip-poor-will, Western Kingbird, Magpie, Hudsonian Chickadee, Bewick's Wren, Mockingbird, Blue-gray Gnatcatcher, Blue-winged Warbler, Louisiana Water-thrush, Eastern Meadowlark, Orchard Oriole and the Lark Bunting); seven species formerly occurred but are no longer found in the area, *extinct* (Trumpeter Swan, Prairie Chicken, Sharp-tailed Grouse, Chukar

Partridge, Wild Turkey, Sandhill Crane and the Passenger Pigeon which is extinct everywhere).

The Olin Sewall Pettingill, Jr. Collection of Rice County birds was made by Dr. Olin Sewall Pettingill, Jr. between the years 1936 to 1951 and is now found at the University of Michigan Biological Station, Sheboygan, Michigan and is available for study, inspection or loan during the summer months. Of the regular list of 208 species appearing in this paper, 130 are found in the Pettingill Collection and indicated by an asterisk (*) in the annotated section (Seasonal Occurrence), together with the necessary field data pertaining to the collection such as the quantity, sex, date taken, and where collected.

SEASONAL OCCURRENCE

COMMON LOON—(*Gavia immer*). A fairly common spring and fall transient, on Cannon and Wells Lakes. April 14, 1951 is the earliest spring record. Average for four dates: April 17-19.

HOLBOELL'S GREBE — (*Colymbus grisegena*). A very rare transient. I know of but one record in Rice County; Shield's Lake April 19, 1953 when one was seen.

HORNED GREBE—(*Colymbus auritus*). This is a transient and occasionally is seen during migration on Cannon Lake, Wells Lake, and Shield's Lake. The earliest spring arrival date is April 17, 1951 when four were seen on Wells Lake. Average arrival date April 17-23, with a few remaining in the area as late as May 11 as recorded in 1952. I have only one early fall record, August 28, 1952.

EARED GREBE—(*Colymbus caspicus*). A very rare transient, observed only on Cannon and Shield's Lakes. April 27, 1953 is the earliest spring record when one was seen on Cannon Lake. Only single individuals have been recorded at any one time with one seen on May 6, August 14, 1951, and another one on August 28, 1952.

PIED-BILLED GREBE—(*Podilymbus podiceps*). A common summer resident

nesting along the marshy edges of lakes and ponds, with March 22, 1953 the earliest spring arrival date. Average: March 25-26. The latest fall record is December 19, 1952 when two were seen in Northfield, (*Flicker*, Vol. 24, No. 1, March 1952, p. 29). Nesting at Twin Lakes on April 19, 1953 is recorded in the (*Flicker*, Vol. 26, No. 2, June 1954, p.67).

WHITE PELICAN—(*Pelecanus erythrorhynchos*). An occasional spring transient, less frequently seen in the fall. Earliest spring arrival date, April 18, 1937 when about 20 were seen on the southwest shore of Cannon Lake. One individual was seen at Cannon Lake on October 15, 1950 (*Flicker*, Vol. 22, No. 4, December 1950, p.122).

*DOUBLE-CRESTED CORMORANT—(*Phalacrocorax auritus*.) A Common summer resident, especially on Cannon, Wells and Shield's Lakes. Earliest spring arrival date, April 1, 1953 when six were seen on Shield's Lake. Average: April 8. Latest fall date is October 23, 1951 when 20 were seen on Well's Lake. Nesting: 10 occupied nests were recorded on July 20, 1956 at Shield's Lake Heron Island (Hanlon). One female collected (Pettingill) on May 5, 1940 near Northfield.

GREAT BLUE HERON—(*Ardea herodias*). A very common summer resident nesting regularly on the 5.28 acre island at Shield's Lake. Earliest spring arrival date was in March 27, 1938 when one was seen at Shield's Lake and six were observed at the Carleton Arboretum and Wildlife Refuge on March 27, 1951. Average of nine dates, March.28. Latest fall date is November 8, 1951 when one was seen in the Arboretum.

The history of the Great Blue Heronry at Shield's Lake dates back in the memory of the older settlers at least 67 years.

A nesting survey of the heronry that was made by the writer on May 6, 1951 revealed that about 573 nests were built in 151 trees, with one to 24 nests in a

tree, averaging 3.79 nests per tree, (*Flicker*, Vol. 24, No. 3 September 1952, p.120). All nests at this time apparently were occupied by Great Blue Herons.

On July 20, 1956 Hanlon made a nesting survey finding 233 nests in 71 trees, averaging 3.28 nests per occupied tree. The density of breeding has decreased since 1951. Of the 233 nests, 214 were occupied by Great Blue Herons, 10 were occupied by Double-crested Cormorants and nine were in use by American Egrets, (*Flicker*, Vol. 28, No. 4, December 1956).

Young have been observed being fed in the nest as early as April 27, 1953 and as late as July 4, 1953, (*Flicker*, Vol. 26, June 1954, No. 2, p.67).

A Great Horned Owl's nest containing two young was discovered in this heronry. It was in a basswood tree among four Great Blue Heron nests which were at distances of six feet, 5½ feet, 3½ feet, and 2½ feet. Many other birds were only 15 feet distant. In close proximity the birds all lived peacefully, but when the owls flew to other parts of the island the heron there became greatly disturbed, (*Flicker*, Vol. 24, No. 3, September 1954, p.121).

AMERICAN EGRET—(*Casmerodius albus*). The American Egret is now protected and is again increasing in numbers. Until 1913 the plume-hunters slaughtered the birds during the breeding season for the plumes. According to *The Flicker*, Vol. 9, No. 3-4, December 1937, American Egrets were reported near Minneapolis and Fairmont during the third week in August of that year. The December 1938 issue of *The Flicker* (Vol. 10, No. 3-4) stated that "1938 witnessed the invasion of southern Minnesota by the American Egrets; and for the first time, in so far as is known, the egret nested within the borders of this state".

In the June 1953 issue of *The Flicker* (Vol. 25, No. 2) the writer summarized *The Status of the American Egrets in Rice County* under Notes of Interest. "During the last two weeks of August,

1948, three American Egrets were observed at various times feeding at the following lakes in Rice County: Shield's Lake and in a swamp located near the airport west of Faribault. These birds were first observed on August 20 of that year.

In 1949 the number of birds seen in Rice County increased to 13 or more. According to my field notes, August 11 was the first date on which the birds were observed that year. They were found again at Shield's Lake (near the Great Blue Heron Colony) also at Lake Mazaska, and Mud Lake (located near Shield's Lake).

In the *Audubon Field Notes* (Vol. 3, No. 5, October 1949, p.236) the following reference is made: 'Mrs. C. MacKenzie, Jr. writes that American Egrets have definitely nested on Heron Island on Shield's Lake, 10 miles northwest of Faribault, Rice County, Minnesota, and is sure of one nest, although there must

have been more, because 12 and 14 birds were seen feeding at various times for about two weeks'.

On August 15, 1950, 16 of these birds were seen feeding at Lake Mazaska and were seen at various times for about two weeks.

In 1951 the earliest date for these birds to appear in the county was August 20 and the latest was September 24.

On April 23, 1952, three American Egrets were seen feeding near the Great Blue Heron Island at Shield's Lake. This is the earliest known date of arrival in this county. Again on May 1, while checking the nesting of the Great Blue Herons on the island, I observed three American Egrets flying with the frightened Great Blue Herons. On June 29 the number of American Egrets increased to six, and they were observed feeding a short distance from the Heron colony. Eleven were counted on the island on July 9.



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The island was again visited on August 14, but the herony was entirely deserted and only two Great Blue Herons were seen flying over the lake. No American Egrets were observed on this date.

Even though no nest was found, it is believed that the American Egrets did nest during that year on the island because of the increase in numbers during the summer and also the early date of arrival in the spring.

On May 19, 1953 two American Egrets were feeding near the Great Blue Heron Island at Shield's Lake. The area was again visited on May 21 and one American Egret was seen to fly over the island and land on one of the trees. No nest was found in 1953."

On July 20, 1956 Hanlon found nine occupied American Egret nests on Heron Island at Shield's Lake (*Flicker*, Vol. 28, No. 4, December 1956).

These and four more references include all the known information on the nesting of the American Egret in Rice County: (*Audubon Field Notes*, Vol. 7, No. 5, October 1953; *Flicker*, Vol. 21, No. 3, September 1949; *Flicker*, Vol. 21, No. 4, December 1949; *Flicker*, Vol. 24, No. 3, Sept. 1952).

GREEN HERON — (*Butorides virescens*). The Green Heron is a common summer resident around rivers, lakes and marshes, nesting regularly at the Carleton Arboretum and Wildlife Refuge, Paulson's Marsh, and Shield's Lake. Earliest spring arrival date is April 28, 1951 when two were seen in the Arboretum at Northfield. On July 4, 1953 adults were seen feeding large fledglings on the nest at Northfield, (*Flicker*, Vol. 26, June 1954).

BLACK-CROWNED NIGHT HERON — (*Nycticorax nycticorax*). A summer resident, but no large nesting colonies of this species are known to exist in the county such as are found in other parts of the state. A small number of nesting birds was found at the rookery on Shield's Lake island. April 24 is an average spring arrival date. April 22, 1951 is

the earliest, when one was seen at the Arboretum at Northfield.

AMERICAN BITTERN — (*Botaurus lentiginosus*). The American Bittern is a summer resident in the larger marshlands, but not very often seen. A drive on a quiet summer evening along the west side of Shield's Lake will usually reveal the secretive whereabouts of the bittern by the pumping 'song' . . . a slow, deep cong-ka-choonk . . . cong-ka-koonk . . . etc. Thus the name "slough-pumper". It arrives about April 20 in the spring. April 17, 1951 is the earliest, when one was seen in Northfield.

LEAST BITTERN—(*Ixobrychus exilis*). It is seldom seen, being a small and very secretive marsh bird. It is a summer resident, and can occasionally be seen from the car window in the roadside marshy area between Cannon and Wells Lakes. A nest with four eggs was found in the county by Dana Struthers on June 30, 1953 (*Flicker*, Vol. 26, No. 2, June 1954).

STATUS OF RICE COUNTY WETLANDS

Many of the wetlands of Minnesota are important waterfowl production areas and are found in the most important waterfowl breeding range in the United States. As part of a nationwide inventory, a survey to locate, classify and evaluate the wetlands of Minnesota was started in April, 1952 and published as the *Wetlands Inventory, Minnesota* by the U. S. Fish and Wildlife Service, Office of River Basin Studies, Minneapolis (1955). As a result of this study the state is divided into 12 wetland zones "based on soil associations, physiographic regions, vegetative zones and water areas".

The western part of Rice County is located in the southeastern portion of Zone D, having three soil associations and classified as a region of "moderate waterfowl value." The southern part of the county consists of the Lester-Clarion, a transition soil association between timber and grassland. The type of wet-

lands that can be used by waterfowl broods "are not common in the Lester-Clarion association as in other localities within the zone, but are more common than the average for the southern part of Minnesota." Very little of the Hayden-Bluffton soil association is found in Rice County, covering only the northern portion of Webster Township. "Waterfowl production is low" in this area. The remaining portion of the county in Zone D is known as the Lester-Hayden soil association. This is located "in a transition area where cover varies from forest hardwood to prairie. The topography is more gently rolling than that of the Hayden (Hayden-Bluffton) association". The use of waterfowl "of the Hayden and Lester-Hayden association on a per unit area basis, however, appears to be decidedly inferior to waterfowl use of the Waubay Area". The Waubay Study was made "by the Fish and Wildlife Service in 1950 to determine the waterfowl use and production on an 11 square mile area representative of the prairie pothole habitat of the Dakotas and Minnesota". The Waubay Study "provided a base for comparison of wetland occurrence and of waterfowl habitat with Minnesota conditions".

The eastern part of Rice County is located in the northwestern portion of Zone K which is considered extremely low in waterfowl production and migration use" according to the Waubay Study.

WHISTLING SWAN—(*Olor columbianus*). Early Rice County newspapers make frequent references to the Whistling Swan migrating through the county. A comment in the March 13, 1878 issue of the Faribault Republican indicates that a decline in numbers of this species probably occurred before the 1870's. The newspaper stated that one Whistling Swan was shot and seven more were seen on Cannon Lake and that "we understand that swans were quite frequent in the lakes when Mr. (Alexander) Faribault first came here". Alexander

Faribault began trading with the Warpekute Indians near the present site of Faribault in the fall 1826.

Today the Whistling Swan is an infrequent transient through the county, usually seen on Cannon and Wells Lakes, remaining there for a few days before moving north. Earliest spring arrival date is April 5, 1952 when four were seen on Cannon Lake. The *Audubon Field Notes*, Vol. 4, No. 4, August 1950, p. 242 stated that "Whistling Swans arrived in Minnesota about the usual time (early part of April) with an unusually large concentration of about 500 reported from Faribault, Minnesota".

TRUMPETER SWAN—(*Olor buccinator*). It is probable that the Trumpeter Swan nested in the county in the early days. The March 13, 1878 issue of the Faribault Republican states that "there were two varieties" of swans found in the county when Alexander Faribault came here in 1826. Today, the Whistling Swan is the only species found in the county, as well as the state, the Trumpeter is practically extinct everywhere.

Canada Goose — (*Branta canadensis*). An infrequent transient with only small numbers observed in the county during the spring and fall migration as compared to the large concentration to be seen each year at Lake Traverse near Wheaton, Minnesota. Flocks of 10 to 100 arrive about March 22 in the spring. March 19, 1953 is the earliest, when 11 were seen on Wells Lake. In the fall of 1951 a flock of 250 were seen on October 13, and 200 were observed on October 15.

Lesser Snow Goose (white phase) — (*Anser (Chen) coerulescens*), **Blue Goose (blue phase)** — (*Anser (Chen) coerulescens*). Mixed flocks of Lesser Snow and Blue Geese are seen during the spring and fall migration at Shield's, Cannon and Wells Lakes. Small flocks arrive about April 8 in the spring. April 2, 1950 is the earliest, when about 70 were seen resting on the ice at Wells Lake. This flock was made up of about

10 Lesser Snow and 60 Blue Geese. October 8, 1952 is the earliest fall arrival date recorded in the county.

Common Mallard — (*Anas platyrhynchos*). The mallard is a common summer resident nesting regularly in the county. March 26 to 29 is the average arrival date, with March 26, 1951 the earliest. The peak of spring migration is early in April. Over 200 were recorded on April 6, 1954 at Shield's Lake. The latest fall record is November 30, 1952 when one was seen near Northfield.

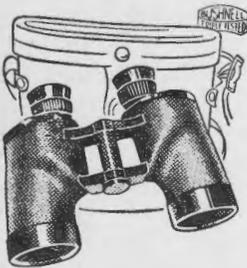
Gadwall (*Anas strepera*). An infrequent transient with only a small number seen in the county. Three were recorded on April 29, 1952 and five on April 27, 1953. A nest with downy young has been reported from Steele County (*Flicker*, Vol. 22, No. 3, September 1950), but none in Rice County.

AMERICAN PINTAIL — (*Anas acuta*). The Pintail is a transient, although a nest with downy young has

been recorded at Steele County (*Flicker*, Vol. 22, No. 3, September 1950). March 27, 1951 is the earliest spring arrival date when two were seen in the Carleton Arboretum and Wildlife Refuge in Northfield. The latest spring date is May 13, 1951 when one was seen at Wells Lake.

GREEN-WINGED TEAL — (*Anas carolinensis*). An infrequent transient with only a small number seen in the county. Earliest spring arrival date is March 30, 1951 when two were seen in the arboretum at Northfield. The latest spring date is May 11, 1952 when two were seen in the arboretum. They have also been observed at Shield's Lake. In 1953 two were seen there on April 19 and two on April 27.

***BLUE-WINGED TEAL** — (*Anas discors*). The most common nesting duck in the county as well as in the state. The earliest spring arrival date is March 27, 1951 when five were seen in the Carle-



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ton Arboretum and Wildlife Refuge. The peak of the spring migration appears to be between April 22, when 75 were seen at the arboretum in 1951, and May 8, 1954 when 36 were seen at Cedar Lake. Fifty were observed at Cedar Lake on May 5, 1940. The peak of the fall migration appears to be between September 19, when 500 were seen at Wells Lake in 1953, and October 8, when 50 were seen at Wells Lake in 1951. Nesting was recorded on June 1, 1951 near Northfield and at Wells Lake on July 13, 1951. One male was collected (Pettingill) on April 5, 1940 near Northfield.

BALDPATE — (*Mareca americana*). The Baldpate is a transient. Earliest spring arrival date is March 23, 1953 when 12 were seen on Wells Lake. Average: March 23 to 28. The latest spring date is May 9, 1954 when nine were seen at Shield's Lake.

SHOVELLER — (*Spatula clypeata*). The Shoveller is a regular transient. March 23 to March 28 is the average spring arrival date, with March 23, 1953 the earliest when two were seen at the arboretum in Northfield. The peak of the spring migration is about May 9 when 100 were recorded in 1954 near Faribault. One pair was seen on May 19, 1953 at Wells Lake, but no nest was found.

WOOD DUCK — (*Aix sponsa*). The Wood Duck is a regular nesting duck at Paulson's Marsh, Shield's Lake and Wells Lake, and probably several other areas not recorded. The earliest spring arrival date is March 30, 1952 when two were seen. A female with 12 young were seen at Wells Lake on June 21, 1952 and another female with nine young were observed at Shield's Lake on July 9, 1952.

REDHEAD—(*Aythya americana*). A common transient with March 29, 1952 the earliest spring arrival date when two were seen at Wells Lake. The peak of the spring migration is between April 11, when 200 were seen at Wells Lake

in 1952, and April 23 when 75 were seen at Wells Lake in 1951.

RING-NECKED DUCK — (*Aythya collaris*). A common transient with March 27, 1953 the earliest spring arrival date when 1000 were seen at Lake Mazaska. The latest spring date is May 9, 1954 when two were seen at Shield's Lake.

CANVAS-BACK — (*Aythya valisineria*). A very common transient. The earliest spring arrival date is March 27, 1953 when two were seen at Wells Lake. Average arrival date is March 27-29. The peak of spring migration appears to be between April 11, when 500 were seen at Wells Lake in 1952, and April 23, when 250 were seen at Wells Lake in 1951. One was seen on July 27, 1932 at Wells Lake, suggesting nesting, however none was found.

LESSER SCAUP — (*Aythya affinis*). The Blue-Bill is a very common transient with March 21, 1954 the earliest spring arrival date. Average arrival date is March 21 to March 30. Large numbers have been seen at Wells Lake between March 28 and May 9. On March 28, 1954 500 were seen at Wells Lake, 100 were recorded for the same area on April 17, 1951, 200 on April 23, 1951, and 500 on May 9, 1954. At Cannon Lake, two pairs were recorded as late in the spring as June 6, 1951, and in the same area one male was seen on June 19, 1951 and a female was seen on July 13, 1951, suggesting nesting.

AMERICAN GOLDEN-EYE — (*Bucephala clangula*). A spring transient, with March 1, 1952 as the earliest spring arrival date when 20 were seen at Wells Lake. Average spring arrival date is March 1 to 28. Latest spring record is April 23, 1951 when five were seen at Wells Lake. The only wintering record for the county is that of one female that remained in the open water of the Cannon River in Northfield between February 9 to 24, 1951.

BUFFLE-HEAD — (*Bucephala albeola*). An infrequent transient with

March 29, 1952 the earliest spring arrival date when one was seen at Cannon Lake near Warsaw. The largest number recorded was on April 2, 1950 when 36 were seen at the Sheffield Mill pond in Faribault. Latest fall date, November 2, 1952 when two were seen at Cannon Lake.

RUDDY DUCK — (*Oxyura jamaicensis*). An infrequent transient. March 31, 1951 is the earliest spring arrival date when two were seen in the Carleton Arboretum and Wildlife Refuge. The Ruddy Duck is most frequently seen at Wells and Shield's Lakes with the peak in spring migration about the middle of April. On April 23, 1952, 50 were seen at Wells Lake and on April 27, 1953, 13 were seen at Shield's Lake. Latest spring date is May 1, 1952 when ten were seen at Wells Lake.

HOODED MERGANSER — (*Lophodytes cucullatus*). An infrequent transient with March 13, 1951 the earliest spring arrival date when three were seen in the arboretum at Northfield. The Hooded Merganser has been recorded for the county only in the Carleton Arboretum and Wildlife Refuge, with several late spring and summer records suggesting nesting. Two females were seen in the arboretum on June 24, 1953; a pair was observed in the area on August 13, 1952, and one female was seen there on September 16, 1952.

AMERICAN MERGANSER — (*Mergus merganser*). A common transient with March 14, 1953 the earliest spring arrival date when 11 were seen in the arboretum. Average spring arrival date is March 22-28, with 30 being seen at Shield's Lake on March 28, 1953. The latest spring date is April 23, 1950.

RED-BREASTED MERGANSER — (*Mergus serrator*). An infrequent transient with March 30, 1952 the earliest when one was seen at Wells Lake. Four were seen at Shield's Lake on April 19, 1953, with April 23, 1950 the latest spring date when five were seen at Union Lake.

TURKEY VULTURE — (*Cathartes aura*). The Turkey Vulture is a very rare transient through the county. The three records of its appearance are all from the Northfield area and in each case the birds were seen in flight. Two were observed on April 17, 1951, one on September 13, 1953 and one was seen on May 1, 1954.

***SHARP-SHINNED HAWK** — (*Accipiter striatus*). The Sharp-shinned Hawk is a comparatively rare summer resident, recorded only four times. On July 15, 1952 one was seen in Nerstrand Woods State Park, and one was observed on May 5, 1953 near Northfield, both dates suggesting possible nesting. One was seen on January 4, 1953 at the arboretum in Northfield. This is the only winter record. A male specimen was collected by Pettingill at Northfield on September 25, 1944.

COOPER'S HAWK — (*Accipiter cooperii*). The Cooper's Hawk is a summer resident found in the wooded portion of the county. March 27, 1951 is the earliest spring arrival date when four were seen disturbing a Great Horned Owl in the arboretum. Three were sitting in a tree adjacent to a tall tree containing a Great Horned Owl nest with three downy young. The fourth Cooper was screaming "kek, kek, kek" while flying low over the tree in which the adult owl was sitting. No attack was made while we were there. We returned a day later to find the young unmolested.

On July 4, 1952 a Cooper's Hawk swooped down and captured a Robin feeding on the ground a short distance from the writer. The Robin was swiftly carried to a nearby tree in the arboretum and eaten.

William Longley reported a Cooper's Hawk incubating in Rice County on June 7, 1951, (*Flicker*, Vol. 24, No. 1, March 1952, P.21).

One wintering Cooper's Hawk was seen on December 29, 1951 in the arboretum (*Audubon Field Notes*, Christmas

Bird Count, Vol. 6, No. 2, April 1952) in the Northfield area.

* (EASTERN) RED-TAILED HAWK — (*Buteo jamaicensis*). A common summer resident arriving in the spring between March 3 to 22. Average: March 15. Earliest spring arrival date is March 3, 1940 when four were seen near Faribault. A newly built nest was found on March 30, 1940 at the tamarack swamp near Cedar Lake.

No definite peak numbers have been observed during the fall flight between September 21 to October 2. On September 21, 1952 six were seen in the Faribault area, ten were seen on September 28, 1953 and five were recorded on October 2, 1951.

The latest fall record is November 6, 1951 when one was seen in the Northfield area. Two were observed on January 1, 1954 near Northfield (*Flicker*, Vol. 26, No. 3, September 1954, p.103; *Audubon Field Notes*, Christmas Bird Count, Vol. 8, No. 2, April, 1954) in the Northfield area. One female collected (Pettingill) on Oct. 24, 1938 in Nerstrand area.

A Krider's (Red-tail) Hawk was seen in Rice county and recorded on Sept. 27, 1951 in the *Flicker* (Vol. 24, No. 3, September 1952, p.127).

RED-SHOULDERED HAWK — (*Buteo lineatus*). An uncommon summer resident. Earliest spring arrival date is April 17, 1951 when one was seen in the arboretum in Northfield. Several nesting season dates have been recorded. One was seen June 2, 1951 at Nerstrand Woods State Park, and one on each of the following dates: May 14, June 3 and June 6, 1951 in the arboretum.

Fall records: September 15, September 20, 1952 and October 8, October 31, 1951, in the arboretum in Northfield.

Winter dates: one was seen in the arboretum on each of the following dates: January 11, February 7, February 28, December 31, 1953 and February 27, 1954, December 26, 1954, and December 26, 1955. (*Flicker*, Vol. 26, No.

1, March 1954, p.33; *Audubon Field Notes*, Christmas Bird Count, Vol. 8, 9, 10, No. 2, April 1954, 1955, and 1956) in the Northfield area.

*BROAD-WINGED HAWK — (*Buteo platypterus*). An uncommon summer resident in the county. Only four dates during the nesting season have been recorded: May 10, 1951, May 5 and May 9, 1953 in the Northfield area. A skin was collected (Pettingill) of a female Broad-wing on May 14, 1938, in the Northfield area.

Fall dates: January 31, 1954 (*Flicker*, Vol. 26, No. 1, March 1954, p.33) in the Northfield area. Also a female Broad-wing was collected by Pettingill on October 21, 1942.

*AMERICAN ROUGH - LEGGED HAWK — (*Buteo lagopus*). An occasional winter visitant. Earliest fall arrival date: December 31, 1953 when three were seen near Northfield (*Audubon Field Notes*, Christmas Bird Count, Vol. 8, No. 2, April 1954). The latest date is March 16, 1952 when one was seen west of Northfield near Union Lake. Also, two were seen during the Christmas Bird Count on December 26, 1955 (*Audubon Field Notes*, Vol. 10, No. 2, April 1956) in the Northfield area. One female collected (Pettingill) on January 5, 1949 in Nerstrand area.

BALD EAGLE — (*Haliaeetus leucocephalus*). An infrequent transient. I have only three records for the Bald Eagle in the county. One was seen in the Northfield area on each of the following dates: March 1, 1952, April 5, 1952 and April 19, 1952.

The U. S. game management agents of the Fish and Wildlife Service reported that three were found shot in the county during the spring of 1952.

MARSH HAWK — (*Circus cyaneus*). A summer resident in the county. The earliest spring arrival date is March 19, 1953 when one was seen near Northfield. Latest fall date: November 23, 1952. A female Marsh Hawk was seen on June

7, 1951 (Longley) in the area (*Flicker*, Vol. 24, No. 3, September 1952).

OSPREY — (*Pandion haliaetus*). The Osprey is a rare transient, arriving in the spring between April 16 to April 23. The earliest spring arrival date is April 16, 1951 when one was seen near Northfield. Two were seen near Union Lake on April 23, 1950. The latest spring date is May 8, 1951. The earliest fall date is September 15, 1952 and the latest is September 20, 1952.

PIGEON HAWK — (*Falco columbarius*). An extremely rare transient. I have only one record for the Pigeon Hawk in the county, and that was a sight record reported to me by a careful observer on March 30, 1952. One had been seen in the arboretum in Northfield.

SPARROW HAWK — (*Falco sparverius*). Common summer resident, arriving in the spring between February 5 to March 16. Average: March 10. The earliest spring arrival date is February 5, 1950 when one was seen in the Northfield area. Because of a small wintering population, it is often difficult to determine whether a date is that of a late wintering bird or an early spring arrival. However, on March 10, a slight increase is noted, therefore, this date is chosen for an average spring arrival date.

Fall dates: An increase in numbers, beginning about July 27, has been noted with four to five individuals being seen at one time instead of the customary one individual. This increase is probably due to hatching. Four or five individual birds are usually seen on each field trip until about September 21, at which time the population decreases again to one or none being seen on a field trip.

Wintering dates: Sparrow Hawks have been recorded in the county each month of the year. The winter population is composed of a very small number, with not more than one bird being recorded on any field trip. The Sparrow

Hawk was seen three out of five years during the Christmas Bird Count, (*Audubon Field Notes*, Vol. 8, 9, and 10, No. 2, April 1954, 1955, and 1956) in the Northfield area.

Cooperative Hawk Count

In cooperation with the Minnesota Museum of Natural History, a hawk count was taken in Rice County on the week ends of September 13-14 and September 20-21, 1952, the principal target dates for the hawk count across the continent. According to the *Audubon Field Notes* (Vol. 7, No. 1, February 1953, p. 18) only about 110 hawks were seen by about a dozen observers in the Northfield area. These were the Red-tailed, Red-shouldered, Broad-winged, Marsh, Osprey and the Sparrow Hawks. I do not consider this county a very important hawk migratory route such as found at the Duluth hawk flyway.

RUFFED GROUSE — (*Bonasa umbellus*). The following account regarding the occurrence of the Ruffed Grouse in Rice County appeared in *The Flicker* (Vol. 15, No. 4, December 1943, p.54), "The unusual occurrence of a flock of 14 Ruffed Grouse (*Bonasa umbellus*) was noted by the author during a wildlife census on the Prairie Creek soil conservation demonstration project 12 miles northeast of Faribault, Minnesota on January 23, 1940. The birds were flushed from a thick clump of Snowberry (*Symphoricarpos racemosus*) in a lightly-grazed open bluegrass pasture at a distance of 15 yards. Six birds flushed first, followed by seven, and then a single. They all flew west and disappeared over a hill toward a dense 70-acre woods about a half mile away. The nearest woodland was a 30-acre tract about one-fourth mile east. At the spot from which they were flushed, there were many tunnels in the snow, which were about ten inches deep. They apparently were feeding on the fruit of the snowberry. The incident is unusual, for rarely is the species seen in the open, or in such a large flock, especially

in this part of its range. No reference could be found which mentioned this unusual behavior occurring before in Minnesota. There was no doubt as to the species. The rounded tail marked with a black band easily distinguished the birds as Ruffed Grouse. Inquiries disclosed that several farmers in that area had seen the birds previously.

Records of early history indicate an abundance of Ruffed Grouse in this area before the hardwood forests were cleared for cultivation. Hatch (1892) reported "Nowhere was the Ruffed Grouse more abundant than in all of our deciduous forests". During the Game Survey of the North Central States, Leopold (1931) found the above to be the case. His investigations led him to believe that the center of the north central region was also the nucleus of the species' range. At the present time there are only a few birds scattered throughout the larger

ungrazed woodlots of southeastern Minnesota. Soil Conservation Service technicians had found no actual evidence of the presence of Ruffed Grouse during the four years of soil conservation operations on the projects. It is possible, however, that a few birds do live in the Nerstrand Woods, a 1300-acre remnant of the "Big Woods", which is two miles southeast of the point where the birds were seen. They also occur as scattered individuals in the more secluded woodlands of Rice, LeSueur, and Scott counties." *Lansing A. Parker, St. Paul.*

This is the only known record of the occurrence of Ruffed Grouse in Rice County, a species which is considered rare or accidental in the area.

PRAIRIE CHICKEN — (*Tympanuchus cupido*). According to T. S. Roberts in *Birds of Minnesota* "there were no Pinnated Grouse (Square-tail; Prairie Chicken) in Minnesota in the days of the early explorers". Early newspaper accounts and other writings were often not very clear in describing the local wildlife, but it is probable that the 'Prairie Chicken' seen by the early explorers were Sharptails.

The Prairie Chicken came into Minnesota from the Southeast and benefited by the changes brought about by agriculture and became quite abundant in the county for some time. This illustrated the different adaptations of birds to farming conditions. Apparently the Prairie Chicken was quite common in southeastern Minnesota by 1850, and increased its range by following the grainfields. Prairie Chicken hunting was frequently mentioned in the newspapers in the 1870's. "Game plentiful", was reported in the Friday, November 17, 1871 issue of *The Faribault Democrat*. "There has not been a season in the last five years when Prairie Chickens, ducks, geese, and other wild game have been as plentiful as this year". An appeal was made by the farmers in *The Faribault Republican* on December 20, 1876 urging "that the Prairie Chicken be



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spared by the hunters, because they were convinced of their aid in clearing of potato bugs". Excellent "chicken shooting" was reported in the Wednesday, August 21, 1878 issue of *The Faribault Republican*. "The first day of the season for chicken shooting opened very favorable. The day was fine and a large number of hunters were in the field. There was in all probability over 800 chickens brought down the first day".

The Prairie Chicken is no longer found in Rice County.

SHARP-TAILED GROUSE — (*Pedioecetes phasianellus*). The Sharp-tailed Grouse was originally resident over much of the state according to T. S. Roberts, *Birds of Minnesota*, but with the coming of agriculture this species retreated northward. Even though no authentic record has been found of the existence of this species in Rice County, it is reasonable to assume that it did from the content of early records referring to the 'grouse' being found in the prairie to the east of Cannon Lake. In explaining the early use of the term 'grouse', T. S. Roberts refers to the "Sharp-tail as being the 'grouse' of that region". None are to be found in the area today.

BOB-WHITE — (*Colinus virginianus*). The Bob-white is another bird to benefit from farming activity which increased its food supply, and helped to extend its territory into the state from the south following agriculture. If the Quail was present in southern Minnesota before the arrival of the early settlers, it was evidently rare according to *Birds of Minnesota* by T. S. Roberts. I have found only one early record of the Bob-white in (or near) Rice County. "It is reported near the Cannon River in July, 1852" according to *The Use and Conservation of game . . . 1850-1900*, by E. B. Swanson (Unpublished thesis) p.172.

From the records of the Minnesota Division of Game and Fish, 510 Quail were released in the county in 1930, 510 in 1940-41, and 540 in 1942-43. None were

released between 1946 to 1956 according to the records.

The Bob-white is a permanent resident in the county, but not very plentiful, and probably can be considered uncommon.

***CHUKAR PARTRIDGE** — (*Alectoris graeca*). The Chukar Partridge is also known as the Red-legged or Zebra Partridge, and was first introduced in Minnesota in Martin County near Fairmont, September 3, 1937.

According to the records of the Minnesota Division of Game and Fish the following number of birds have been liberated in Rice County: in 1940 there were 180 birds released, 180 liberated in 1941, and 150 in 1942. Although the Chukars were released in considerable numbers in all parts of the state, they failed to take hold. The only birds known to exist in the state today are located near Two Harbors and Ely. None are known to be found in Rice County. One male was collected (Pettingill) on December 6, 1942 in the Northfield area.

HUNGARIAN PARTRIDGE — (*Perdix perdix*). The Hungarian (Hun) Partridge is also known as the European Partridge, the European Gray Partridge and the Gray Partridge. According to *Birds of Minnesota* by T. S. Roberts "the first importation into Minnesota, as far as known, was in the spring of 1926".

The records of the Minnesota Game and Fish show that the following number of birds were released in Rice County: during the years 1942 to 1950 and 1954 to 1956, no birds were recorded as being released in the county. In 1951 there were 14 birds released, only four were liberated in 1952 and 13 in 1953.

This species is considered a permanent resident in the county, but are not very plentiful nor common.

***RING-NECKED PHEASANT** — (*Phasianus colchicus*). A very common game bird throughout the county. It was introduced into Minnesota before 1920 (between 1915-1920), and was probably first liberated in Rice County in

1935. According to the records of the Minnesota Division of Game and Fish the following number of birds were liberated in the county: 122 in 1935; 540 in 1942; 1000 in 1950 and 135 breeders; 1000 in 1951; 1450 in 1952 and 90 breeders; 1275 in 1953; 1375 in 1954, and 925 in 1955. One female was collected (Pettingill) on October 5, 1938 in the Nerstrand area.

WILD TURKEY — (*Meleagris gallopavo*). According to *Birds of Minnesota* by T. S. Roberts, "There is no absolute evidence that the Wild Turkey ever existed in Minnesota. No eye-witness has left a written record so far as can be found, and no specimen is in existence." Wild Turkeys were released in Rice County on or about February 22, 1926 according to *Birds of Minnesota* by T. S. Roberts. According to George Morris, Rice County game warden at that time, these birds were released in the Nerstrand Woods, but were probably shot as they disappeared shortly thereafter. None are to be found in the county today.

SANDHILL CRANE — (*Grus canadensis*). A number of references to the (Greater) Sandhill Crane indicates that this species was probably abundant in the county in early days. No breeding records of this species have been found; however it is possible that it did nest in the county. According to *The Use and Conservation of Minnesota Game . . . 1850-1900* by E. B. Swanson the Sandhill Crane was found in Rice County during the period 1868 to 1879. The October 4, 1872 issue of *The Faribault Democrat* reported that near Faribault the Sandhill Cranes were almost as plentiful as wild ducks and that "it is not an infrequent sight to see 40 or 50 of them standing at regular intervals upon some elevated piece of ground like so many sentinels". None migrate through the area today.

***VIRGINIA RAIL** — (*Rallus limicola*). The Virginia Rail is a very rare transient in the county, with one being seen on May 13, 1951 and an immature

female being taken (Pettingill) on September 22, 1943. These are the only two known records.

***SORA** — (*Porzana carolina*). The Sora is an uncommon summer resident in the county. On June 1, 1951 a male Sora was seen carrying food near a roadside marsh area located one-half mile south of Northfield on the Cannon City road. No nest was found.

One male was collected (Pettingill) on each of the following dates in the Northfield area: May 7, 1940, April 28, 1945 and May 15, 1951. Another male was collected in the Nerstrand area on May 30, 1943.

***YELLOW RAIL** — (*Coturnicops noveboracensis*). On September 26, 1943 an adult female was collected near Northfield and an immature female near Nerstrand by Pettingill. The Yellow Rail is considered rare in the area.

BLACK RAIL — (*Laterallus jamaicensis*). The Black Rail is considered very rare or accidental in Rice County. The only known record of this species having been seen in the county is a sight record by Dr. Dwain Warner, Minnesota Museum of Natural History, made on March 1, 1951.

FLORIDA GALLINULE — (*Gallinula chloropus*). The Florida Gallinule is also very rare in the county. One was seen on July 20, 1952 at Wells Lake. This is the only known record in Rice County.

***COOT** — (*Fulica americana*). The Coot is a very common transient through the county with March 28, 1954 the earliest spring record when two were seen at Cannon Lake. The peak of spring migration is between April 18 and May 9, with 1500 observed at Wells Lake on April 23, 1951. Over 1000 have been seen at Cannon Lake as late as May 9, 1954.

Fall migration brings the largest numbers of Coot to the county. A slight increase in numbers is found as early as August 28 when 20 were seen at Cannon Lake in 1952, and on September 13, 1953 about 100 were recorded at Shield's Lake.

The peak of the fall migration is between September 19 and November 3 with over 2000 birds observed in 1951 on September 29, October 7, and October 23. The latest date is November 3, 1952 when about 1000 were observed at Shield's Lake.

Several breeding season records suggest nesting in the area, however, no nest has been found. In 1952, one to five birds were recorded on May 11, 13, 18, 19, 21, and the 23. One was seen on June 19, 1951 and another on July 27, 1952, with two recorded on August 7, 1952. These records are for the Cannon Lake and Shield's Lake areas.

Two skins were collected (Pettingill) in the Northfield area: a juvenile on June 17, 1939 and an adult female on April 26, 1943.

SEMIPALMATED PLOVER—(*Charadrius hiaticula*). A very uncommon transient. Only three records have been found of its occurrence in the county. On May 18 and 19, 1952, 20 of these birds were seen in a small temporary pond near Northfield. Five were observed on July 29, 1952 at a marsh near Wells Lake.

***KILLDEER** — (*Charadrius vociferus*). A very common summer resident nesting throughout the county, with the earliest spring arrival date, February 22, 1939 when one was seen in Northfield. The average of 20 dates: March 10 to 30, is March 15. On June 4, 1951 young were seen near Shield's Lake. Latest fall records: November 4, 1951 and November 30, 1933. Two were recorded on the Christmas Bird Count on December 21, 1953 at Northfield, (*Audubon Field Notes*, Vol. 7, No. 2, April 1953). One female was collected (Pettingill) on September 26, 1943 near Northfield.

BLACK-BELLIED PLOVER—(*Squatarola squatarola*). Only one record of the Black-bellied Plover in the county is known. Four were observed on October 30, 1952 near Roberts Lake in a marsh three miles west of Faribault along the old Roberts Lake road.

WOODCOCK — (*Philohela minor*). A rare transient through the county with one recorded on June 1, 1951 at Nerstrand Woods State Park. In *Where to Find Birds in Minnesota* by Morrison, Breckenridge and Herz the Woodcock is listed as a migrant in the Carleton Arboretum and Wildlife Refuge. No nesting record for the county is known.

***WILSON'S SNIPE** — (*Capella gallinago*). A transient, arriving in the spring about the middle of April. Earliest: April 23, 1950 when two were seen in the arboretum in Northfield. The peak in fall migration is in the latter part of October with 50 birds seen on October 23, 1951. Two 'jack snipes' were found wintering near an open spring near Northfield, remaining in the area between September 1950 to February 1, 1951. Two males were collected (Pettingill) in the Northfield area, one on November 7, 1936 and another on May 1, 1940.

SPOTTED SANDPIPER — (*Actitis macularia*). A common summer resident nesting throughout the county. Nesting in the Northfield area in 1921 is recorded by Prof. J. W. Hornbeck. The earliest spring arrival date, April 27, 1953 when one was seen at Shield's Lake.

***SOLITARY SANDPIPER** — (*Tringa solitaria*). The Solitary Sandpiper is a common transient arriving as early as April 27, 1953 when one was seen at Shield's Lake. The latest spring record is May 21, 1951 when two were observed in the arboretum at Northfield. One was recorded on June 8, 1952 at Shield's Lake. This is the only known record for the month of June in the county. Fall: earliest, July 8, 1952 when three were observed in the arboretum. Other fall migration dates in 1952 are: two were seen on July 9, four on July 27 and ten on July 29. In August of 1952, two were recorded on August 6, one on August 7, one on August 13 and two on August 14. On September 1, 1952, one was seen, and another on September

16 of that same year. The latest fall record is October 8, 1951 when 30 were seen at Shield's Lake. A female was collected (Pettingill) on May 8, 1937 in the Northfield area.

WILLET — (*Catoptrophorus semipalmatus*). The Willet is a very rare species in the area with only one known record in the county. Six were seen flying over Paulson's Marsh in Forest Township on August 3, 1955 by John Idstrom, George Palmer and the writer.

GREATER YELLOW-LEGS — (*Totanus melanoleucus*). A very uncommon transient in the county with three known records. One was seen in the arboretum on April 17, 1953 and one was recorded on April 27, 1953 at Shield's Lake.

LESSER YELLOW-LEGS — (*Totanus flavipes*). A common spring and fall transient. Earliest: March 27, 1953 when two were seen at Shield's Lake. Average of six dates, April 6 to 29, is April 17. Latest: May 19, 1952 when 15 were recorded at the arboretum. Fall: July 23, 1952; July 30, 1952 at the Arboretum; August 6, 1952; August 15, 1952 and August 27, 1952. The latest fall date is October 2, 1953 when two were seen in the arboretum.

*PECTORAL SANDPIPER — (*Erolia melanotos*). The Pectoral Sandpiper is a very uncommon transient in the county with only three known records. Two were seen on May 7, 1950 and 13 were recorded on April 20, 1953. Both records were made in the arboretum at Northfield. A male was taken (Pettingill) on April 12, 1940 in the Northfield area.

LEAST SANDPIPER — (*Erolia minutilla*). A regular spring and fall transient with May 18, 1952 the earliest spring arrival date when 20 were seen near Northfield. Twenty have been seen as late as June 5, 1952. None have been recorded in the summer.

LONG-BILLED DOWITCHER — (*Limnodromus scolopaceus*). Two were seen east of Northfield on July 27, 1952. This is the only known record for the

county. This species is considered rare in the area.

SEMI-PALMATED SANDPIPER — (*Ereunetes pusillus*). Four early fall transients were seen at Shield's Lake on July 9, 1952. This is the only known record for the county.

WILSON'S PHALAROPE — (*Steganopus tricolor*). Only one record of this migrant is known for the county. One was seen by Orville Nordsletten on May 18, 1952 near Northfield.

HERRING GULL — (*Larus argentatus*). A regular spring and fall transient, with March 23, 1953 the earliest spring record when two were seen east of Northfield. The latest fall record is October 28, 1954 when 16 were seen.

RING-BILLED GULL — (*Larus delawarensis*). A regular spring and fall transient with March 21, 1953 the earliest spring record when 20 were seen near Northfield. The latest fall record is November 2, 1952 when five were seen near Northfield.

FRANKLIN'S GULL — (*Larus pipixcan*). A regular spring and fall transient, arriving in early April, with May 7, 1950 the latest spring date when eight were seen near Northfield, and October 15, 1951, the latest fall date, when about 100 were seen near Faribault.

BLACK TERN — (*Chlidonias niger*). A common summer resident nesting in the lake and marsh areas throughout the county, arriving in the spring between May 5 and 15. The earliest spring record is May 5, 1940 when four were seen at Cannon Lake and the latest fall record is August 28, 1952 when 50 were seen at Cannon Lake.

*WESTERN MOURNING DOVE — (*Zenaidura macroura*). A common summer resident nesting throughout the county. The earliest spring arrival date is March 17, 1951 when one was seen in Northfield. The average of 19 dates from March 17 to April 18 is March 30. There are ten March dates from the 17 to the 31, and nine April dates from the first to the 18. Wintering dates:

on Feb. 5, 1950 there were 21 seen in the arboretum. During the Christmas Bird Count in the Northfield area the following were seen: 19 on December 31, 1953; nine on December 26, 1954 and 38 on December 26, 1955 (*Audubon Field Notes*, Vol. 8, 9, and 10, No. 2, April 1954, 1955, and 1956.).

Three specimens were collected (Pettingill), a juvenile male on September 22, 1942, a male on May 10, 1950, and a female on June 8, 1950.

PASSENGER PIGEON — (*Ectopistes migratorius*). Passenger Pigeons were a very common summer resident in the county, with large nesting colonies found in the area as late as 1877, but today are extinct everywhere. According to *The Faribault Democrat* of Friday, April 11, 1873 the "Wild pigeons have made their appearance and wild ducks are plentiful in the markets". The Passenger Pigeons suffered from market hunters in Rice County as they did elsewhere. On May 30, 1877 *The Faribault Republican* stated that "The wild pigeons are very plentiful and our markets are well supplied with them daily by hunting parties". According to *The Use and Conservation of Minnesota Game...* 1850-1900 by E. B. Swanson, p.146 (Unpublished thesis) "large nesting colonies were formed at Faribault in 1877". Thomas S. Roberts in *Birds of Minnesota* states that "the large spring flocks ceased arriving about 1880 . . . "in Minnesota. No record has been found as to the location of the nesting colonies in the county. From conversation with old settlers it can be assumed that one nesting colony was located in the Morristown area. It is known that market hunting for the "Wild Pigeon" centered in that area. One old settler recalled his father telling of "wagon box loads of pigeons" being hauled from the Morristown area to Faribault by the market hunters. It is quite probable that another nesting colony was located in the "Big Woods", a part of which is now known as the Nerstrand Woods State

Park. Fred Kiekenapp, a senior citizen of Faribault whose father was an early settler in the area, recalled to me that his father had often spoken of the Passenger Pigeons nesting in the "Big Woods" area and that the pigeons had a local flyway from the woods, across "Frog Town" (the southeastern part of Faribault from Division street south and from Highway 218 east to Straight River) and up over the bluff (at the present location of Garfield School) enroute to their feeding grounds. The hunters would locate on top of the bluff and shoot the pigeons as they came over.

YELLOW-BILLED CUCKOO — (*Coccyzus americanus*). A summer resident nesting in the wooded areas throughout the county. A nest with one egg was found on June 7, 1951 by Longley (*Flicker*, Vol. 25, No. 3, Sept. 1953, p.107).

***SCREECH OWL** — (*Otus asio*). A common permanent resident, nesting throughout the county. Two specimens were collected in Northfield by Pettin-

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gill; a female on September 28, 1938 and a juvenile on June 5, 1939.

*GREAT HORNED OWL — (*Bubo virginianus*). A common permanent resident, nesting throughout the forested areas of the county. On February 24, 1951 a nest with three eggs was found about one mile north of Northfield near Waterford and the Cannon River located in a tree about 35 to 40 feet from the ground. On March 21, 1951 the eggs were hatched, (*Flicker*, Vol. 23, No. 1-2, March-June 1951; *Audubon Field Notes*, Vol. 5, No. 3, June 1951).

On May 1, 1952 a nest with two young was found at the Heron Colony at General Shield's Lake. (For greater discussion about the nesting of the Great Horned Owl in the Heron Colony, refer back to the Great Blue Heron; (*Flicker*, Vol. 24, No. 3, September 1952; *Audubon Field Notes*, Vol. 6, No. 5, October 1952).

A male was collected (Pettingill) near Northfield on June 4, 1945. The Great Horned Owl has been recorded on four out of five Christmas Bird Counts: on December 29, 1951, December 31, 1953, December 26, 1954 and on December 26, 1955 (*Audubon Field Notes*, Vol. 6, 8, 9, and 10; No. 2; April 1952, 1954, 1955, and 1956).

SNOWY OWL — (*Nyctea scandiaca*). An occasional winter visitant. Two were seen at Northfield on February 11, 1950. One was seen on February 7, 1954 north of Northfield (*Flicker*, Vol. 26, No. 1, March 1954).

BARRED OWL — (*Strix varia*). A permanent resident in the county. Christmas Bird Count: December 21, 1952, December 31, 1953, December 26, 1954 and December 26, 1955 (*Audubon Field Notes*, Vol. 7, 8, 9, and 10, No. 2; April 1953, 1954, 1955 and 1956).

*LONG-EARED OWL — (*Asio otus*). Only four known records of this species in the county. According to *Birds of Minnesota* by T. S. Roberts the Long-eared Owl is less common in winter, being somewhat migratory. One was seen

near Northfield on April 17, 1951. One was seen east of Northfield on the Christmas Count on December 26, 1954 (*Audubon Field Notes*, Vol. 9, No. 2, April 1955; *The Flicker*, Vol. 27, No. 4, December 1955). Two specimens were collected (Pettingill) in the Northfield area, a male and a female on March 19, 1950.

The Long-eared Owl is probably a summer resident in the county.

WHIP-POOR-WILL — (*Caprimulgus vociferus*). There is no recent record known of the presence of the Whip-poor-will in the area. Prof. J. W. Hornbeck recorded two on May 5, 1921 in the Northfield area, indicating that the species was rare at that time and that it did not nest in the area.

*NIGHTHAWK — (*Chordeiles minor*). A common summer resident nesting throughout the county. The earliest spring arrival date is May 7, 1951, and the latest fall date is October 3, 1953, both observations being made in the Northfield area.

Three specimens were collected (Pettingill) in the Northfield area: a female on May 24, 1943, a male on May 26, 1943 and a female on September 22, 1944.

*CHIMNEY SWIFT — (*Chaetura pelagica*). An abundant summer resident nesting throughout the county. The earliest spring arrival date is April 20, 1952 in Northfield, and the latest fall date is October 12, 1933 in Faribault.

Three specimens have been collected (Pettingill) in the Northfield area: a male on May 22, 1939, a male on June 3, 1950 and a female on May 29, 1951.

RUBY - THROATED HUMMINGBIRD — (*Archilochus colubris*). A common summer resident nesting throughout the county, especially common in the oak-clearings at Nerstrand Woods State Park. The earliest spring arrival date is May 16, 1951 and the latest fall date is October 12, 1954.

*BELTED KINGFISHER — (*Mega-*

ceryle alcyon). A common summer resident, and frequently seen in mid-winter where there is open water. The earliest spring record is March 25, 1935 when one was seen in Faribault. Earliest spring records, especially in February, are assumed to be wintering records. One was seen in the arboretum in Northfield on each Christmas Bird Count for 1952 to 1955, (*Audubon Field Notes*, Vol. 7, 8, 9, and 10; No. 2, April 1953 to 1956). One specimen was collected (Pettingill) in the Northfield area, a male on April 10, 1943.

*FLICKER — (*Colaptes auratus*). A common summer resident, nesting throughout the county, and occasionally wintering. March 17, 1933 is the earliest spring arrival date when one was recorded at Faribault. One was recorded on February 22, 1934 in Faribault, but this is considered a wintering bird. Average of 18 dates, March 17 to April 13 is April 1. The Flicker was observed on two Christmas Bird Counts. Five were seen on December 26, 1954 and one on December 26, 1955 with both observations being made in the Northfield area (*Audubon Field Notes*, Vol. 9 and 10; No. 2; April, 1955 and 1956).

Four specimens have been collected (Pettingill) in the Northfield area, a female on May 8, 1937, a male on April 29, 1939, a male on April 30, 1947 and a male on May 2, 1951.

PILEATED WOODPECKER—(*Dryocopus pileatus*). A permanent resident, nesting in the forested area of the county. The following observations have been made on Christmas Bird Counts in the Northfield area: one was recorded on December 21, 1952 and one on December 31, 1953 (*Audubon Field Notes*, Vol. 7 and 8, No. 2, April, 1953 and 1954).

RED-BELLIED WOODPECKER — (*Centurus carolinus*). The Red-bellied Woodpecker has extended its range northward into Minnesota and is now a permanent resident in the county. The

first known nesting record for Rice County is on June 1, 1953 when the young were observed being fed in the Nerstrand Woods State Park (*Audubon Field Notes*, Vol. 7, No. 5, October 1953; *The Flicker*, Vol. 26, No. 2, June, 1954).

This species was recorded on three Christmas Bird Counts: two were seen on December 29, 1951, one on December 21, 1952 and two on December 31, 1953 (*Audubon Field Notes*, Vol. 6 and 7 and 8; No. 2, April 1952, 1953 and 1954).

*RED-HEADED WOODPECKER — (*Melanerpes erythrocephalus*). — A summer resident, nesting throughout the county. The earliest spring arrival date is April 3, 1939 when two were seen in Northfield. The average arrival date is about May 7. Three specimens have been collected (Pettingill) in the Northfield area: a female on May 22, 1957, a female on September 3, 1942 and a male on May 24, 1951.

*YELLOW-BELLIED SAPSUCKER — (*Sphyrapicus varius*). A summer resident with April 11, 1953 the earliest spring arrival date when one was seen in the Northfield Arboretum. Three specimens have been collected (Pettingill) in the area, a male on May 9, 1937, a female on October 3, 1940 and a male on April 12, 1943.

*HAIRY WOODPECKER — (*Dendrocopus villosus*). A common permanent resident nesting throughout the county. One male was collected (Pettingill) in Northfield on September 29, 1937.

*DOWNY WOODPECKER — (*Dendropus pubescens*). A common permanent resident nesting throughout the county. A female was collected on November 4, 1936 and a male on November 14, 1936 in the Northfield area. In the Nerstrand Woods State Park area a male was collected (Pettingill) on September 21, 1944.

(To be continued in a later issue)

NERSTRAND WO

By Orwin



West on C.A.R. 85 from Nerstrand through the beautiful Maple-Basswood forest of the "Big Woods". Dominant trees are hard maple, white and red elms and red oak with ironwood a common tree of secondary size. In drive to the right (center of picture) is entrance to the picnic grounds. The park was established in 1945, has 467.55 acres and is located in Rice County.



Picnic Grounds.

. . . and the Prairie Creek area has an abundance of spring wild flowers.



Jack-in-the-pulpit.

ODS STATE PARK

A. Rustad



Old logging road. Good hiking from highway to the waterfalls with excellent nature study and photography enroute.



Prairie Creek Falls . . .



Trillium

May-apples. Very large bed near old logging road, seen enroute to the falls.



Aids In Identifying Birds

by

Brother Theodore, F. S. C.

I. General Sight Identification

Five aids in sight identification:

1. *Habitat.* As a general rule birds will be found in a definite type of locale. Exceptions will occur in migration. Learn what to expect in various habitats.

2. *Size and Silhouette.* Study certain birds very well in flight, at rest, in good and bad light. They can be used to judge the size of other species. Examples: crow, pigeon, robin, English Sparrow, Yellow Warbler, House Wren. Silhouette alone will often enable us to identify a bird.

3. *Flight Pattern and Pattern of Flight.* *Flight pattern* shows the markings of the bird when flying. E.g., White tail feathers of Junco, Vesper Sparrow, and Longspurs. Invaluable for hawks, ducks, gulls, geese, and many passerines. By *pattern of flight* is meant how the bird flies. Fast flight: ducks; awkward flight: herons, bitterns, rails; undulating flight: goldfinch and other finches, woodpeckers; soaring: hawks and other birds of prey; graceful flight: gulls and terns. Neck pulled in and feet stretched out: herons, bitterns.

4. *Individual Habits of Species.* Watch for characteristic habits of certain species. Thrushes have nervous wing habits. Flycatchers perch high on dead branches or other perches to fly out after their food returning to perch. Shrikes sit high on small trees, pin their food to thorns. Birds which hover: Kingfisher, Sparrow and Rough-legged Hawks. Shy birds which skulk: Lincoln's, Henslow's and Swamp Sparrows, the Veery, rails, bittern. Birds which hold their tails upward; wrens, Ruddy Duck. Song Sparrow pumps tail when

in flight. Hermit Thrush cocks his tail and slowly lowers it.

5. *Color Pattern.* Color is often the least dependable mark. Very deceptive in bad light. Learn to watch head patterns, including size and shape of bill, and eye rings. Important for vireos, warblers, sparrows, wrens, ducks, sandpipers.

II. Sound Identification

By songs are meant the sounds or notes the bird utters — not always musical — by which he defends his territory.

Call notes and alarm notes are sounds the bird makes when danger threatens, or in "communicating" with other birds, particularly with mates and young, but also birds of other species.

Five important characters of sound which help to identify birds:

1. *Pitch.* Pitch, the highness of the tone, depends on number of vibrations per second. Most birds sing between three and four octaves above middle C. Wood Warblers go notably higher. In general the larger the bird, the lower the pitch of his song. Not all birds of one species sing on the same pitch; nor does an individual bird always do so.

2. *Time.* Time not only means rate of singing phrases, but also the rhythm, the number of notes in each phrase, the spacing of phrases, change of tempo, change of rhythm, etc.

Combining pitch and time we have certain descriptive phrases which are of value:

WARBLE — Fast notes on different pitch which are connected. (warbling vireo)

TWITTER — Fast notes on different pitch which are not connected. (swallows)

CHATTER — Like the twitter but louder and harsher. (House Wren)

TRILL — Notes on different pitch sung so fast they cannot be counted. (End of Towhee's and Parula's songs.)

RATTLE — Slower, rather harsh, dry repetition of note. (Kingfisher, Marsh wrens)

SLUR — Made by connecting tones of notes or phrases with consonants especially liquid sounds. (Blue-headed Vireo, Wood Thrush).

3. *Quality of Timbre.* Quality depends on resonance and overtones. Note difference between Eastern and Western Meadowlarks. Western is definitely double-toned. Any word or phrase used to describe sound in general can be applied to bird voices. Make a list for yourself to be used in the field.

Learn a few songs well for making comparison, e.g., robin, Red-eyed Vireo, Yellow Warbler, Black-throated Green Warbler.

Similar to song of robin.

Robin: clear whistle — short pause between phrases.

Baltimore Oriole: rich whistle — piping, flute-like.

Scarlet Tanager: hoarse whistle.

Orchard Oriole: quality of both robin and tanager.

Rose-breasted Grosbeak: robin-like but no pause between phrases — finished ending lacking in robin.

Cardinal: more strident and one-note phrase instead of two or three note phrases.

Similar to song of Red-eyed Vireo.

Red-eyed Vireo: deliberate timing with two or three note phrases — repeats song frequently all day long.

Yellow-throated Vireo: slower, lower pitched with a burr in the notes. Longer pause between songs.

Blue-headed Vireo: higher pitched, sweeter, with slurs between notes and phrases. Longer pause between songs.

Philadelphia Vireo: phrases less frequent, higher pitched, no slurs.

Similar to Yellow Warbler.

Yellow Warbler: sweet, fast, changes rhythm only once. (sweet-sweet-sweet-titi-sweet)

Prothonotary Warbler: same quality — no change of rhythm. (sweet-sweet-sweet-etc.)

Indigo Bunting: more strident — repeats each phrase twice; changes rhythm.

Compare Black-throated Green Warbler in quality with Black-throated Blue, Parula and Cerulean.

4. *Loudness or Intensity.* Loudness depends on amplitude or energy of sound wave. Size of bird can be very deceiving: Ruby-crowned Kinglet, Tennessee Warbler, House Wren are loud for small birds. Purple Finch, Cedar Waxwing soft for size of bird.

Some birds use the same intensity throughout as Chipping Sparrow, Warbling Vireo. Blackpoll Warbler starts softly, grows louder, then softens once more. Ovenbird starts loud and gets louder. Both cuckoos increase in intensity toward end of song. Black and White, Bay-breasted and Palm Warblers have weak, thin songs.

5. *Phonetics.* Phonetics may be defined as the use the bird seems to make of vowel and consonant sounds. It does not mean the phrase we put into the mouths of birds such as "Drink your tea," "I want to meet you Miss Beecher." These sentences and others help us to remember rhythm; they are not phonetic in character. If they are helpful, by all means use them and develop such phrases for as many birds as possible.

Almost all letters or combinations of letters of the alphabet appear in bird's phrasings. Since all of us do not hear sounds alike, you may have to work out your own ideas.

Here are a few samples of songs,

which show use of phonetics, phrasing, and quality.

Wood Thrush: ee-o-lay, a-o-lee — melodious, flute-like.

Redwinged Blackbird: ok-a-lee — gurgling, liquid.

Golden and Blue-winged Warblers: bee-buzz.

Grasshopper, Clay-colored Sparrows: buzz — insectlike.

Black-throated Green Warbler: zee-zee-zee-zo-zay — husky.

Parula Warbler: zri-zri-zri — trills off scale — fricative, un-musical.

Blackburnian Warbler: tzip-tzip-tzip-titi-see — high, wiry, buzzy.

Tennessee Warbler: zit-zit-zit-zit — loud, energetic, chippery.

Black and White Warbler: weesa-weesa-weesa or tasee-tasee-tasee — weak and thin.

Magnolia Warbler: weeta-weeta-weeta — clear, weak, colorless.

Redstart: tsee-tsee-tsee-tsee — high, thin, sibilant.

Chestnut-sided Warbler: twit-twit-twit-tsa-weecha — clear, emphatic.

Palm Warbler: theeta-theeta or thi-thi — weak, thin, lispy.

Mourning Warbler: choree-choree-choree — clear, liquid, whistle, slurred.

Nashville Warbler: seebit-seebit-seebit-tititititi — twittery whistle.

Black-throated Blue Warbler: shri-shri-shri — ending on a higher note, husky, drawled.

Wilson's Warbler: chit-chit-chit — chattering quality.

Yellow Warbler: swee-swee-swee-titi-swee — clear, sibilant.

Cape May Warbler: tseet-seet-seet-seet — one tone, weak, sibilant.

Call and alarm notes are judged on the same five characters of those of song.

Above all, do not grow discouraged; it's a matter of seeing and hearing the bird often enough to remember.

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Experiences with Bluebird Housing

by

Charles Flugum

It is discouraging for a bird enthusiast to witness the decline and disappearance of one after another of our native species of birds, as a result of the activities of man, when so often all one can offer is sympathy. It is heartening under these circumstances, however, to find that a threatened species will respond to one's efforts at rehabilitation. Especially rewarding is such assistance when the species responding is such a gem of beauty as that symbol of happiness, the Eastern Bluebird. For his friendly, contented warble, for his radiant beauty and as an economic asset the bluebird is tops.

The bluebird's problem is not direct persecution. It is much too small to have culinary appeal and much too beautiful for even the most calloused to find pleasure in shooting. Its difficulty is an acute housing shortage. In the days of wooden rail fences, replete with deserted Downy and Hairy Woodpecker nesting cavities and old-fashioned, sadly neglected family orchards with their abundance of dead limbs and decaying heartwood, bluebirds were in their glory. But barbed wire fences with steel posts and large-scale, well pruned and expertly tended commercial orchards offer no haven. To make matters worse, man has introduced such aggressive, exotic species as the English Sparrow and the Starling to compete with the bluebird for the precious few nesting sites remaining. The bluebird's only hope now appears to be the provision of manmade nesting boxes specifically designed and located for its use.

Taking our cue from an article about Dr. T. E. Musselman of Quincy, Illinois, whose hobby of making and putting up

bluebird houses in great numbers along country roads has been rewarded with remarkable bluebird occupancy, the Albert Lea Audubon Society constructed and put up 114 bluebird houses in the spring of 1949. The project had a two-fold purpose. The few members, previously strangers, were badly in need of a morale-boosting project to show some purpose for getting together. Something in which they could all take part and have a common interest. One member commented at the close of a meeting, "will this thing hang together for another meeting or will it fold up?" The bluebird housing project was the ideal solution. Here was a chance for everyone to work at constructing the houses and a chance to measure our joint accomplishment by observing bluebird response. There was some lag in getting the project underway. The first effective action was setting our goal at 100 houses ready to put up by March 1. The next constructive step was designating our January meeting as the house-building session. Members were to come dressed for the occasion and equipped with tools and material for making the bluebird houses. The meeting turned out to be a memorable one. There had been some doubt about our ability to construct 100 bluebird houses at one meeting and the closer we got to the meeting time the more fearful I became of the possibility that my pet project might fall short of its goal. As it happened, I had been dismantling our old house and using as much of the material as possible in building our new house. There were, of course, a great many lumber pieces such as window frames, door frames and broken cornice boards

that could not be used but would be good material for bluebird houses. The power saw was set up for use in finishing work on our new house so one day when the weather was bad I started sawing material for the proposed bluebird houses. With the power saw the work went fast and before I realized it there were parts for 95 complete bluebird houses. I brought this material and five pounds of galvanized nails to the meeting. The design of the houses was very simple: 4"x4" inside measurement, 9" deep with slanted top and 1½" entrance hole 6" above the floor. The back side extended both above and below the rest of the house for convenience in nailing to a post. I planned to help nail these houses together but, with eight hammers beating out a steady tattoo, I found myself unable to keep up with merely boring entrance holes. At the close of the meeting the 114 bluebird houses, in a gay assortment of colors, were parceled out to the various members who agreed to put them up on fence posts according to Dr. Musselman's plan.

The houses were all erected but there the accuracy of record ended. We had reports of experiences and some pictures but no exact data on bluebird occupancy. One member reported that a pair of Black-capped Chickadees nested in one of his boxes and used, as nesting material, the strands of vascular bundles taken from the previous year's corn stalks. It has been interesting to note some of the public reaction to this bluebird housing project. There has been very little vandalism. One of our members fastened one of the houses to a telephone pole. On checking the houses later he found that the telephone pole had been replaced with a new one but the workmen had sawed off the section of the old pole to which the bluebird house was attached and wired it securely to the new pole. One of my houses was nailed to a post along a railroad right-of-way. During the summer this fence was taken down and replaced with a new one. The sec-

tion men, however, nailed up the bluebird house again on one of the new posts. At a neighborhood gathering I brought up the subject of bluebird housing. Several of the farmers were immediately interested and it developed that they had been taking off the tops of the bluebird houses to look at the eggs and young birds then replacing the tops again. After working hours one evening, one of our members and his teen-age son hit the bluebird trail and stopped to check a house that happened to be near a farmhouse. The irate farmer, unfamiliar with the project, came dashing out and yelling at the top of his voice admonishing them to keep their hands off that birdhouse. There were bluebirds in it and he did not want them disturbed. This necessitated an explanation of our project which he was much relieved and interested in hearing about.

Of the 114 houses I had 41 in my own individual bluebird trail. Each time these houses were checked my family and I drove 20 miles, made 41 stops and spent three and one-half hours. These houses were not studied as intensively as they would have been by a professional ornithologist but I have the following records of them for the years 1949, 1950, 1951 and again in 1953.

	<i>Bluebirds</i>	<i>Wrens</i>	<i>Eng. Sparrows</i>	<i>Tree Swallows</i>	<i>Mice</i>	<i>Nothing</i>
1949	18	3	4	0	2	14
1950	26	6	6	1	0	2
1951	2	9	8	8	2	12
1953	3	7	7	8	0	6

After 1953 I have made no check of bluebird houses on the original trail except as I have happened to drive past where they were located. Several of the houses have been destroyed by road building operations and others have been ruined by squirrels gnawing into them to get at acorns stored there by White-footed Mice. The severe drop in blue-

bird occupancy in 1951 has never been recovered. Occupancy by wrens, English Sparrows and especially Tree Swallows has increased. Our bluebird trails have become predominantly Tree Swallow trails. Tree Swallows are welcome, of course, but they are very untidy housekeepers and this may be a partial explanation of the drop in bluebird tenants. Bluebirds seem reluctant to accept a dirty house and this might be expected of such excellent housekeepers as they are. To attract bluebirds to my own farm I have been putting up some new houses there every year. I have had bluebird tenants every year, usually two families. I now have ten houses on my farm and of these, two were occupied by bluebirds in 1956, one by wrens, three by English Sparrows and four by Tree Swallows. In 1955 a male bluebird staunchly defended a new house although for some reason no spouse responded to his selection of territory. One day a male Tree Swallow frustrated by this bluebird's vigilance tried coaxing his partner to nest in the exhaust pipe of my tractor parked with the corn planter near by. The enthusiastic swallow perched and kept looking into the exhaust pipe until the tractor motor started.

On the original bluebird trail I sometimes found a wren nest on top of a bluebird nest. From this I suspected that both bluebird parents had accompanied their young for a time after they left the nest and that during this time the wrens moved into the house preventing the female bluebird from returning to make preparations for a second brood. An experience during the summer of 1956 verified this suspicion. A pair of English Sparrows took to making a great fuss around one of the bluebird houses in my cow lane even though the house contained young bluebirds almost ready to fly. On my way to the fields one day I saw the five young and two adult bluebirds perched on posts near my cow yard. When I stopped at the house

I saw hay sticking out of the entrance hole indicating that the sparrows had already completed a nest inside. I removed the cover intending to throw out the nest but found the female sparrow stubbornly sitting on the nest even while I was looking in. I reached in, caught and killed her, reasoning that the male sparrow would not be able to find another spouse to take over the house before the female bluebird returned to prepare for a second brood. There were no sparrow eggs and out of curiosity I left the nest intact to see what the female bluebird would do with it when she returned. Three days later I stopped by the house when I saw the female bluebird fly from it as I approached. The sparrow nest had been completely removed and a neat bluebird nest containing one egg occupied the house. A second brood of bluebirds was reared successfully without further sparrow annoyance, because I had intervened in the bluebird's favor, shall we say in the interest of science?

I feel that the bluebird housing project has been a success. There is a wealth of satisfaction in knowing that birds are living near you which would not have been there but for your invitation. One cannot always get two beautiful birds by providing facilities for one. Before I put up any bluebird houses I saw and heard bluebirds and Tree Swallows only during spring and fall migration. Now I have them near me every day during their summer sojourn. Bluebird families leapfrog along the fence post tops and Tree Swallows skim over the fields along with Barn Swallows catching insects disturbed by my tractor during field work.

As for the benefit, of the bluebird housing project, to the Albert Lea Audubon Society, a great deal of interest was stimulated which bound the organization together firmly. It is now well established and carrying on other more difficult projects. — *Albert Lea, Minnesota.*

There Are No 'Varmints'

by

Irston R. Barnes

Recently the mail brought a report of a local conservation program that impressed me as being very soundly conceived and competently executed. In a quite extensive area, soil erosion had been checked, cover had been reestablished; trees had been replanted. A wildlife preserve had been created and much of the planting had followed the best precepts of wildlife management and soil conservation.

Then in discussing the problem created by an overabundance of foxes, it was explained that the "varmint" were being trapped and exiled to distant parts. The word varmint may have been only a passing concession to the prejudices of some readers, but it cast doubt on the true orientation of the entire program.

"Varmint" and "vermin" are polar words that have often been the sole moral and biological justification for the misguided slaughter of hawks and owls, crows, cormorants and other flesh-eating birds, mountain lions, bears, wolves and coyotes, foxes, raccoons, minks, weasels and snakes. The use of the terms varmint and vermin tells more about the speaker than about the animals designated. It reveals that the speaker is prejudiced, perhaps on the basis of hearsay or perhaps from his own limited experience, against the animal he describes. It tells nothing reliable about the animal or its role in nature.

There is only one safe rule in approaching nature — "whatever is, is right." The appearance of any form of life — other than an introduced exotic — is evidence that there exist those environmental conditions and natural roles

for which the animal has been evolved by countless generations of natural selection. No animal lives because it wilfully, perversely and contrary to natural law decides to be alive.

If this basic fact is recognized, the presence of particular animals in such numbers that they become pests may serve as illuminating "indicators." They are evidence that the environment has changed, perhaps through man's activities, in ways to favor an unwanted abundance of particular species. Similarly, the absence of desired wildlife, when individuals of that species are present elsewhere, indicates that the local habitat lacks essential features which that species seeks or that individuals of that species have not had time to establish traditions with respect to the area since it became a suitable habitat.

The term varmint is commonly applied to predators. Yet, except in the rare cases of predators preying on domestic livestock that cannot be protected, predators cannot become too abundant. Predators can never increase beyond the limits set by the available food supply. And since predators take the easiest, most available prey, there is no danger that predation will eliminate or unduly reduce any prey population. Predators, however abundant, always adjust their numbers to the changing numbers of their prey.

To designate any animal "vermin" is to confess that the speaker knows little or nothing about the animal or its role in nature. Every animal has its essential natural tasks; every animal discharges a vital natural function. To ignore this is to invite trouble.

This article appeared in the May-August 1956 issue of the *Atlantic Naturalist*. Dr. Barnes is president of the Audubon Society of the District of Columbia.

The farmer who has resorted to heavy applications of lethal insecticides has killed myriads of beneficial insects along with the grasshoppers that plundered his crops. He has paid a high future price in a less productive soil and a prospect of a more troublesome insect problem in future years. The plague of grasshoppers might have been avoided if he had not, the year before, resorted to the wholesale poisoning of field mice and other small rodents, which probably also reduced the number of birds; both had helped to keep grasshoppers and other insects within bounds. And the rodent campaign would not have been necessary if the farmer had not carried on a relentless shooting war against the

hawks, owls, foxes and skunks because he imagined that they were preying heavily on quail. The balance which nature strikes is generally beneficial if man does not blindly tilt the scales, but it can become costly and troublesome when human interference seeks to favor or to prejudice one species without knowledge of the ecological consequences.

Those who aspire to understand natural phenomena will accept every designation of an animal as "vermin" or of a plant as "weed" as a challenge to discover the natural role of the "vermin" or "weed." The inquiry will probably lead to the discovery that fundamentally this is another instance of man working against, rather than with, nature.

American Woodcock in Thunder Bay District

by
A. E. Allin

The opening of a new country with the accompanying clearing of the land frequently provides conditions favorable for bird species which did not formerly occur in the region. Such has been the case in the southern portion of the District of Thunder Bay, Ontario, where in recent years several species of western birds have spread eastward into the local area and are now more or less common. These include the Clay-colored Sparrow, Western Meadowlark, and the prairie form of the Sharp-tailed Grouse. In addition there is at least one local colony of Brewer's Blackbird.

Northern extension of the range of typical southern birds is less evident with one noteworthy exception, i. e. the American Woodcock. Although A. W. G. Wilson, (Geology of the Nipigon Basin, Geological Survey Memoir No. 1, published 1910) included the Woodcock among the birds he noted in the Nipigon Region during the first few years of the twentieth century we have been unable to find any further reference to its local occurrence until that of Col. L. S. Dear (Breeding Birds of the Region of Thunder Bay, Lake Superior, Ontario. Reprinted Translations Royal Canadian Institute, No. 49, October 1940, Vol. XXXLI Pt. 1.)

The Woodcock depends largely for its food on species of earthworms. The latter are not native to the area but have probably been introduced since the building of the Canadian Pacific Railway, arriving in shipments of goods from areas where they are common. Along the south shore of Lake Superior their spread could largely be attributed to anglers and there is no doubt that the

local trout fishermen have played a part in their distribution throughout the southern portion of the Thunder Bay District where earthworms are now fairly common.

Dear recorded a "Flying" male seen by T. M. Shortt near Murillo in 1937. Continuing he reported three males seen and heard during 1938. One of these was in the locality where Shortt observed the species in 1937; the other two were in Neebing township. Finally he reported the first breeding record (local) — a nest located near the banks of the Kaminstiquia River on May 29, 1938, which contained four infertile eggs. The incubating bird was gently lifted from the nest before the eggs could be seen.

During the past decade the Woodcock has spread and become more common. They have been noted at the Neebing colony every year that the area has been investigated. Moreover they have been observed at various seasons of the year from Whitefish Lake 50 miles southwest of the Lakehead where one was observed in October 1943; to Dublin Creek 10 miles northeast of Port Arthur, where one was seen adjacent to the Nipigon Highway in the spring of 1948 (on May 1, A.E.A.) In addition the species was recorded at Nipigon in the spring of 1944; three were seen by Roy Dawes, 40 miles north of Hurkett in late October, 1946; and it has been observed on several occasions in the neighborhood of Fort William, Port Arthur, Blind Creek and in Blake township. In the spring of 1947 Lloyd Slichter forwarded to the Royal Ontario Museum of Zoology a specimen which one of his pupils found dead in the grounds of Pine Street

¹ Reprinted from Thunder Bay Field Naturalist News-letter 3:3, 1949.

school, Port Arthur. Another specimen was sent to R.O.M.Z. by Bobbie Brown of Fort William. This was a Woodcock which had been shot on the Fort William Vocational school grounds about April 18, 1948, and found by Bobbie.

Where and when can Woodcocks be seen by those not already familiar with the species? They appear to prefer low grounds where earthworms are probably abundant and easily accessible. Alder thickets are favorite habitats. Our earliest arrival date is April 3, 1942; and the average arrival date for the past decade is April 20. Since we usually observe them at the site of the Neebing colony for the first time each year it is quite possible that they arrive earlier for the roads into this area are poor and the region is not always accessible when we would like to investigate it. The area should be visited at dusk (unless you prefer the period just before dawn). Suddenly you hear a nasal "peenk" the call note of the Woodcock. It is not dissimilar to the well-known cry of the nighthawk and has probably been mistaken many times for the latter more common species. The "peenk" is repeated several times and listening carefully one may hear an accompanying "cluck-cluck". Then with a rustle of wings the bird soars in diminishing spirals for several hundred feet into the air, first with whistling, then with twittering notes. As it reaches the peak of its flight, it produces beautiful little notes more suggestive of the song of a warbler than of a game bird. This

continues and increases in volume a few seconds as the bird spirals downward with a noticeable rustle of wings. For a moment there is silence, but this is soon broken by a "peenk" as the bird commences another of its bizarre performances.

Once you have located a colony, you may expect to see them each year in the same area. We have found the Neebing birds every year since 1938 except 1944 and 1948 when we could not visit the area. This year we heard the "peenk" for the first time on April 8 although the bush was still full of snow and the new-thawed earth was freezing. Once familiar with the species it is almost a ritual for the birdlover to again spend one or more evenings each spring listening for their call and observing their flight. At the first of the season the only other sound to be heard in this country will be the gurgling streams. But their display continues through May and I can think of no better way of spending a May evening than to visit the Neebing colony. As dusk settles over the countryside, the Vesper Sparrow sings from a little knoll; shadows deepen and the Wilson's, Hermit and Olive-backed Thrushes commence their wonderful chorus. From the swamps come the notes of the Wood Frog and the Swamp Tree Frog. At last it is nearly dusk. "Peenk" . . . "Peenk" comes the cry of the Woodcock from the ground, there is a slight rustle of wings and it can be seen spiralling upwards, outlined against the fading light of the western sky. — *Fort William, Ont.*

More Research Needed

by

George W. Friedrich

"A large corporation in America employs a staff of three thousand engineers to carry on its research work. There is one engineer employed for every eight workmen. The State of Minnesota, as a corporation, is many times larger, yet the number of engineers, or research men, is almost negligible. It seems that a political unit, such as a state, is by its very nature antagonistic to an impartial scientific study of its problems. On the other hand, its people as a whole are intelligent and would, if the value of research were capably presented to them, encourage and foster such studies.

"A scattering bit of research work has been carried on by members of the university faculty in addition to their full-time classroom programs and members of several of the state departments have done exceptionally fine experimentation in connection with their regular duties. However, any program that depends upon extra-curricular or odd-time study cannot be expected to solve in any large or satisfactory way our many and intricate problems.

"Up to the present time we have done almost no research in the field of natural resources. Occasionally a few thousand dollars are apportioned for work such as has been done by Dr. R. C. Green on the disease of game birds and mammals. He and his family richly deserve the assistance of a corps of trained experts to effect a solution and formulate far-sighted policies. The increase and perpetuation of our wild game would easily warrant this expenditure."

The article describes some problems in natural resource management needing research and continues as follows:

"The only proper way to answer these and other questions in this scientific age is through experimentation. Opinion is all right if there is no better means available. Fortunately, however, we can get the facts today if we are willing to pay for them. Trained research men are available in this field and many other capable men grounded in scientific methods can be trained for this type of research work."

* * *

Editor's Note: The article "More Research Needed" was published in the November, 1953 issue of *The Minnesota Conservationist*, then the official magazine of the Minnesota Department of Conservation. This is not a copy of the entire article but an abstract of pertinent points. What Mr. Friedrich said in 1933 is no less true in 1957. — P.B.H.

Seasonal Report *by Mary Lupient*

Minnesota experienced exceptionally mild weather in February and March and, except for an occasional blizzard, there was little precipitation. The severest storm occurred March 14-15. Strong winds blocked highways and piled drifts as high as ten feet in the north. The first two weeks of April were cold, windy and disagreeable. On April 4 there was a heavy snowfall which varied from four inches in Duluth to ten inches in the west and south. Another snowstorm throughout the state, April 10-11, brought unseasonable record breaking cold. It was down to five above at Bemidji. The snow remained and the temperature dropped to far below freezing every night during the first half of April. The early migrants must have suffered from lack of food, especially Robins. There were no insects and the ground was snow covered. There was a heavy migration of robins in the Twin Cities, March 25, and strangely enough there still were large concentrated flocks as late as April 27. Those that paired began nest building much later than usual. Movement of some of the early migrants was about two weeks behind schedule. There were very severe storms to the south of us which must have affected the migration of smaller birds. A few Myrtle Warblers arrived in southern Minnesota April 16 and Dr. P. B. Hofslund reported seeing them in Duluth along with Fox Sparrows, Savannah Sparrows, Sapsuckers, and Ruby-crowned Kinglets the fourth week in April. This report covers observations dated to May 1 and no sizable waves of early migrants were reported so far, even though there were warm south winds and temperatures in the 80's during the last ten days of April. Although there was the usual number of species, there was a definite lack of individuals with the exception of robins and blackbirds. Possibly the birds by-passed this region, or

can it be that spraying is depleting their number?

All of the species of ducks arrived the third week in March while the lakes were still frozen. They concentrated in rivers and wherever there were patches of open water. Many Mallards did not migrate last fall. An interesting report regarding wintering Mallards were received from Whitney Eastman who sent the following letter, in part, from R. W. Stanford, Willmar, dated January 29: "Some 10,000 Mallards have been in Mud Lake just north of New London all fall and are still there, January 29. It is the latest we have known them to stay. The ice on Mud Lake is six inches thick. They keep it open by just sitting in the water and paddling around, flying out to feed and then coming back and settling down again. The place where they sit is about two or three acres in extent. We have had pretty warm weather here until recently when it got below zero, but it does not stay cold very long."

On April 11 Mr. Stanford reported as follows, "The Mallards are still in Mud Lake. There is a man in the village of New London who has seen them every day. There has been very little snow and they fly many miles to cornfields to feed. They are very fat and evidently have had all (the food) they could possibly consume."

Some hundreds of Mallards wintered in various localities in the south half of the state, especially along the Mississippi River. About 100 Mallards and 50 Pin-tailed Ducks wintered at the Izaak Walton Bass Ponds where a spring-fed stream empties into the Minnesota River lowlands. Dr. W. J. Breckenridge saw several Wood Ducks in his yard, where in other years they have nested. This spring at least one pair selected a nesting site on an island in the Mississippi not far from his home. A pair of Wood Ducks settled at the Izaak Walton Bass Ponds. April 29, the drake flew in a

high wide circle before me and landed on a branch two-thirds up in a very tall tree growing in a glen where a stream flows. For 15 minutes he stood silently motionless watching me. I did not find the nest.

A. C. Rosenwinkel reported that he, Mr. and Mrs. W. C. Olin, and others identified an Old Squaw Duck on a small lake in St. Paul. They observed it at a distance of 60 to 100 feet and noted the plumage and the pin-tail. There were long periods of diving and short periods on the surface. Observations were made April 20, 21 and 22. Mr. Rosenwinkel reported, too, that he saw a pair of Greater Scaup Ducks, and used a spotting scope to identify them while they were swimming and in flight. They were in a small lake on the outskirts of Minneapolis.

There were several reports of Canada Geese from March 20 to the first week in April. George Ludcke reported that a large migration flew over Minneapolis, April 4. Harvey Gunderson and his class saw one lone Canada Goose in the Minnesota River lowlands, April 28. James Cummings and others spent March 30-31 at Wheaton. They saw several thousand Blue, Snow and Canada Geese, a very large number of Mallard and Pin-tailed Ducks and 106 Whistling Swans. In western Minnesota they observed several flocks of Lapland Longspurs. Apparently Lapland Longspurs were not very abundant in the south half of the state. A flock seen by John Testor near Gibbon in early March was the only record received.

The first report of Whistling Swans was received from R. E. Cole, March 23. There were 23 in the Minnesota River lowlands at that time, but their number increased until there were several flocks which altogether approximated about 200. In southeastern Minnesota Bruce Hayward saw about 200 in the Mississippi, April 4. According to Dr. P. B. Hofslund there were 40 in St. Louis Bay, April 28.

Grebes and Mergansers migrated on

time, but Herons were late. Observation indicated that there was a decreased number of them and the Double-crested Cormorant was comparatively scarce. Two American Egrets appeared in the Minnesota River lowlands, April 24.

On the usual dates a few hawks migrated in the area surrounding the Twin Cities, but no estimate of whether the number was normal compared to other years could be made due to the fact that they avoid areas that are air lanes. Dr. Hofslund recorded 28 Red-tailed Hawks, nine Sharp-shinned Hawks, one Marsh Hawk and two Ospreys in the Duluth area, April 28. He stated that Pigeon Hawks are nesting on Minnesota Point. According to Robert Walsh, St. Paul, a pair of Sparrow Hawks have lived for five years, winter and summer, high up on one of the buildings of the Schmidt Brewing Company, St. Paul. Mice and Sparrows abound so there is plenty of food. They probably nested somewhere in the vicinity, but no investigation of nesting was made. A pair of Red-tailed Hawks was seen many times in a forest adjacent to the Minnesota River near Minneapolis and probably nested.

Beth Doeringsfeld and others went to Fergus Falls, April 13, to see Sandhill Cranes. There was a small flock. Lakes and marshes were frozen and not much else was noted.

To date not many shore birds have arrived in the Twin City area. Small flocks of Greater and Lesser Yellow-legs, one Pectoral and a few Wilson's Snipes were seen. A rare record for Duluth reported by Dr. Hofslund was that of a Western Willet, April 28, which he stated is the third bird of this species to be seen in that area. On the same date the Duluth Bird Club noted the following, 75 Bonaparte's Gulls, one Spotted Sandpiper, and two Least Flycatchers.

The migration of gulls and terns was about a week late. Migration for gulls in the Mississippi Valley was the week of April 4 to 9. Loons arrived as soon as the lakes opened. Flickers and Sapsuckers migrated April 15 to 20. Flick-

ers were very abundant. There was a goodly number of Phoebes, April 16, and some of them claiming their old nesting sites at once.

A few of all species of swallows appeared in the Mississippi Valley, April 19. However a few Tree Swallows came in late March before the snowstorms and severe cold, and no doubt perished.

Bluebirds were reported in late March, and apparently the number of them had not diminished which is heartening. So far only a few Hermit Thrushes have arrived. No Winter Wrens were reported. The House Wren and Brown Thrasher were singing in the Twin City area, April 27.

The migration peak for Red-winged Blackbirds was April 10 to 15 in the Mississippi Valley. As usual they were very abundant. Rusty Blackbirds arrived with them, Yellow-headed Blackbirds in small numbers appeared in the last week of April, and Brewer's Blackbirds were seen at their usual nesting sites in the Ft. Snelling National Cemetery the third week in April.

The movement of Eastern and Western Meadowlarks was about a week late, although a few of the Western were singing in late March. However, several of the Western wintered in the south half of the state, so it is impossible to be certain that the early ones observed were migrants. The same is true of Mourning Doves. They were present in goodly numbers, April 9, so it is safe to say that that is the date of migration.

Tree Sparrows left the third week of April and Slate-colored Juncos passed on also at the same time. Although there were a few large flocks of juncos they were not as abundant in the Mississippi Valley as usual. Only a few White-throated Sparrows were observed on May 1, and also Fox Sparrows were small in numbers. The arrival of Song Sparrows was about ten days late. There was a heavy migration of Chipping Sparrows, April 25, and appearance of other sparrows was at the normal time.

The report for the March *Flicker* was

written before February 1, too early for the Horned Lark records. Many of this species winter in southern Minnesota. A few migrants were reported by the Albert Lea Audubon Society and Rev. Forrest Strnad the last week in January. In the Mississippi and Minnesota River valleys there was a very large migration of Horned Larks February 12-13.

In a cage in the laboratory of the Museum of Natural History is one of the finest songsters I have ever heard. It is a Slate-colored Solitaire brought from Mexico by Dr. Dwain Warner. The tone of its song has the quality of a fine violin, very pure and clear.

The Minnesota Ornithologists Union and The Thunder Bay Naturalists from Canada held their annual meeting at Grand Marais the week end of February 22. Those of us from the Twin Cities and southern Minnesota were rewarded by the appearance of Cedar and Bohemian Waxwings and also the Pine and Evening Grosbeaks along the north shore of Lake Superior. This past winter these species were very scarce south of Duluth. Two Hudsonian Chickadees were recorded and a hardy White-throated Sparrow lived at a feeder on the Gunflint Trail. Lake Superior was frozen along the shore except in a few spots, particularly where streams emptied into it. At the mouth of the Cascade River Dr. W. J. Breckenridge, Dr. A. E. Allin and others saw a Harlequin Duck which is very rare in Minnesota. As usual Old Squaw Ducks, Mallards and Golden-eyes swam in patches of open water along the shore. Near fish houses concentrations of hundreds of Herring Gulls stood about on the ice accompanied here and there by Glaucous Gulls.

Upon the Gunflint Trail one morning we walked in an unreal land. Freezing fog the night before had fastened unusual feathery crystals of frost on every bit of space on trees, shrubs and all vegetation. Silhouetted against a cloudy dark sky this landscape created a picture of rare and surpassing beauty. —
Minneapolis, Minnesota.

The Canadian Lakehead

Edited by
A. E. Allin

The winter of 1956-57 was one of extremes. The mean temperature for November was 2° above normal. The marshes froze on November 10 and there was a 24" snowfall at Whitefish Lake on November 15. The December temperature was normal but the snowfall of 37.6" was a record. A total of 58.9" of snow fall during the two months burying the weeds so that no weed-seeds were available for the seed-eaters. This probably explained the virtual absence of Redpolls, Siskins and Snow Buntings during the following months. January was the coldest since 1912 with a mean temperature of -2.5°, compared with a normal +6°. The temperature fell below -20° on 16 days and below -30° on five separate occasions. February on the other hand was a fine month, with a normal mean temperature of 9.2°. A total of 21.2" of snow fell during the two months.

The native fruits were very abundant as the late-opening buds escaped a killing frost last spring. Rowans and ornamental Crab-apples were laden with fruit which, fortunately, had not been eaten earlier by Robins and Starlings as sometimes happens. There were also heavy crops of cones on the evergreens and keys on the Manitoba Maples. Yet, there was a general scarcity of wintering birds with the exception of Pine Grosbeaks and Cedar Waxwings. White-winged Crossbills had been seen in November and we saw a flock south of Piegon River on February 23. C. E. Garton saw two flocks east of Nipigon on March 11. Evening Grosbeaks, abundant during the winter of 1955-56, were very uncommon this past winter although there were to be many reports in April. Red-breasted Nuthatches were

very scarce for the second consecutive year. The Pine Grosbeaks appeared in numbers in late December and 316 were recorded on our Christmas Census. By the end of January they had largely consumed the Rowan berries. The majority moved on, though a few were still present until mid-March. Ordinarily, the Cedar Waxwing is an uncommon winter visitor, but they appeared in late December in great numbers and the flocks remained throughout the winter, the birds feeding on small Crab-apples when the fruit of the Rowans had been exhausted. Peculiarly, few Robins were seen during the winter except for a short period in late February when several were reported. These had apparently found food and shelter in the woods during the severe weather of January.

Predator species were very uncommon. No hawks were reported after mid-November. The only Snowy Owls were three seen in the fall. A Hawk Owl was regularly seen in late December and early January. Two Northern Shrikes were recorded on the Christmas Census, but none was to be reported during the remainder of the winter, although three were seen in mid-April.

On February 9, the Allins and Colonel L. S. Dear saw two White-breasted Nuthatches at a feeding station in Neebing Township. They remained only a few days. The same observers saw a pair of these rare visitors on December 28, 1945. There have been two or three other reports during the intervening years.

The Raven was probably a common breeding bird in the earliest days. Its numbers then declined markedly. This

may have been due in part to the increasing numbers of crows which were not common here before the country was opened up. We have on several occasions watched crows mobbing solitary Ravens. We feel a major factor in their decline was the use of poison for destroying Timber Wolves. Countless Ravens and other birds were killed by the strychnine used in the baits. When the indiscriminate use of poison was made illegal, the Ravens again increased. In the early forties, there were many fur farms locally and crows and Herring Gulls were present in numbers feeding on the waste about these farms. Yet no Raven was reported on the Christmas Censuses of 1939-1943. No census was taken in 1944. Three Ravens were recorded on the 1945 census and in subsequent years they were seen in increasing numbers until in 1955, 100 were recorded, the most listed that year by any census party in America. Today there are few fur farms. Crows and Herring Gulls are rarely seen during winter months, but the Raven is a familiar sight in the Lakehead cities where they regularly patrol lanes and yards seeking any available food. Fearless of man, we have seen pedestrians walk within a few feet of a Raven as it fed at the edge of a much-used walk. We have been impressed at the lateness at which the Ravens remain active. It is nearly dusk before they quit their solitary patrol. We have noted the same phenomenon during summer months as we watched Ravens flying along the country roads where they sought dead insects, birds and mammals, victims of speeding vehicles

At this northern latitude, winter comes early and remains late. The small marshes are frozen by mid-November. By the end of December the bays of Lake Superior and the streams and rivers are fast with ice and thick ice soon extends for many miles into Lake Superior. Navigation from the lower lakes enters the local harbors about the second week in April but only through narrow chan-

nels of ice measuring more than two feet in thickness and it is early May before the bay is clear of ice. Under such conditions, few water fowl can winter locally. By early November the main flocks are gone, although a few Blacks and Mallards may remain about the elevators until Christmas. The occasional American Golden-eye clings throughout the winter to stretches of open water in the Kaministiquia and Nipigon Rivers and about the warm springs of Dorion Fish Hatchery. Out on the lake, as long as open water remains, we find flocks of Whistlers and larger numbers of Coweens as well as the occasional American Merganser and Bufflehead. On February 23, near Grand Marais, Minnesota, some 80 miles south of Fort William, we saw a Harlequin Duck, one of the few records for Lake Superior. This winter the lake by mid-March had frozen from shore to shore, except for a narrow strip along the International Boundary. Possibly as a result, more ducks than usual were seen in the rapids of the rivers. On March 11, C. E. Garton saw 100 American Golden-eyes, one Coween, one American Merganser and a White-winged Scoter on the rapids at Nipigon.

March was an unusual^{lv} fine month, with a mean temperature of 21.9° or 1.5° above average. Precipitation was largely confined to March 14-15 when we received 10.7" of snow and 1.05" of rain. Conditions were such that trees and shrubs were completely sheathed with ice, a phenomenon which we rarely see locally. The crow and the Herring Gull, our first migrants, are expected about March 20. This year they arrived on March 10 and 16 respectively. The Snow Bunting is expected on April 3 but this year there were reports commencing March 18. The most unusual event of the young season, however, was the appearance of numbers of Killdeer on March 15. Over a 20-year period its average arrival date has been April 18, although it was recorded on March 25,

1945 and March 29, 1953. Usually it migrates into Canada about the same date along a broad front which extends from Lake Superior across the prairies. At Minneapolis, 350 miles to the south, Mrs. Lupient has found their average date of arrival from March 20 to 25. In 1957, they arrived on March 13. They appeared on the Canadian prairies in early April and we did not get the main flight at the Canadian Lakehead until April 19.

What is the explanation for the mid-March arrival in 1957? Examination of meteorological maps shows that about March 13, a "low" developed south and west of Minneapolis. At the same time a "high" had formed towards the Atlantic. The "low" front moved east and north, bringing temperatures in the fifties to Chicago and further north. This movement continued in a northerly direction to the south shore of Lake Superior in its middle and eastern portions, crossed the lake and by March 17 was over James Bay. Meanwhile the Lakehead was receiving the storm of March 14-15 and temperatures at the western end of Lake Superior were in the 20's. It seems likely the Killdeer was carried by the warm front northward to this latitude and that we received numbers of them at the border of the movement despite the severe local weather of that period. This would necessitate their flight across Lake Superior but we have noted above that in mid-March the lake was frozen over except for a narrow central strip south of Isle Royale.

A second small wave of migration occurred at the end of the month. A Marsh Hawk, a Red-tailed Hawk, and Robins were reported on March 31. The Robin and Marsh Hawk were four and eight days early. The Red-tail is not usually found until late April although there is one March 30 arrival date. The Bronzed Grackle on April 1 and the Slate-colored Junco on April 4 were 11 and five days earlier than average.

On March 23, we made a return trip

to Dryden, 220 miles to the northwest. It was a beautiful, warm, sunny day, but deep snow still remained in the bush. Those not familiar with our winter woods may be surprised at the paucity of birdlife seen on such a trip: two Ruffed Grouse, two Spruce Grouse, two Blue Jays, six Canada Jays, one Black-capped Chickadee, one Goshawk, eight Snow Buntings, a Bald Eagle, five Ravens and a dozen Crows. Crows were occasionally seen for the first 70 miles but none was seen again until we reached Dryden. Mrs. Howe informed us they had arrived that morning, a week later than they first appeared at the Lakehead. It would seem that the Crows at Dryden had come directly from the south along a path quite different from that used by the Crows which had reached the Lakehead. We were surprised at the absence of Redpolls. Some springs this bird occurs in great numbers along the roadsides but this year no such flocks have been seen.

Generally, April was an unusually fine month. The first two weeks were cool and on April 12 we received a further 12" of snow. The total snowfall for the winter was an average one. Spring rains commenced on April 14 and continued for the next week opening the creeks and rivers. On April 21, Compton Tortoise-shell Butterflies were common, we heard two Chipmunks and Skunk Cabbage was a prominent feature of the swamps. The temperature rose above 60° for the first time on April 23 and the remainder of the month was generally clear and warm. By the end of the month, the earliest Daffodils and Tulips were flowering in the gardens and the flower buds of Soft Maple had opened. The leaf buds of Lilac and Cotoneaster, of Highbush Cranberry and Manitoba Maple were opening. Mourning Cloak and Milbert's Tortoise-shell Butterflies and Bumble-bees were visiting the flowers of Pulmonaria and the early Tulip, *Karffmannia*.

L

Bird migration was generally retarded

in the first half of the month, most species arriving a few days later than average. Following the heavy rains of mid-month, migration speeded up and with a few exceptions migrants were arriving a few days earlier than they were expected. By the end of the month some 60 migrants had been reported. This is the greatest number to arrive by the end of April in the 20-year records of the club. No outstanding reports were made. Probably a Glaucous Gull seen by Garon on April 19 was the best record for the month. Most unusual, however, was the appearance of three Lesser Yellow-legs on April 20. Thunder Bay was still frozen and it seemed unusual to watch these waders under such conditions. The Greater Yellowleg was not seen until April 29 when numerous wet fields provided them with their usual habitat. Due to wind conditions, the ice moved out of the bay slowly and until the last day of the month only channels were present between the ice fields. This had little effect on the pond ducks and apparently none on the great flocks of American Golden-eyes. The other diving ducks however delayed their arrival until larger areas were free of ice. A few flocks of Canada, Snow and Blue Geese were seen and a Whistling Swan spent the latter part of the month in the local harbor.

The Thunder Field Naturalists' Club has had a busy winter season. In addition to regular meetings and the publication of *The Newsletter*, our annual meeting was held in mid-January. On February 23-24, many of us traveled to Grand Marais to join our friends from Minnesota as well as from Wisconsin and South Dakota in the regular North Shore winter outing. Despite the -18° temperature when we left Fort William,

the week end was a great success. The highlight, of course, was finding the Harlequin Duck.

On April 15, we held a dinner meeting. The guest speaker was Paul Provencher, chief forester of the North Shore Paper Company, Baie Comeau, Quebec. His excellent moving pictures of Quebec wildlife were accompanied by a most interesting commentary enjoyed by all present. From April 24-27, the Westfort Kiwanis Club held a local Sportsman's Show. The naturalists had a booth illustrating activities of the club. This created a great deal of attention and was visited by some 20,000 people. At this show a citizen was presented each night with a plaque commemorating his work during the past years in the interest of conservation. We were proud that the three local recipients were all members of the Thunder Bay Field Naturalists' Club, v.z. Andrew Ohlgren, Col. L. S. Dear, honorary president, and the late Fred Aaron who received the award posthumously. Mr. Aaron also received the Carling Conservation Club's "Man of the Year" award for his work as a conservationist.

The Thunder Bay Field Naturalists' Club, together with the other 37 clubs affiliated with the Federation of Ontario Naturalists, have long agitated for more protection for our hawks and owls. We are happy that the Ontario government has recently amended the Game and Fisheries Act. Henceforth Vultures, as well as Ospreys and eagles, will receive complete protection. Protection is also extended to all hawks and owls except where they are found causing damage to local property. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

Notes of Interest

WHO KNOWS? — On the night of November 6, 1956 on State Highway 55 between Belgrade and Brooten in Stearns County around 9:30 p.m. a rather unusual observation was made.

Lloyd C. Stoll of St. Louis Park and I were enroute to the Fergus Falls area for a few days of duck hunting and were remarking about the encouraging possibilities of successful hunting which were apparent from the ever increasing amount of snow flakes in the air and rising velocity of the wind.

We were rather jubilant as we had been having several weeks of "Blue Bird" weather and our passing two or three duck hunting trips had proved to be little short of frustrating.

Suddenly in the glare of the headlights and directly in front of our car appeared a number of forms that, even though it was now snowing quite heavily, could be identified as ducks. Although we heard no sound and were proceeding rather slowly due to the poor driving conditions, it appeared that one drake Mallard had met with his untimely demise while the others seemed to have been fanned off into the ditch.

We stopped the car as soon as we could and I grabbed a flashlight and went back fully expecting to find at least one dead drake, but much to my surprise I found nothing. Being certain that it had not been my imagination, I continued my search and some distance away from the road I heard the distant "Quack, quack" of a hen Mallard.

Finally locating her and thinking that she was hurt and possibly someone's tame duck I attempted to pick her up, but she sprang into the air and flew noisily away into the night. About four or five more then sprang into the air beneath my feet, startling me.

I was now beginning to realize that these might be other than tame ducks. I also noticed that there was no farmhouse in the immediate vicinity.

I then heard some more "quacking" some distance away and determined to find out for certain if these were wild ducks. I searched for the source of this new outburst and soon located two drakes and a hen. I made an attempt to capture these, and almost had one of the drakes within my grasp when with a flailing of wings he too took off into the dark of the night with the other drake and hen.

Heading back toward the car I observed that my hunting partner was also engaged in the pursuit of another hen, but this one also flew away just as he appeared to have her within his grasp.

We continued on our way quite puzzled and feeling that we would never actually know the truth as to whether these were wild ducks and why they were there.

The next day it stormed. At times the snowfall was so heavy that the range of visibility was not more than 100 feet. The wind was terrific with gusts approaching gale proportions.

There were ducks — thousands of ducks — the sky was filled with them. This seemed to explain the strange phenomenon of the night before. We at least felt that it did.

Needless to say we had a very successful hunt, but we are still wondering if the "Highway Ducks" of the night of November 6 were some of the forerunners of that great flight. — *Roger A. Lehmann, Route No. 2, Box No. 416, Mound, Minnesota.*

AN AMERICAN BRANT IN MARTIN COUNTY, MINNESOTA — On the evening of November 23, 1956, I received a phone call from Robert Smith of Fairmont asking if I would be interested in seeing a Brant he had shot that day. Upon contacting Mr. Smith I identified the bird as an adult female American Brant (*Branta hutchinsii*).

Mr. Smith stated that he had first seen this goose standing on the roadside (T102 R32 S21) directly north of Pierce Lake in Martin County. As Mr. Smith drove by the Brant flushed. After driving up the road a short distance, Mr. Smith turned his car around and returned to the spot. The Brant had remained nearby and was shot as it circled close to the road.

Although this small goose was fairly thin, it appeared to be in good condition. After taking several colored slides, I weighed it on my postal scale and found that it weighed exactly two pounds. This is somewhat less than the average of two pounds six ounces reported for three adult females in Kortright's book, *Ducks, Geese and Swans of North America*.

According to Kortright, the American Brant is a true sea goose, being seldom encountered away from salt water. On the arctic breeding grounds these geese are often found nesting along with Eider Ducks. It is an Atlantic Coast bird and is rarely found on the Pacific Coast where its close relative, the Black Brant, replaces it. The fall migration down the coast starts in early September or even late August and by early November these birds are on their wintering grounds, the main part of which lies along the Atlantic Coast from New Jersey south. Here their chief food is the eelgrass (*Zostera marina*) which grows extensively in the shallow bays and estuaries. Normally, Brant do not feed on dry land like so many of the other geese do. The unprecedented and nearly complete destruction of this eelgrass along the Atlantic Coast that began about 1931 and has continued with small abatement to the present has been disastrous for the Brant.

Since the American Brant is rarely recorded this far inland there was some question as to whether or not this specimen may have been an escapee from a captive goose flock. In an attempt to investigate this possibility, I contacted Emmet Kerns of rural Fairmont. Mr. Kerns maintains a captive flock of over 100 geese of several species and is acquainted with many other breeders in Minnesota and other states. From him I learned that Arthur Hill of Albert Lea, Minnesota had a pair of Brant. A telephone conversation with Mr. Hill revealed that these were Black Brant which he had in his possession for the last two years. Mr. Hill reported that he knew of no one having American Brant in captivity and to his knowledge the nearest other person having Black Brant lived in Montana.

The head and wings of the specimen previously described have been added to the waterfowl collection at the Museum of Natural History, University of Minnesota. — *Maynard M. Nelson, Area Game Biologist, Minnesota Division of Game and Fish, Fairmont, Minnesota.*

* * *

TUFTED TITMOUSE RECORD IN ST. CLOUD — From December 6 through 9, 1956 a Tufted Titmouse visited my feeder in St. Cloud. Previously the only authentic record of Titmice in the St. Cloud area were three birds who were banded at the same feeder in 1953. These three birds were first seen November 17, 1953 and two remained until August 27, 1954. This pair nested in the region and brought five young to the feeder. — *Harry H. Goehring, St. Cloud.*

A MOCKINGBIRD IN SAUK RAPIDS — Central Minnesota is not the place we expect to find a Mockingbird. Mrs. Alys Misho, however, reports that one fed on the berries of the Virginia Creeper near the kitchen window of her home in Sauk Rapids, Minnesota. She first discovered the strange bird around November 20, 1956. She got her field glasses, Robert's *Birds of Minnesota*, *Audubon Field Guide*, and several other bird books, and studied the visitor. Mrs. Misho was able to note the beautiful long tail with its white feathers, the lovely gray coat, the markings on the wings, the light breast, and the long, slightly curved bill. The Mockingbird visited the yard about four o'clock one day, announcing its arrival by a peculiar "awk". It did not sing. It was seen last on December 26, 1956. By that time most of the berries were gone, and it may have moved to another area. — *Monica Misho, St. Cloud, Minn.*

* * *

WINTER OCCURRENCE OF THE GYRFALCON IN LAKE COUNTY, MINNESOTA — While snowshoeing inland in the frozen Gooseberry River, February 22, 1952, I heard a short disconcerted-sounding "Cru-u-uk", several times repeated. My attention was directed to a Raven flying laboriously down stream, pursued by a hawk. When the hawk saw us it turned in another direction, exposing itself well at close range. Its base color was all white (the Boy Scouts with me asked if it were a Snowy Owl) with three gray bands across its tail, some short, dark, lengthwise streaks on its breast, and no visible markings on its white wings. These characteristics, along with its large size and falcon-like silhouette, left no doubt in my mind as to the accuracy of my identification of this bird as a Gyrfalcon. — *Lloyd Scherer, Lutsen, Minnesota.*

* * *

WOODCOCK OBSERVATION IN YELLOW MEDICINE COUNTY, MINNESOTA — On Saturday, October 20, 1956, I drove to the Harry Londgren farm located in Section Eight of Swede Prairie Township, Yellow Medicine County. There, I met with six other friends with whom I planned to hunt pheasants on the opening of the season. It was soon shooting time after my arrival and so our party started out by first driving an unpicked corn field. This produced seven or eight cock birds in our bag, but many the pheasants had taken to wing out of gun range and had flown into the heavy cover found along the creek at the north end of the farm. Since we had the aid of two hunting dogs, we decided that we would be able to flush the pheasants from the heavy cover found along the creek.

As we started working through the dense cover along the creek, one of the dogs suddenly flushed two chunky, long-billed shore birds from a willow thicket. As they flew a straight course for about 50 yards before alighting into a similar thicket of willow and tall grass, I identified them as being Wilson's Snipe. Proceeding down the creek, the birds were again flushed, and this time I raised my shotgun and fired a well aimed shot. One of the birds fell to the ground while the survivor flew on to safety.

On closer examination of the bird after being retrieved by my dog, I was amazed to find that I had bagged a Woodcock rather than a Jacksnipe. The bird was chunky and almost neckless. It is slightly larger than the Wilson's Snipe, and the crown shows a distinct black barring and the bill is very long. In color, the breast is a rusty tint and the back feathers are a light brown. Although the Woodcock breeds in northeastern Minnesota and migrates south along the Mississippi River this was no doubt a rare case and observation of Woodcock in southwestern Minnesota. — *Gordon F. Nielsen, Area Game Manager, Minnesota Division of Game and Fish, Fergus Falls, Minnesota.*

ADDITIONAL BURROWING OWLS IN TRAVERSE COUNTY — In the December issue of the magazine I noted Robert Benson's report of Burrowing Owls in Traverse County in August, the first he had seen in eight years in west-central Minnesota. Because of this scarcity of records, you may be interested to know that Mr. Kelley and I observed two Burrowing Owls in Traverse County on June 13, 1950. The observation was made on the Lowell Weesner farm in the southern part of Traverse County, near Graceville. They were found in an unplanted field, weedy and grazed, which was so populated with "gophers" (Richardson Ground Squirrels?) so as to make cultivation difficult because of the burrows and mounds. They were quite unafraid and we approached them easily. At that time we had not seen this species so the observation was particularly significant as an addition to our "life list". — *Alice H. Kelley, Huntington Woods, Mich.*

ANNUAL HAWK WATCH

M.O.U. members should mark down on their calendars September 7-8, 14-15, and 21-22. These will be the target week ends for observing the hawk flight over Duluth. This is one of the established field trips of the M.O.U., but no particular plans are made as to the date or accommodations. On the above dates the hawk lookout above 45th Avenue East in Duluth will be manned by watchers. Interested readers who desire more specific information should contact P. B. Hofslund, Biology Department, University of Minnesota, Duluth 11, Minnesota.

WISCONSIN AUDUBON CAMP TO OPEN 1957 SEASON JUNE 16

An advertisement will be found elsewhere in this magazine announcing the 1957 sessions of the Audubon Camp of the Midwest. Minnesotans have shown special interest in this camp, because the original grant of land was made by a Minnesotan, Miss Frances Andrews, and a large part of the financial goal was raised through the efforts of Whitney Eastman and other M.O.U. volunteer workers.

This would seem to be a good opportunity to introduce the new director of the camp to readers of *The Flicker*. Dr. Nicholas L. Cuthbert, professor of biology at Central Michigan College, is an active ornithologist with the Michigan Audubon Society, and has been particularly active in the conservation program of this group. Mrs. Cuthbert is also well known in nature activities for her "How to Know the Spring Wildflowers" and "How to Know the Fall Wildflowers". These two guides are in the Pictured-Key Nature Series edited by her father H. E. Jaques.

With an experienced staff of naturalists to help him, Dr. Cuthbert hopes to make this year one of the most successful at the Wisconsin Audubon Camp.

MINNESOTA ORNITHOLOGISTS' UNION

AFFILIATED SOCIETIES

- 1 Albert Lea Audubon Society
- 2 Avifaunal Club
- 3 Duluth Bird Club
- 5 Mankato Audubon Society

- 6 Minneapolis Audubon Society
- 7 Minneapolis Bird Club
- 8 Minnesota Bird Club
- 9 St. Paul Audubon Society



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THE FLICKER

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THE COVER

The American Magpie by W. J. Breckenridge

THE PRESIDENT'S PAGE

In 1940 membership dues in the Minnesota Ornithologists' Union were 75 cents a year. At that time, too, \$1,800.00 was considered a fairly good annual salary. In 1954 after very careful consideration the policy committee recommended that annual dues be raised to \$2.00. This increase was approved by vote of the members in December, 1954. The increase was necessary in order to meet the rising costs of publishing *The Flicker*.

Now in 1957 we are again faced with an increase in publishing costs. Your policy committee and most of the members of the M.O.U. recognize the fact that an attractive, informative magazine which records the important happenings among Minnesota birds and the people who watch them is a vital link in our bird study. Some day, and perhaps less than 40 years from now, *The Birds of Minnesota* will be rewritten and much of the new information will come from the records assembled in *The Flicker* over the years.

At a meeting of the policy committee in Duluth on June 13, 1957, Alan Rossman of the Grand Rapids Herald-Review, publishers of *The Flicker*, presented some startling facts. I want to share these facts with you.

Mr. Rossman's firm began publishing *The Flicker* in October, 1954, and has been printing 800 copies of each issue since that time. The most economical-sized magazine for us is a 36 page issue plus four cover pages. The last four issues of our magazine have cost about \$355.00 per issue plus \$50.00 postage. Some issues have run heavy in tabular material. The more figures, graphs and charts that appear in an issue the more that issue costs.

To date the Rossman publishing company has not charged us one nickel for plates (half tones) and the cost of these has averaged about \$55.00 per issue. In order to break even and to make a small profit for his company, Mr. Rossman suggested that the following steps would be necessary: increase the cost of the September and December 1957 issues and the March 1958 issue 10 per cent and then a 20 per cent increase beginning with the June 1958 issue. Thus the next three issues would cost us about \$440.00 per issue including postage, and beginning with the June 1958 issue the cost would be \$480.00 per issue.

Futhermore, beginning with the June 1959 issue the publishers would like to begin charging for the plates which cost probably would run about \$50.00 per issue.

When the Rossman firm began publishing *The Flicker* they gave us a very low price. It was their hope and ours too that we would be able to build up the membership of the M.O.U. to a point where we could support a magazine of the present size and format. Unfortunately, we have not been able to increase the membership sufficiently, although the membership committee has done a splendid job.

What then must be our course of action? Your Policy Committee suggests the following. First of all the membership committee and every individual member of the M.O.U. must strive to get new members. And every person who is now a member of an affiliate bird club and not a member of the M.O.U. *should also become a member of the M.O.U.* A strong central organization is necessary as well as strong local clubs if the cause as well as the pleasure of bird study is to advance in our state.

Drastic measures are necessary if the bird clubs which form the M.O.U. are to continue publishing a worthwhile magazine. It is the conviction of the Policy Committee that one of the best ways to cement relationships of all bird students in the state to publish a magazine that will be read by all members *and contributed to by all members.*

Sincerely,
Arnold B. Erickson

In Memoriam: Lewis Leroy Barrett

by
Whitney Eastman

Lewis Leroy Barrett was born in St. Cloud, Minnesota, on May 11, 1908, the son of Edwin and Bertha Barrett.

He attended elementary school and technical high school in St. Cloud and graduated from St. Cloud Teachers College with a B.S. degree in 1930.

He was married to Miriam Louise Crosby of Buhl, Minnesota, on July 5, 1930, while she was attending the college in St. Cloud. He taught school in Waseca, Minnesota, from 1930 to 1936. His ability as a science teacher came to the attention of the Minneapolis Board of Education, and he received an appointment as a science teacher at Edison High School in Minneapolis, where he remained for 20 years until his death September 23, 1956.

Lewis loved his work as a science teacher and combined his academic work with scientific exploration work in the field. At the time of his death he had completed all the required courses for his master's degree in science and education. He was assembling field data and information for a book on *Natural History Spots in Minnesota* for his master's thesis. He spent many years doing extensive field work throughout the state, alone and with his sympathetic family, and assembled volumes of notes on the natural history of the state. Had God spared his life a while longer to complete this book, Lewis would have made a significant contribution for the benefit of students of natural history.

His interest in and love for birds began while in fourth grade, when his teacher conducted a contest for identifying birds. He received as first prize a bird guide which the family still treasures. This early exposure to the wonders in the field of natural history



whetted his appetite for knowledge in this field.

He was secretary-treasurer of the Junior Academy of Science for many years and was also a very active member of the Minnesota Academy of Science, the Wilson Ornithological Society, the Minnesota Ornithologists Union, of which he was president, the Minnesota Bird Club, the Minneapolis Bird Club, the National Audubon Society, the Minneapolis Science Teachers Association and the Thunder Bay Field Naturalists' Club of Canada.

During the summer of 1933 he took a refresher course in science at Iowa State College, and during the summer of 1934 he and his wife attended a Wildlife school at McGregor, Iowa. He also attended the Audubon camp in Maine in

order to learn more about conservation and wildlife ecology. He served as a member of the Conservation Commission for the Minneapolis public schools. During the summer of 1955 he took a refresher course in science at Yale University, and during the summer of 1956 attended a two-week conservation session at Ely, Minnesota, studying the Superior-Quetico Forest area.

Lewis was always studying — searching for knowledge about the world around him — not only for his own enjoyment, but in order that he might improve his teaching ability and provide more enjoyment for others.

He was never a wastrel of time. When not busy with his academic duties he sought the freedom of the outdoors. He loved nature as he loved his family and invited their companionship when he took to the field. He spent all his spare time in the field studying the flora and fauna and teaching his family, his friends, and his students. While he taught biology for 24 years and was deeply interested in all phases of natural history, his greatest interest was in the field of ornithology.

He led many field trips to "Birding Areas" throughout the Northwest, and in recent years went farther afield to visit such areas as: Aransas Refuge in Texas, Audubon Park in Louisiana, Ozark Mountain area in Missouri, the Smokies around Gatlinburg, Tennessee, and the Platte River area in Nebraska.

He was a fervent conservationist and never failed to stress conservation in the classroom as well as in the field. He was extremely active in Boy Scout work — his scouting activities dating back to his boyhood when he became an Eagle Scout.

He was a member of DeMolay in St. Cloud and entered Masonry in Waseca, later transferring to Arcana Lodge No. 187 in Minneapolis.

He was an active churchman as a member of Trinity Methodist Church. He was not a "one-day-a-week churchman" but exemplified his strong religious philosophy in his dealings with all mankind.

Everybody loved Lewis Barrett. A tribute attesting to such love was evidenced when a large number of his students passed his casket during the last day on earth with tears streaming down their faces.

Lewis Barrett will be missed for years to come, and his passing leaves a gap in the field of natural history which challenges the younger men who knew him so well.

His survivors include his wife, Miriam, who will enter teaching in Minneapolis public schools this fall, his three sons, Ronald C., graduate of Hamline University in 1956, Roger Lewis, graduate of the University of Minnesota in 1957, and Robert Alan, a sophomore at Hamline University. — *Minneapolis, Minnesota.*

ANNUAL PAPER SESSION AND BUSINESS MEETING

The annual paper session and business meeting of the Minnesota Ornithologists' Union will be held December 7 at the Museum of Natural History, University of Minnesota, Minneapolis. John Tester will act as chairman of this year's meeting, and those people who have papers or movies to present should contact Mr. Tester before the last week of November. There will be several important considerations before the membership, and it is hoped that a good representation will attend.

Sharp-Tailed Grouse in Minnesota

by

Robert E. Farnes^[1]

The Sharp-tailed Grouse, a native game bird of Minnesota, was originally found over a much larger proportion of the state than it is today. A considerable amount of Sharp-tail habitat was created in the forested region of the state during the early logging days and before fire suppression. Sharp-tails are found in wild or semi-wild regions with a large proportion of unplowed land consisting mainly of grasses, herbs and shrubs intermingled with a few small stands of hardwoods. They appear to benefit by a small amount of agriculture.

There are three main types of Sharp-tail habitat in Minnesota: (1) Wild lands removed from farming or logging operations and not yet reverted to brush and timber, (2) The transition zone between farmland and forest and, (3) The prairie. Most of the habitat in the first type is in the forested region in the eastern and north-central part of the state while that in the second and third types is found mainly in the northwestern part.

We have lost our Sharp-tail habitat at an alarming rate in the last 20 years, and unless the loss is soon checked, we will no longer have Sharp-tail hunting in Minnesota. Sharp-tail populations are still good in parts of the state, but in many others the birds are rapidly losing out and have disappeared altogether over a large area. Habitat has been lost in the forested region through the loss of the many openings created by logging, fire and farming. The natural closing in of these openings has been accelerated by tree planting. In the prairie and transition zone, habitat is being lost through too intensified agri-

culture. Uncontrolled fires or an economic depression could change this picture, but so could deliberate action to save and improve habitat — if taken soon enough.

Sharp-tails have been recorded in the following 22 counties in the past five years: Aitkin, Beltrami, Carlton, Cass, Clearwater, Crow Wing, Itasca, Kanabec, Kittson, Koochiching, Lake, Lake of the Woods, Marshall, Mille Lacs, Morrison, Norman, Pennington, Pine, Polk, Red Lake, Roseau and St. Louis. In over half of these the population is very small and will probably disappear altogether during the next five to ten years unless habitat is preserved.

The Game Research staff of the Division of Game and Fish has carried on a limited amount of work on Sharp-tails in the past five years. We annually conduct hunter bag checks in cooperation with the Warden Service to determine hunting success by county, and these checks have given us a better knowledge of distribution and comparative populations in different areas. Game biologists collect sex and age data information during the hunting season. During the past two seasons we have had hunters send in wings and tail feathers to supplement the data collected in the field. Sex can be determined by the pattern of the two middle tail feathers. Age can be determined by the condition of the two outer primaries. We hope this information will help us to better predict the outcome of the breeding season in future years.

We have trapped and banded 65 Sharp-tails, 47 of these were released in the Whitewater Refuge in southeastern

¹ Robert E. Farnes is Game Biologist for the Minnesota Division of Game and Fish at Thief River Falls. Prepared under Minnesota Pittman-Robertson Project W-11-R-16.

Minnesota in an attempt to establish the species there. No breeding records have resulted from this release, and the attempt has evidently been unsuccessful. A recovery was made of one of the birds 115 airline miles north of the release point. Of the 18 birds banded and released at the trapping site, hunters have recovered six; two of these had moved about seven miles from the trapping site.

A knowledge of the size of the population and the yearly fluctuations it undergoes is essential for the proper management of any species of game. One of the best methods for determining the size of Sharp-tailed Grouse populations is the dancing ground survey. This method takes advantage of the fact that the males gather on a common area during spring courtship. By locating dancing grounds and counting the number of males present, the population for a given area can then be computed using the sex ratio as determined by hunter bag checks the previous fall. Unfortunately when applied to the entire Sharp-tail range in Minnesota, the method requires more time and trained personnel than the Division of Game and Fish has available. Another drawback is that many roads are often impassable at the time courtship activity is at its peak. Thus game biologists were faced with the problem of finding another census method — one that could be carried out in a short period of time with limited personnel. Accordingly, a number of census methods, or more properly, methods of determining population trends, were examined to determine if they could be applied to Sharp-tails.

The roadside census had been used quite successfully on pheasants in Minnesota for a number of years. This census is taken in late summer when the hatch has just about been completed, and thus it serves to indicate the success of the breeding season. It was known that Sharp-tails, being much more secretive in their habits, would not be

seen consistently enough at this time of the year and therefore the data obtained would be unreliable. However, it was noted that Sharp-tails were seen much more frequently in the late winter and early spring than at any other time of the year.

The roadside census as a method for determining Sharp-tailed Grouse population trends was tried for the first time in Minnesota in 1951. Nine census routes varying from 16 to 37 miles were established on gravelled secondary roads in the northwestern part of the state. The routes were driven by car in March and early April starting shortly after dawn and continuing until about 8:30-9:00 a.m. The following information was recorded for each route driven: location, length, date and time run, weather conditions, phenology, number of Sharp-tail observations and total number of Sharp-tails observed. All Sharp-tails observed were recorded, regardless of the distance from the road and whenever birds were seen in or near cover, they were flushed to get a complete count. An attempt was made to run each route twice. The nine census routes totaled 191 miles and 213 Sharp-tails were seen in 49 observations; or 1.12 birds per mile and 4.3 birds per observation.

The results the first year indicated the method had good possibilities for determining population trends and it was tried again in 1952. Since then about 20 census routes have been run each year with the aid of wardens and refuge patrolmen. Birds per mile have run from a high of 2.2 in 1952 to a low of 0.6. The results of the census have compared favorably with the hunters' success ratio, a limited amount of dancing ground work, and with miscellaneous observations recorded during the winter months while going about other work. Unfortunately, this census method is only workable in the prairie and transition zone of the Sharp-tail range where the birds make more use of grain.

We would like to see considerably more work done on Sharp-tails and most other game species as well. Briefly, some of the new work proposed for Sharp-tails is as follows: A range survey to locate areas where Sharp-tails occur that can be controlled by the Division of Game and Fish and managed for Sharp-tails. If we are to continue to have Sharp-tail hunting we must act quickly because it will be much simpler to save what habitat we now have than to try and create new habitat, and also because the breeding stock is already there. Management of areas for Sharp-tails would consist primarily of maintaining the early stages of plant succession. This can be done through chemical spraying, controlled burning and cutting.

The costs of maintaining such areas would not be charged entirely to Sharp-tail management since many other species would benefit. There would be a few Ruffed Grouse and a fair number of deer present and a large number of song birds and small mammals that prefer such habitat. Prairie Chickens would also be found on some of the areas.

We would also like to experiment with various methods of maintaining and improving habitat to determine which methods are best. This would include experimental food plots of various grains and greens as well as spraying, burning, cutting and bulldozing.

Banding and marking a large number of Sharp-tails would give a great deal of additional information needed for better management on such things as movements, habitat requirements, sex and age ratios, flocking habits, sex segregation, longevity and weights. Such a program should be carried out in all types of habitat and would require at least three to five winters' work.

The roadside census gives us information on the size of the breeding popula-

tion each spring, but we still need a reliable method for determining the success of the breeding season. One method of obtaining this information may be by a post card survey of residents in the Sharp-tail range. Most of the recipients would be farmers, and population comparisons could be made on the basis of number of acres of hay mowed. A modification of this method has been tried in northwestern Minnesota for three years, and it appears to have good possibilities.

One of the first steps to be taken in saving our Sharp-tails is to draw up a game-forestry management plan. A number of forestry practices could be adopted that would be both good forestry and beneficial for Sharp-tails. In many areas Sharp-tails would have to give way to forestry, but in others, forestry would give way to Sharp-tails. Certainly Minnesota is rich enough to have both.

In the prairie and transition zone of the Sharp-tails' range where agriculture conflicts with the birds' interests, the main problem is in maintaining the rough edge. One solution might be to buy or lease small patches of brush within the farming community. At present a considerable proportion of the Sharp-tail habitat in the transition zone in northwestern Minnesota is tax forfeited land and therefore state owned. Some of this is fair agricultural land and some is entirely unsuited to agriculture. If some thought is given to Sharp-tails before this land is sold, the people of Minnesota could, if they wanted, maintain fair numbers of Sharp-tails in quite a large area.

If enough people, then, hunters as well as bird watchers, want to continue to have fair-size populations of Sharp-tails for watching and for sport they must act now to encourage the proper type of management for perpetuating this species.

Distribution of the American Magpie in Minn.

by

Arnold B. Erickson

The American Magpie has wandered widely in Minnesota. This strikingly-colored black and white bird has been recorded from at least 43 counties (see Figure 1) in all parts of the state except the extreme northeast and extreme southeast. Your chances of seeing it are good, especially in the northwestern counties in fall and winter. Strange to say, however, despite its widespread emigrations, it has been recorded only twice on Christmas Bird Counts. On December 31, 1949, E. D. Swedenborg saw one at the Lake Harriet Bridle Path. It remained in this vicinity until February 25, 1950. On December 20, 1952, J. Frank Cassel saw a magpie just north of Moorhead, Minnesota, during a Christmas census conducted jointly by Fargo-Moorhead observers.

What causes the magpie to move into Minnesota from North Dakota, South Dakota, and Manitoba each fall? Certainly not a lack of food, for many of these birds come in late September and early October. Is it partial migration? Is it normal population expansion of a hardy aggressive bird? There is at least one authentic record of the magpie nesting in Minnesota and several other records that strongly point toward nesting. There is the possibility, too, and this should be tested by collecting birds, that immature magpies after the post-juvenile molt tend to wander from their place of birth. This may be nature's way of expanding the range and dissipating the population.

There have been a number of magpie years in Minnesota. Magpie years occurred in the fall and winter of 1921-22, 1936-37, 1949-50, and 1954-55. For each of these years records of 20 to 50 or more magpies have been made.

These records do not include the regular winter population estimates that have been made at the Mud Lake National Wildlife Refuge at Holt, Minnesota since 1948. I am indebted to J. C. Carlsen, biologist at the Mud Lake Refuge, for the information given in Table 1.

Since 1950, according to John M. Dahl, refuge manager of the Tamarac National Wildlife Refuge, near Detroit Lakes, Minnesota, magpies have been noted occasionally on the refuge. In the winter of 1954-55, one was taken in a trap at Egg Lake and four others were feeding in the goose pasture on the west side of Chippewa Lake. Magpies, Mr. Dahl noted, were quite numerous along the highway from Mahanomen to Crookston in November, 1955.

There has been ample opportunity to collect magpies in northwestern Minnesota, yet there are only eight specimens in the collection at the Minnesota Museum of Natural History as follows:

The earliest specimen dates from February, 1911, and was taken in a wolf trap near Badger in Roseau County. A second specimen, which probably dates from about the same time, was collected in Lac qui Parle County. The date given is December 12, but the year is uncertain. In March, 1920, a bird was collected at Zipple in Lake of the Woods County. Two specimens date from 1921; one was collected at Dundas in Rice County on November 25, and the other in Pipestone County in the fall of 1921. On October 19, 1928, Gustav Swanson collected a magpie near Robbinsdale in Hennepin County. In the Rothsay Slough in Wilkin County, Arnold Erickson, David Vesall, and Norman Ordal found a dead magpie close by an old abandoned

TABLE 1 — POPULATION ESTIMATES OF ST MAGPIES ON THE MUD LAKE NATIONAL WILDLIFE REFUGE, HOLT, MINNESOTA

Winter	Magpies First Seen	Winter Population	Magpies Last Seen
1948-49		30 to 40	
1949-50		50 to 60	
1950-51	October 11, 1950	45 to 50	April 20, 1951
1951-52	September 28, 1951	60	
1952-53	October 17, 1952	50	March 17, 1953
1953-54	October 3, 1953	50	April 2, 1954
1954-55	October 16, 1954	50	March 19, 1955
1955-56	September 30, 1955	75	April 23, 1956
1956-57	October 7, 1956		

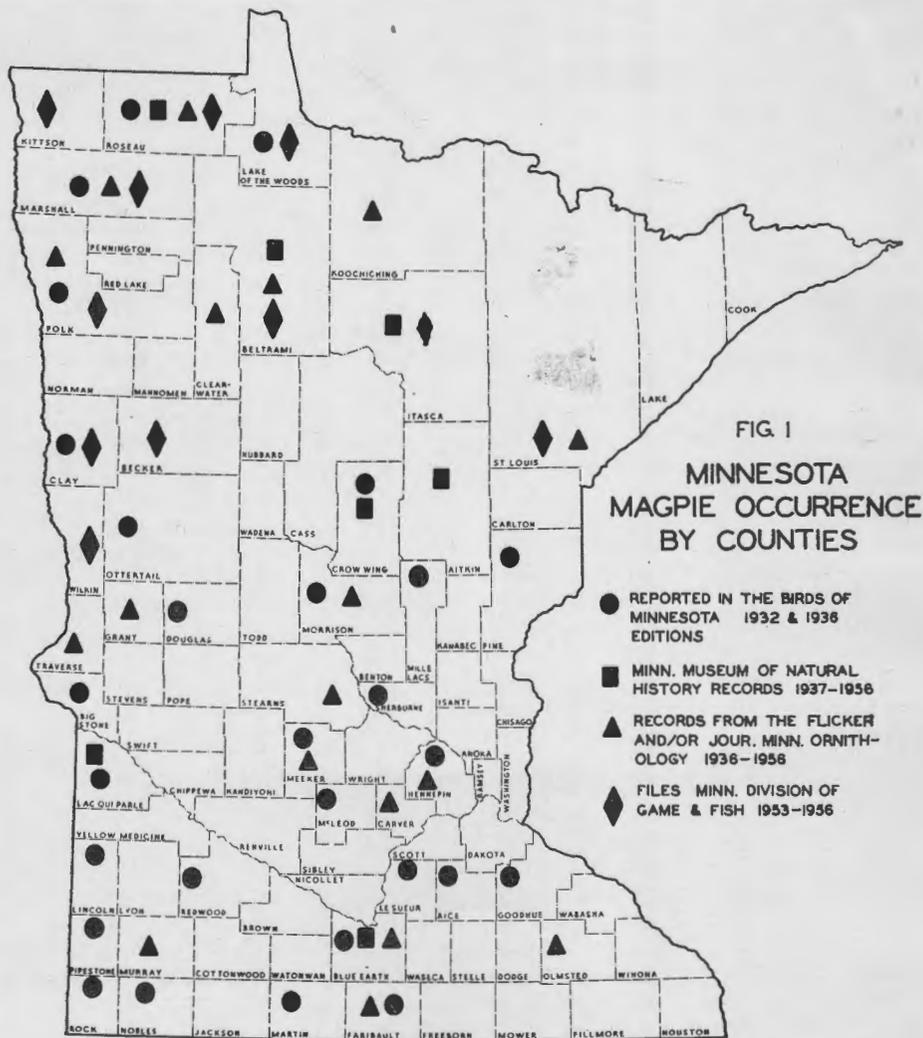


FIG 1

MINNESOTA
MAGPIE OCCURRENCE
BY COUNTIES

- REPORTED IN THE BIRDS OF MINNESOTA 1932 & 1936 EDITIONS
- MINN. MUSEUM OF NATURAL HISTORY RECORDS 1937-1956
- ▲ RECORDS FROM THE FLICKER AND/OR JOUR. MINN. ORNITHOLOGY 1936-1958
- ◆ FILES MINN. DIVISION OF GAME & FISH 1953-1956

farm on January 16, 1951. This bird is in the Museum of Natural History skeleton collections.

In the bird collection of the St. Cloud Teachers College, division of mathematics and science, there is a mounted magpie. According to Dr. H. H. Goehring of this division, (letter dated November 17, 1956) the bird was secured for the college by George Friedrich from the heirs of the taxidermist, Fred Barker, of Parkers Prairie, Minnesota. Although there are no data for this specimen, Dr. Goehring believes that it may have been collected not too far from Parkers Prairie.

In the same letter cited above, Dr. Goehring states that Mr. Kinsey, agricultural instructor at Technical High School, saw a magpie on April 29, 1952, one-half mile northeast of Sartell, Minnesota. According to this description the bird could have been in either Stearns or Benton Counties. Sartell is situated in both counties.

Finally in July, 1951, Warden Leo Manthei, of the Minnesota Division of Game and Fish, located two adult magpies in Eland Township, Beltrami County, which appeared to be nesting. Later, in September Mr. Manthei found five young birds with the two adults. Local farmers tried to shoot the birds but were unsuccessful. Using a crow call, Mr. Manthei called the birds in. He collected one adult, now in the Museum collection. Later in the fall after the leaves had dropped from the trees he found the bushel-basket-sized nest in a scrubby aspen.

Mr. Manthei also reported that he saw a pair of magpies east of Funkley, Minnesota, along state highway 71 for a period of several weeks in the summer of 1953. This may have been a nesting pair although Mr. Manthei found neither nest nor young.

The opportunity to increase our knowledge of the magpie in Minnesota awaits some fortunate bird student in

the northwestern part of the state. Each fall magpies appear in fairly good numbers and remain until spring. Ten to 20 birds could probably be collected each winter on which sex and age could be determined. Also birds could probably be trapped, banded, and color marked on the Mud Lake Refuge. In time information on the movements and the sex and age of the birds coming to Minnesota would help us to know what kind of migration and/or range expansion is now taking place. It would help also if bird students living in the breeding range of the magpie in North Dakota, South Dakota, Manitoba and Saskatchewan could be encouraged to band magpies. According to a report received from Allen Duvall of the Bird Banding Office, U. S. Fish and Wildlife Service, no banded magpies have been recovered in Minnesota and no magpies have ever been banded here.



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Magpies are numerous in North Dakota. The state paid bounty on 10,693 of these birds during the period April 1, 1955 to April, 1956. Bounty has been paid on approximately 10,500 magpies each year since 1950. Although most of the birds come from the counties west of the Missouri River, a few are taken each year in counties near the Minnesota line. I am indebted to Dr. I. G. Bue, deputy commissioner, of the North Dakota Game and Fish Department for this information.

Many other observers have contributed records for this report or have helped me in its compilation. Dr. W. J. Breckenridge permitted use of records and specimens deposited in Minnesota Museum of Natural History, and John R. Tester, also of the Museum staff, helped me check the material made available by Dr. Breckenridge. John M. Idstrom of the Bureau of Research and Planning, Minnesota Division of Game and Fish, drew the figure showing distribution.

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Observation records were submitted by Forrest B. Lee, Norman J. Ordal, John L. Zorichak, David B. Vesall, Robert E. Farmes, Donald W. Buralow, Vernon E. Gunvalson, Emil H. Frank, Leo Manthei, E. D. Swedenborg, George W. Hamner, Willard E. West, J. C. Carlsen, John M. Dahl, Arthur S. Hawkins, and J. Donald Smith.

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Survey of the Birds of Rice County, Minnesota

by

Orwin A. Rustad

*BLACK-BILLED CUCKOO — (*Coccyzus erythrophthalmus*). A summer resident nesting in the wooded areas throughout the county. The cuckoos, especially the Black-billed Cuckoo, were more numerous during the summer of 1953 than in the past several years. (*Flicker*, Vol. 25, No. 3, Sept. 1953, p. 107).

*inadvertently omitted from Part I Birds of Rice County.

*YELLOW-BELLIED FLYCATCHER — (*Empidonax flaviventris*). Two male specimens were collected in the Northfield area, one on May 23, 1943 and one on June 13, 1951 by Pettingill.

*ALDER FLYCATCHER — (*Empidonax traillii*). A female specimen was collected (Pettingill) in the Northfield area on June 3, 1951.

*LEAST FLYCATCHER — (*Empidonax minimus*). An abundant summer resident, nesting throughout the county. The earliest spring arrival date is May 8, 1953 when one was seen in Northfield. A nest with five eggs (one Cowbird egg and four eggs of the Least Flycatcher) was found in Nerstrand Woods State Park on June 4, 1951. Two specimens were collected (Pettingill), a male on May 16, 1937 near Northfield, and a male on May 14, 1938 near Nerstrand.

*WOOD PEWEE — (*Contopus virens*). A very common summer resident nesting throughout the county. The earliest spring arrival date is April 6, 1950 when one was seen in the Arboretum. Average of six dates: April 6 to May 16 is April 14. Latest fall date is October 2, 1951 when two were seen in the Northfield area. Nesting was

observed on July 7, 1951 in Northfield. A male specimen was collected (Pettingill) on May 29, 1943 at Northfield.

OLIVE-SIDED FLYCATCHER — (*Nuttallornis borealis*). One was recorded by Prof. J. W. Hornbeck on May 29, 1921 in Northfield and was considered rare. It is a transient.

*HORNED LARK — (*Eremophila alpestris*). A common summer resident nesting throughout the county except in heavily forested areas. It is hard to determine the first dates in the spring and the last in the fall because wintering dates are quite numerous. From 25 dates it can be assumed that the average spring arrival date for the county is between February 25, to February 28, with the latest March 7. A female specimen was collected (Pettingill) on September 27, 1940 in Northfield. Horned Larks were seen on the 1951 and 1952 Christmas Bird Counts (*Audubon Field Notes*, Vol. 6 and 7; No. 2, April 1952 and 1953).

TREE SWALLOW — (*Irodoprocne bicolor*). A summer resident in limited numbers. On June 21, 1956 several pairs were found with young. Their nests were in the cavities of dead willow trees located in the open water of Paulson's Marsh in Forest Township.

*BANK SWALLOW — (*Riparia riparia*). A common summer resident nesting throughout the county. The earliest spring arrival date is April 15, 1937 when ten were seen in the arboretum and the latest fall date is September 13, 1953 when over 200 were seen near General Shield's Lake. A nest with six eggs was recorded on June 1, 1951 in the Arboretum. A male specimen was

collected (Pettingill) on May 15, 1951 in Northfield.

*ROUGH-WINGED SWALLOW — (*Stelgidopteryx ruficollis*). A common summer resident nesting throughout the county. The earliest spring arrival date is April 25, 1952 at Northfield. A nest with six eggs was recorded on June 1, 1951 south of Northfield. A male was collected (Pettingill) on May 22, 1937 near Northfield.

BARN SWALLOW — (*Hirundo rustica*). A common summer resident throughout the county. The earliest spring arrival date is April 27, 1953 in the Northfield area.

CLIFF SWALLOW — (*Petrochelidon pyrrhonota*). The Cliff Swallow is not common in the county. A few are seen during migration. No nesting record is known for the area. Earlier records do not mention this species in the county.

*PURPLE MARTIN — (*Progne subis*). A very common summer resident, nesting throughout the county. Earliest spring arrival date recorded is April 2, 1940 when two males and one female were seen in the Northfield area. Average of 20 dates: April 2 to April 22, is April 9. The latest fall date is September 21, 1952 in the Northfield area. A male specimen was collected (Pettingill) on May 1, 1950 in the Northfield area.

*BLUE JAY — (*Cyanocitta cristata*). A common permanent resident. Nest built and first egg laid on May 4, 1949 in Northfield. Young out of nest on May 10, 1951 in Northfield. Blue Jays have been recorded each year of the 1951 to 1955 Christmas Bird Count (*Audubon Field Notes*, Vol. 6-10; No. 2, April 1952-1956). Three male specimens were collected (Pettingill) in the Nerstrand area: on October 5, 1937, on October 10, 1937 and another on January 4, 1943.

MAGPIE — (*Pica pica*). The only known record of this species being found in Rice County is a single reference made in *The Birds of Minnesota* by T. S. Rob-

erts. It is a common western species and is rare in the county.

*CROW — (*Corvus brachyrhynchos*). An abundant summer resident nesting throughout the county. A smaller number are found here throughout the winter. The following spring migration dates are based on a decided increase in numbers over the wintering population: March 5, 1950, March 15, 1952, February 28, 1953, and March 13, 1954. According to T. S. Roberts in *Birds of Minnesota* "there is much variation (in the spring arrival dates), depending upon the weather conditions in different years."

Many older Norwegian settlers in the area speak of March 12 as "Kraakke Daggen" (Crow Day) which apparently refers to the larger number of crows returning each spring about that time. Even though my parents regularly referred to this day each spring since my childhood, I have not been able to find the origin of this interesting ornithological adage.

Crows have been recorded on each year of the Christmas Bird Count from 1951 to 1955, (*Audubon Field Notes*, Vol. 6-10; No. 2, April 1952-1956). A juvenile was collected (Pettingill) on May 29, 1938 in the Northfield area.

*BLACK - CAPPED CHICKADEE (*Parus atricapillus*). A common permanent resident throughout the county. Feeding of young has been observed on May 30, 1951, June 21, 1952 and July 21, 1951. Specimens have been collected on the following dates by Pettingill: a female on November 14, 1936 and a male on November 29, 1948 in the Northfield area: a male on September 21, 1944 near Nerstrand. The chickadee has been recorded on each Christmas Bird Count from 1951 to 1955 (*Audubon Field Notes* Vol. 6-10; No. 2, April 1952-1956).

*HUDSONIAN CHICKADEE—(*Parus hudsonicus*). An immature female was collected (Pettingill) on October 9, 1943 in the Northfield area. This is the only known record for the (Brown-

capped) Hudsonian Chickadee in the county.

TUFTED TITMOUSE — (*Parus bicolor*). An infrequent winter visitant into the county from the south. Earlier in this paper reference is made to the observations of Prof. J. W. Hornbeck in the Northfield area. His records show that the Tufted Titmouse was seen occasionally between December 30, 1920 and February 28, 1921 and was referred to as a very rare winter visitant. Prof. Hornbeck stated that, "So far as the writer has been able to ascertain, this is the fifth published record of the Tufted Titmouse in Minnesota".

The following observations are all from the Northfield area: in 1951, one was seen on November 21, and one was seen on November 22; in 1952, one was seen on March 5, one on March 7, three on November 27, one on December 14, and one during the Christmas Bird Count on December 21 (*Audubon Field Notes*, Vol. 7, No. 2, April 1953). In 1953, one was recorded on February 7, two on March 17, and two were seen on the Christmas Bird Count on December 31 (*Audubon Field Notes*, Vol. 8, No. 2, April 1954). In 1954, one was seen on February 27, one on May 1 and two on May 9.

***WHITE-BREASTED NUTHATCH**— (*Sitta carolinensis*). A very common permanent resident nesting throughout the county. The nuthatch has been recorded each year of the five year Christmas Bird Counts from 1951-1955 (*Audubon Field Notes*, Vol. 6-10; No. 2; April 1952-1956).

Specimens have been collected during the following years by Pettingill in the Northfield area: a male on October 23, 1936, a female on November 4, 1936, a male on September 29, 1937, a female on October 30, 1939, a female on October 2, 1942 and a female on October 31, 1950. In the Nerstrand area a male was collected (Pettingill) on October 15, 1943 and a female on September 21, 1944.

RED-BREASTED NUTHATCH — (*Sitta canadensis*). According to T. S. Roberts *Birds of Minnesota*, the Red-breasted Nuthatch is "chiefly a spring and fall migrant south of the evergreen forests" and "a winter resident in much reduced numbers throughout the state. . . . As a few birds remain throughout the winter there is some uncertainty in the earliest spring and latest fall dates."

The following spring arrival dates were recorded for the Northfield area: one was seen on March 10, 1952; one on April 23, 1950; one on May 10, 1954 and one on May 17, 1954. The earliest fall date is October 6, 1951 when eight were seen in the Northfield area, especially in the Arboretum, remaining in the area until November 6. The following two records are assumed to be wintering dates: one was seen on December 15, 1951 and one on December 14, 1952 in Northfield. None have been recorded on the Christmas Bird Counts, and earlier records make no mention of this species being in the county.

***BROWN CREEPER** — (*Certhia familiaris*). A spring and fall migrant, with a few half-hardy individuals wintering in the county. The Brown Creeper was seen on the following Christmas Bird Counts: December 29, 1951, December 21, 1952, December 31, 1952 and December 26, 1954 (*Audubon Field Notes*, Vol. 6, 7, 8, 9; No. 2, April 1952 to 1955).

Because of the presence of a few wintering birds the first spring arrival date is determined by a decided increase in numbers in the area during migration. The earliest spring arrival date is March 25, 1953 with 20 being seen in the Northfield area, and the latest spring arrival date is May 20, 1951. The earliest fall arrival date is September 24, 1951. The peak of the fall migration was on October 13, 1951 when 30 were seen in Northfield. The largest number recorded as wintering was on February 27, 1954 when ten were seen in the Arboretum in Northfield.

A female specimen was collected (Pettingill) on each of the following dates: October 3, 1940, October 9, 1941, September 25, 1944 and May 2, 1945 in the Northfield area.

***HOUSE WREN** — (*Troglodytes aedon*). An abundant summer resident nesting throughout the county. The earliest spring arrival date is April 20, 1941 when one was seen in Faribault. Average of 20 dates: April 20 to May 8 is May 1. The latest fall date is October 12, 1933 in Faribault.

A male specimen was collected (Pettingill) on each of the following dates in the Northfield area: May 7, 1937, May 26, 1943, May 7, 1943, and May 26, 1945.

***WINTER WREN** — (*Troglodytes troglodytes*). An uncommon migrant in the county. The earliest spring arrival date is April 4, 1951 in Northfield (*Audubon Field Notes*, Vol. 5, Nov. 4, Aug. 1951). The latest spring date is May 9, 1954 when six were seen in the Northfield area.

A male specimen was collected (Pettingill) on October 23, 1936 in the Northfield area, and a female taken in the Nerstrand area on September 23, 1939.

BEWICK'S WREN — (*Thryomanes bewickii*). A rare visitant in the county, being recorded at Northfield in 1951 near St. Olaf College on the following dates: two were seen on April 30, two on May 10, two on May 20 and one on June 1. No nest was found.

***LONG-BILLED MARSH WREN** — (*Telmatodytes palustris*). A common summer resident nesting in the marshes throughout the county. The earliest spring arrival date is May 1, 1952 when one was seen at General Shield's Lake. A female specimen was collected (Pettingill) on October 4, 1943 in the Northfield area.

***SHORT-BILLED MARSH WREN** — (*Cistothorus platensis*). A common summer resident nesting throughout the

grassy, damp meadows of the county. Specimens have been collected (Pettingill) on the following dates in the Nerstrand area: a female on May 16, 1937, a female on September 25, 1938 and a male on September 26, 1943.

MOCKINGBIRD — (*Mimus polyglottis*). The Mockingbird was seen by Mr. and Mrs. Charles MacKenzie, Jr. at their bird feeder in Faribault during the week of December 22, 1949. This is the only known record for the county (*The Flicker*, Vol. 22, No. 1, March 1950). The Mockingbird is considered rare in the area.

***CATBIRD** — (*Dumetella carolinensis*). A very common summer resident, nesting throughout the county. The earliest spring arrival date is April 28, 1938 when one was seen in Faribault. The average of 17 dates, April 28 to May 15, is May 5. The latest fall date is November 26, 1933 in Faribault. A nest with one egg was found by Hanlon on May 28, 1953 in Faribault (*Flicker*, Vol. 26, No. 2, June 1954).

Specimens were collected (Pettingill) in the Northfield area on the following dates: an immature female on September 26, 1937, a female on May 12, 1949, and a male on May 22, 1945.

***BROWN THRASHER** — (*Toxostoma rufum*). A very common summer resident, nesting throughout the county. The earliest spring record is February 18, 1932 when one was seen in Faribault. The average of 21 dates, Feb. 18 to May 15, is April 27. The latest fall record is October 10, 1933 in Faribault. A nest with four eggs was recorded on May 10, 1951 and a nest with four eggs on June 1, 1951 in the Northfield area.

Specimens were collected (Pettingill) in the Northfield area on the following dates: a female on May 7, 1937, a female on May 17, 1945 and a male on May 12, 1949.

***ROBIN** — (*Turdus migratorius*). A very common summer resident, nesting throughout the county, with limited numbers occasionally wintering in sheltered

places. The earliest spring arrival date is March 2, 1939 when two were seen in Faribault. The average of 25 dates, from March 2 to April 3 is March 11. The latest fall record is November 28, 1951 when one was seen in Northfield. Nine robins were recorded on the Christmas Bird Count taken on December 26, 1955 at the Arboretum (*Audubon Field Notes*, Vol. 10, No. 2, April 1956). Nesting: nests with eggs have been recorded between May 9 to May 21; nests with young between May 25 to June 10; and young out of the nest between June 26 to July 7.

Specimens have been collected (Pettingill) in the Northfield area on the following dates: a male on October 23, 1936, a male on May 2, 1939, a female on September 23, 1944, a female on April 25, 1949 and a male on April 24, 1951.

*WOOD THRUSH — (*Hylocichla mustelina*). An abundant summer resident in the woodland areas, nesting throughout the county, especially in the Nerstrand Woods State Park. The earliest spring arrival date is April 14, 1936 when one was seen in the Faribault area. Average of 11 dates: from April 14 to May 17 is May 8. The latest fall date is October 15, 1933 in the Faribault area. Nesting record: incubation on June 7, 1951 in the county was observed by Longley (*Flicker*, Vol. 24, No. 1, March 1952.)

Specimens have been collected (Pettingill) in the Nerstrand area on the following dates: a male on May 26, 1938 and a female on May 31, 1943.

*HERMIT THRUSH — (*Hylocichla guttata*). A spring and fall migrant in the county. The earliest spring arrival date is April 8, 1952 and the latest is May 10, 1954.

Three specimens have been collected (Pettingill) on the following dates near Northfield: a female on May 7, 1937, a male on October 14, 1937 and a female on April 18, 1949.

*OLIVE-BACKED THRUSH — (*Hylocichla ustulata*). A spring and fall

migrant with the earliest spring arrival date being April 30, 1951 and the latest, May 15, 1952.

Eight specimens have been collected (Pettingill) in the Northfield area on the following dates: a male on May 18, 1937, a female on May 25, 1938, a male on May 8, 1943, a female on May 16, 1943, a male on May 24, 1943, a male on May 26, 1943, a male on May 22, 1945, and a female on May 1, 1950.

*GRAY-CHEEKED THRUSH — (*Hylocichla minima*). A spring and fall migrant. The earliest spring arrival date is May 5, 1953 and the latest is May 15, 1954.

Three specimens have been collected (Pettingill) in the Northfield area on the following dates: a female on May 27, 1937, a male on May 8, 1943, and a female on May 15, 1945.

*VEERY — (*Hylocichla fuscescens*). The Veery is a common summer resident with the earliest spring arrival date being May 9 and the latest June 14. The Veery is especially common in the Nerstrand Woods State Park during the nesting season.

A female was collected (Pettingill) on May 15, 1940 and a male on May 22, 1945 in the Northfield area.

*BLUEBIRD — (*Sialia sialis*). A common summer resident nesting throughout the county. The earliest spring date is February 22, 1939 when two were seen in Northfield. The average of 22 dates, from February 22 to April 28, is March 20. The latest fall record is November 15, 1933. One male was recorded on the Christmas Bird Count on December 31, 1953 in Northfield (*Audubon Field Notes*, Vol. 8, No. 2, April 1954). October 23, 1951 is another record of a late remaining Bluebird in the Northfield area (*Audubon Field Notes*, Vol. 6, No. 3, June 1952).

A juvenile was collected (Pettingill) on May 28, 1938 and a male on May 2, 1939 in the Northfield area.

BLUE-GREY GNATCATCHER — (*Poliaptila caerulea*). As far as is

known, there is only one record of this species in the county. One was seen in Northfield on May 1, 1954 by Barrett (*The Flicker*, Vol. 26, No. 2, June 1954). The gnatcatcher is considered rare in the area.

*GOLDEN-CROWNED KINGLET— (*Regulus satrapa*). An abundant spring and fall migrant with a number of winter records. The earliest spring arrival date is March 23, 1953 and the latest April 22, 1942. During the Christmas Bird Count in the Northfield area 12 were recorded on December 21, 1952 and two on December 31, 1953 (*Audubon Field Notes*, Vol. 7 and 8; No. 2, April 1953 and 1954).

Three specimens have been collected (Pettingill) in the Northfield area on the following dates: a female on October 8, 1937, a female on September 26, 1944, and a male on October 2, 1950.

*RUBY-CROWNED KINGLET — (*Regulus calendula*). An abundant spring and fall migrant. The earliest spring record is March 21, 1933. Average of seven dates, March 21 to April 29 is April 11. (Latest, May 18, 1952, Northfield). Fall: earliest September 20, 1952 and the latest is November 16, 1953.

Three specimens have been collected (Pettingill) in the Northfield area on the following dates: a male on April 17, 1943, a female on April 24, 1943 and a female on May 10, 1943.

AMERICAN PIPIT — (*Anthus spinoletta*). An uncommon spring and fall migrant, with only four records for the county. Two were seen on March 29, 1951 near Northfield, 24 were recorded on March 23, 1953 in the Arboretum by George Palmer, and three were seen on April 19, 1953 in a field near Cannon Lake. Only one fall record is known when one was seen on November 29, 1952 in the Arboretum.

*CEDAR WAXWING — (*Bombycilla cedrorum*). A common summer resident with considerable numbers often wintering in the area. The earliest spring ar-

rival date is March 7, 1951 when 12 were seen in Northfield. Average of 10 dates: March 7 to April 28 is April 5. Twenty were recorded on the Christmas Bird Count in Northfield on December 31, 1943 (*Audubon Field Notes*, Vol. 8, No. 2, April 1954). A female was collected (Pettingill) on May 24, 1950 in Northfield.

....NORTHERN SHRIKE — (*Lanius excubitor*). A rare winter visitant from the north. Only one record is known for the county. One was seen during the Christmas Bird Count on December 31, 1953 in Northfield (*Audubon Field Notes*, Vol. 8, No. 2, April 1954).

*MIGRANT SHRIKE — (*Lanius ludovicianus*). A summer resident nesting throughout the county. The earliest spring arrival date is March 18, 1953 when one was seen in the Northfield area. The average of six dates, from March 18 to April 19, is April 10. Nesting: nest with eggs found on June 1, 1951, and young out of the nest recorded on June 21, 1952.

A male and female specimen were collected on April 5, 1940 in the Northfield area by Pettingill.

STARLING — (*Sturnus vulgaris*). The Starling was introduced into the United States (New York City) about 1890 and first reported in southeastern Minnesota about 1931. A flock of 50 was seen near Faribault on February 23, 1941. I have no records for this species in the county before that date, however, it can be assumed that the Starling was in the area before that date. The Starling has been reported on each Christmas Bird Count taken since 1951 in the area and is considered a permanent resident. (*Audubon Field Notes*, Vol. 6, 7, 8, 9, 10; No. 2, April 1952-1956).

The U.S.D.A. Farmers' Bulletin number 1571 states that, "The migratory instinct may become more pronounced after the birds are more generally distributed and familiar with conditions in the warmer southern states." The min-

gling of Starlings with flocks of Bronzed Grackles during fall migration was noted as early as 1948. This led the writer to speculate as to whether some migration might be taking place with a lesser number wintering.

In the spring of 1952 and 1953 a decided increase in numbers of Starlings, as compared to the winter population in the area, was indicated. On March 16, 1952 this increase in numbers was apparent and coincidental with the first arrival date of the Red-wing Blackbird. The first arrival date of the Bronzed Grackle was March 28 of that year. On March 14, 1953 this apparent increase in numbers in the Starling population was noted and was coincidental with the first arrival date of the Bronzed Grackle. The first arrival date of the Red-wing Blackbirds was March 15. No obvious mingling with the Bronzed Grackles or the Red-wing Blackbirds was noted at this time. An apparent decrease in numbers in the fall appears less regular and less obvious, but the following dates have shown a decrease: November 6, 1951, November 9, 1952 and November 15, 1953. These dates are consistent with the last seen dates of either the Bronzed Grackles or the Red-wing Blackbirds. Banding records are necessary to determine whether the Starling is actually migrating, and if so, the extent it migrates.

***YELLOW-THROATED VIREO** — (*Vireo flavifrons*). A spring and fall migrant in limited numbers. No nesting or summer records are known for the county. Earliest spring record is May 8, 1941 when five were seen in the Arboretum. Average of five dates, May 8 to May 18, is May 10.

A male was collected (Pettingill) on May 9, 1937 in Northfield.

***BLUE-HEADED VIREO** — (*Vireo solitarius*). The only records of this migrant known in the county are the three specimens collected by Pettingill from the Northfield area. A female was

taken on May 22, 1937, another female was collected on May 22, 1945 and a male on May 12, 1950.

***RED-EYED VIREO** — (*Vireo olivaceus*). An abundant summer resident nesting throughout the county. The earliest spring arrival date is April 15, 1933 when one was seen in Faribault. Average of eight dates, April 15, to May 16 is May 9. The latest fall date is September 18, 1951.

An immature female was collected (Pettingill) on September 27, 1937 and a male was taken on May 17, 1950 in the Northfield area.

***PHILADELPHIA VIREO** — (*Vireo philadelphicus*). The only known records for this migrant in the county are the specimens collected by Pettingill in the Northfield area. The following were collected: a male on May 22, 1938, a female on May 24, 1938, a female on May 25, 1938, a male on May 28, 1943, a male and a female on May 29, 1943, a male on May 22, 1940 and a female on May 25, 1945.

***WARBLING VIREO** — (*Vireo gilvus*). A summer resident nesting throughout the county, with the earliest spring arrival date May 5, 1949. Three specimens have been collected (Pettingill) in the Northfield area as follows: a male on May 9, 1937, a male on May 13, 1937 and a female on May 14, 1940.

***BLACK AND WHITE WARBLER** — (*Mniotilta varia*). A common spring and fall migrant. The earliest spring arrival date is April 10, 1932. Average of 10 dates, April 10 to May 13 is May 1. Four specimens have been collected (Pettingill) in the Northfield area on the following dates: a female on May 20, 1937, a female on May 19, 1938, a male on May 22, 1938 and a male on May 10, 1945.

PROTHONOTARY WARBLER — (*Protonotaria citrea*). Only one known record of this migrant in the county. On May 14, 1953 one was seen in the Arboretum in Northfield.

BLUE-WINGED WARBLER—(*Vermivora pinus*). Four Blue-winged Warblers were seen on June 1, 1951 near St. Olaf College in Northfield. This is the only known record of this species occurring in the county. It is considered rare in this area.

*TENNESSEE WARBLER — (*Vermivora peregrina*). A common migrant with May 9, 1953 the earliest spring record when over 100 were observed in the Northfield area. Ten specimens have been collected (Pettingill) in the Northfield area as follows: one male was collected on May 22, 1937, two males and one female on May 22, 1943, two females and one male on May 24, 1937, two males and one female on May 22, 1943, two females and one male on May 24, 1943, one male on May 19, 1950, one female on May 20, 1950 and one male on May 19, 1951.

*ORANGE-CROWNED WARBLER—(*Vermivora celata*). A spring and fall migrant. The earliest spring record is May 5, 1943 and the latest fall record is October 7, 1937. These were both collecting dates when specimens were taken in the Northfield area by Pettingill. A total of six birds were collected (Pettingill) in the Northfield area as follows: a male on May 8, 1937, a female on May 23, 1937, a male on October 7, 1937, a male on October 2, 1942 a male on May 5, 1943, and a female on May 15, 1945.

*NASHVILLE WARBLER — (*Vermivora ruficapilla*). A spring and fall migrant, with the earliest spring record May 5, 1953 (Pettingill) and the latest fall record October 8, 1952. Six specimens have been collected (Pettingill) in the Northfield area on the following dates: a male on May 16, 1937, a male on October 2, 1941, a male on May 5, 1943, an immature female on September 25, 1943, a male on September 25, 1944 and a male on May 15, 1950.

*PARULA WARBLER — (*Parula americana*). An uncommon spring and fall migrant with only two known rec-

ords in the county. A male specimen was collected (Pettingill) in the Northfield area on May 8, 1937.

*YELLOW WARBLER — (*Dendroica petechia*). A very common summer resident nesting throughout the county. The earliest spring arrival date is May 1, 1952. Average of ten dates, May 1 to May 22, is May 11. The latest fall date is September 21, 1952. A nest with one egg was recorded on May 25, 1953 (*Flicker*, Vol. 26, No. 2, June 1954). Four specimens were collected (Pettingill) in the Northfield area on the following dates: a male on May 8, 1937, a male and female on June 2, 1943 and a female on May 24, 1945.

*MAGNOLIA WARBLER — (*Dendroica magnolia*). A spring and fall migrant, with the earliest spring record May 1, 1949 in Northfield. Average of five dates, May 1 to May 22, is May 10. Five specimens have been collected (Pettingill) in the Northfield area: a male on May 22, 1937, a female on May 19, 1938, a female on May 24, 1943 and a male and female on May 5, 1945.

*CAPE MAY WARBLER — (*Dendroica tigrina*). A spring and fall migrant in limited numbers with May 12 an average spring arrival date. Two skin specimens were collected by Pettingill, a male on May 13, 1937 and another male on May 24, 1943 in the Northfield area.

BLACK-THROATED BLUE WARBLER — (*Dendroica caerulescens*). An uncommon migrant in the county with only two known records. One female was seen on September 15, 1951 in Nerstrand Woods State Park and one on October 8, 1951 in the Northfield area.

*MYRTLE WARBLER — (*Dendroica coronata*). An abundant spring and fall migrant. The earliest spring arrival date is April 8, 1952 in the Northfield area. The average of nine dates, April 8 to May 1, is April 23. The latest fall date is October 30, 1933 in the Faribault area. (Continued on page 110)

Wood Duck

By Orwin A. Ruston



Burning out the grease barrels which are to be used for all the metal "predatorproof" Wood Duck nesting houses.



Wood Duck house project showing 120 pound grease barrel, a metal "duck ladder", shovel of saw dust product.



Installing wooden cleats to the inside of barrel. These serve as "duck ladders" to help the young in leaving the nesting box. A layer of automobile undercoat may be applied to the interior of the barrel to serve the same purpose.

Wood Duck house and ready for use



House Project

and Forrest B. Lee



the raw materials consisting of a
one for the roof, wooden cleat for
r nesting material, and the finished

attached to a tree



Cutting an entrance hole of size recommended
by the Illinois Natural History Survey to make
it "raccoonproof".

*Photo credit: Minnesota Conservation Department,
Division of Game and Fish, Bureau of



Research and Planning, Game Research Unit.
Attached inverted, galvanized metal cone for the
roof.

(Continued from page 107)

Eight specimens have been collected (Pettingill) in the Northfield area on the following dates: a female on April 23, 1937; a male on October 8, 1940; a female on September 23, 1943; an immature female on September 25, 1943; an immature female on September 28, 1943; an immature (sex unknown) was collected on October 9, 1943; a female on September 23, 1944; and a male on May 12, 1950.

BLACK-THROATED GREEN WARBLER — (*Dendroica virens*). There is a single sight record for the county, one was seen by Prof. J. W. Hornbeck in the Northfield area on May 17, 1921. He considered the species a rare transient for this area at that time.

***CERULEAN WARBLER** — (*Dendroica cerulea*). Four specimens of the Cerulean Warbler have been collected (Pettingill) in the county on the following dates: a male on May 24, 1945 in the Northfield area; and in the Nerstrand area a male and female on May 25, 1938 and a male on May 30, 1943. These are the only known records of this transient in the county.

***BLACKBURNIAN WARBLER** — (*Dendroica fusca*). Prof. J. W. Hornbeck recorded that one had been seen in Northfield on May 22, 1921. Pettingill collected the following specimens of this uncommon transient in the Northfield area: one female on May 28, 1943, one male on May 17, 1945, and a male and a female on May 24, 1945.

***CHESTNUT-SIDED WARBLER** — (*Dendroica pensylvanica*). The earliest spring arrival date of this transient is May 12, 1921 (Hornbeck) and the latest fall date is September 20, 1952 in the Northfield area. A male was collected (Pettingill) on May 30, 1938 in Northfield.

***BAY-BREASTED WARBLER** — (*Dendroica castanea*). Only one record of this transient being found in the county. A female was collected (Pettingill) on May 29, 1943 in Northfield.

***BLACK-POLL WARBLER** (*Dendroica striata*). A common spring and fall migrant with the earliest spring arrival date April 15, 1937, the average about May 15. Seven specimens have been collected (Pettingill) in the Northfield area on the following dates: a male on May 25, 1938; a male on May 24, 1943; a female on May 25, 1943; a female on May 28, 1943; a female on May 30, 1943; a female on May 15, 1945; and a male on May 18, 1951.

PINE WARBLER — (*Dendroica pinus*). An uncommon migrant with April 20, 1921 the earliest spring arrival date when one was seen in the Arboretum (Prof. J. W. Hornbeck). The latest arrival date is May 7, 1950.

***PALM WARBLER** — (*Dendroica palmarum*). A common spring and fall migrant with the earliest spring arrival date April 29, 1952. A male was collected (Pettingill) on April 23, 1937, a female on May 16, 1943, a male on September 25, 1944 and a male on May 11, 1950.

***OVEN-BIRD** — (*Seiurus aurocapillus*). A summer resident being especially common during the nesting season in Nerstrand Woods State Park. The earliest spring arrival date is May 9, 1953 and recorded as being especially abundant on June 1, 1951. A specimen was collected (Pettingill) on May 19, 1938 in the Northfield area.

***NORTHERN WATER-THRUSH** — (*Seiurus noveboracensis*). A spring and fall migrant in limited numbers with May 11, 1952 the earliest spring arrival date when five were seen near Lake Mazaska at Shieldsville. Three females were collected (Pettingill) on the following dates near Northfield: April 16, 1943; September 18, 1943 and May 9, 1950.

LOUISIANA WATER-THRUSH — (*Seiurus motacilla*). The only records are those of Prof. J. W. Hornbeck when three were seen on May 9, 1921 and again seen on May 14 and May 17 of that year. It is not known to nest in the area and is considered rare.

*CONNECTICUT WARBLER — (*Oporornis agilis*). An uncommon migrant. One was seen on May 10, 1951 at Northfield and a male was collected (Pettingill) on May 30, 1943 near Nerstrand. These are the only two known records for the county.

*MOURNING WARBLER — (*Oporornis philadelphia*). A spring and fall migrant in limited numbers with May 16, 1951 the earliest spring arrival date and September 15, 1952 the latest fall date. Three specimens have been collected in the Northfield area (Pettingill) on the following dates: a female on May 30, 1943, a male on May 29, 1949, and a male on May 24, 1950.

*YELLOW-THROAT — (*Geothlypis trichas*). A common summer resident nesting throughout the county. May 10, 1950 is the earliest spring arrival date and September 16, 1952 the latest fall date. The Yellow-throat regularly nests in the Arboretum, Nerstrand Woods State Park and on the Heron Island at Shield's Lake. Five specimens have been collected (Pettingill) in the Northfield area: an immature male on September 30, 1937; a female on May 21, 1938; a male on May 21, 1941; a female on May 26, 1943; a female on May 28, 1943; and a male on September 18, 1943.

*WILSON'S WARBLER — (*Wilsonia pusilla*). A spring and fall migrant, usually in limited numbers. The earliest spring arrival date is May 5, 1953 and the latest fall date is September 15, 1952. A female was collected (Pettingill) in the Northfield area on May 24, 1938.

*CANADA WARBLER — (*Wilsonia canadensis*). A spring migrant in limited numbers with May 6, 1936 the earliest spring arrival date. A male was collected (Pettingill) on May 22, 1950 in the Arboretum. No fall dates have been recorded.

*REDSTART—(*Setophaga ruticilla*). An abundant summer resident nesting throughout the county in wooded areas. Earliest spring arrival date is May 11,

1950. Average of nine dates, May 11 to May 22, is May 15. The latest fall date is October 12, 1933 at the Nerstrand Woods State Park. Nesting records: at Shield's Lake a female was flushed from a nest on June 4, 1951, no eggs were found; a nest with young was found at Shield's Lake on July 21, 1951. A nest with four eggs, (2 Cowbird eggs and 2 Redstart eggs) was found on June 7, 1951 by Longley (*The Flicker*, Vol. 24, No. 1, March 1952).

Two males were collected (Pettingill) on the following dates: May 29, 1943 near Northfield and another on May 14, 1938 at Nerstrand.

*ENGLISH SPARROW — (*Passer domesticus*). Eight pairs were imported from either England or Germany in 1850 and released at Brooklyn, N. Y. in the spring of 1851. In June 1875 a J. W. Prince brought one dozen from New York to St. Paul. The first appearance of English (House) Sparrows in Minneapolis was in 1876 when a flock was seen by Dr. T. S. Roberts. On November 8, 1881 it was first seen in Austin. No record has been found as to when it was first seen in Rice County, but it can be assumed that this species entered the county about 1881, and has been on the increase ever since.

Four specimens have been collected (Pettingill) in the Northfield area: a female on January 10, 1937; a male on January 14, 1937; two females on January 25, 1949; and a male on February 28, 1949.

The English Sparrow has been recorded on each of the Christmas Bird Counts taken from 1951 to 1955 (*Audubon Field Notes*, Vol. 6 to 10; No. 2, April 1952 to 1956).

*BOBOLINK — (*Dolichonyx oryzivorus*). A common summer resident nesting throughout the county in suitable lowland and prairie areas. The earliest spring arrival date is May 8, 1949. The average of seven dates, from May 8 to May 19, is May 14. Three specimens have been collected (Pettingill) in the

Nerstrand area on the following dates: a male on May 16, 1937 and a male and female on May 23, 1937.

***EASTERN MEADOWLARK** — (*Sturnella magna*). A specimen was collected (Pettingill) of a female Eastern Meadowlark on October 23, 1936 near Northfield. This is the only known record for the county. This species is considered rare in the area. As far as known none are nesting in the area. Several unconfirmed reports have been received of hearing this bird along the extreme eastern edge of the county near the Goodhue County line.

***WESTERN MEADOWLARK** — (*Sturnella neglecta*). A very common summer resident nesting throughout the county. The earliest spring arrival date is March 9, 1936 in Faribault. The average of 22 dates, from March 9 to April 5, is March 18. Nesting in Northfield area: nest with five eggs on May 29, 1951; nest with five eggs on June 1, 1951; adult carrying food on May 21, 1953 (*The Flicker*, Vol. 26, No. 2, June 1954). Five specimens have been collected (Pettingill) on the following dates: in the Northfield area a male on May 17, 1937, a female on April 6, 1940 and a male on April 17, 1940; in the Nerstrand area a female on October 4, 1938 and an immature female on September 28, 1943.

Winter Records of Meadowlarks

All winter records are being reported as meadowlarks, rather than either the eastern or western forms, until an accurate identification is made either by its song or by skin collections. According to *Birds of Minnesota*, by T. R. Roberts, "Both the Eastern and Western Meadowlarks may, rarely, be found in the winter in the southern part of the state, singing as loudly and happily with the temperature far below zero as in the springtime." To date the writer has never heard a wintering meadowlark sing. The Eastern Meadowlark is thought to occur slightly farther north in the winter.

The following are the records of

meadowlarks having been seen on Christmas Bird Counts in the Northfield area: one was seen on December 29, 1951; ten on December 31, 1953 and five on December 26, 1954 (*Audubon Field Notes*, Vol. 6, 8 and 9; No. 2; April 1952, 1954 and 1955). Also, one was seen wintering on February 26, 1954 and four on February 12, 1941 in the Faribault area.

YELLOW-HEADED BLACKBIRD— (*Xanthocephalus xanthocephalus*). A common summer resident nesting throughout the county in suitable marsh areas. Earliest spring arrival date is March 18, 1953 when two were seen at Wells Lake. Average of 16 dates, from March 18 to May 16 is April 27.

***RED-WING** (*Agelaius phoeniceus*). A common summer resident nesting throughout the county. The earliest spring arrival date is March 10, 1936 when one male was seen in Faribault. The average of 22 dates, from March 10 to April 2, is March 21. The latest fall date is November 20, 1933. Nesting: Nest building on May 10, 1951; nest with three eggs (including one Cowbird's egg) on May 29, 1951; nest with four eggs on May 30, 1951. No winter dates known for this area.

Nine specimens have been collected (Pettingill) on the following dates: in the Northfield area a male on May 8, 1937; a female on October 7, 1937, a male on October 28, 1937, a female on October 8, 1940, two females and an immature female on October 7, 1943; in the Nerstrand area a male and a female were collected on May 16, 1937.

ORCHARD ORIOLE — (*Icterus spurius*). The only known record for the county is that of Prof. J. W. Hornbeck. His records show that two were seen on May 24, 1921 in Northfield, and again on May 27 of that same year. Nesting in the area was also recorded at that time. However, the species was considered rare for the area at that time as they are now.

*BALTIMORE ORIOLE — (*Icterus galbula*). A common summer resident throughout the county. The earliest spring arrival date is April 1, 1946 in Faribault. This is exceptional. Four other early dates for April are: April 27, 1941, 1942, 1948; and April 30, 1933. The average of 19 dates, from April 1 to May 22, is May 5. The latest fall date is September 20, 1933. Nesting: a new nest completed on June 1, 1951 in the Arboretum. Three male specimens have been collected (Pettingill) on the following dates: May 17, 1937, May 25, 1937 and May 21, 1948.

*RUSTY BLACKBIRD — (*Euphagus carolinus*). A spring and fall migrant with the earliest spring arrival date April 2, 1952, when over 500 were seen in the Arboretum. Two were recorded during the Christmas Bird Count on December 21, 1952 in the Arboretum (*Audubon Field Notes*, Vol. 7, No. 2, April 1953). Several specimens were collected (Pettingill) in the Northfield area: a male and a female on October 23, 1936 and a male and female on April 16, 1940.

BREWER'S BLACKBIRD — (*Euphagus cyanocephalus*). A migrant in limited numbers having been observed in the area on the following dates during migration: April 2, September 21, November 3, and November 9, 1952.

*BRONZED GRACKLE — (*Quiscalus quiscula*). A very common summer resident nesting throughout the county. The earliest spring arrival date is March 4, 1951 when 15 were seen in Northfield. The average of 21 dates, from March 4 to April 10, is March 21. Two February dates are considered wintering records: February 28, 1934 in Faribault, and February 5, 1950 in Northfield.

Nesting: May 10, 1952, nesting in Northfield: June 1, 1951, one young out of nest; June 10, 1951, one young out of nest.

Four specimens have been collected by Pettingill in the Northfield area on the

following dates: a male and a female on April 18, 1940, a male on April 30, 1940 and a female on May 3, 1943.

*COWBIRD — (*Molothrus ater*). An abundant summer resident. The earliest spring arrival date is March 20, 1945 when two were seen in Faribault. Average of 18 dates, from March 20 to May 5, is April 12. The latest fall date is September 13, 1953. Three specimens have been collected (Pettingill) in the Northfield area: a male and a female on May 1, 1937 and a male on May 14, 1951.

*SCARLET TANAGER — (*Piranga olivacea*). A summer resident, nesting throughout the county in forested areas. Earliest spring arrival date is May 1, 1941 in Northfield. Average of five dates, from May 1 to May 20, is May 16. A female was collected (Pettingill) in the Nerstrand area on May 31, 1938.

*CARDINAL — (*Richmondia cardinalis*). A permanent resident. The Cardinal extended its range northward by way of the Mississippi bottom-lands and was first recorded in the state at Minneapolis when a male was taken on October 23, 1875. No records are available for its earliest occurrence in Rice County, but from the nesting records in adjoining counties it can be assumed that the Cardinal entered the county between the years 1919 to 1925. Nesting was reported from the east at Wacouta, Goodhue County on June 29, 1919 and from the south at Owatonna, Steele County on May 1, 1925.

The Cardinal has been recorded on each Christmas Bird Count for the past five years, from 1951 to 1955, (*Audubon Field Notes*, Vol. 6 to 10; No. 2; April 1952 to 1956).

A female specimen was collected (Pettingill) in the Northfield area on April 11, 1940 and a male on May 24, 1943.

*ROSE-BREASTED GROSBEAK — (*Pheucticus ludovicianus*). A common summer resident. The earliest spring arrival date is April 14, 1936 when one was seen at Faribault. Average of 17

dates, from April 14 to May 13, is May 8. The latest fall date is November 15, 1933, which is exceptional. Usually the latest fall date is between September 1 and September 21.

Seven specimens have been collected (Pettingill) on the following dates: in the Northfield area a female on May 12, 1937; a male on May 17, 1937, a female on May 24, 1938, a male on May 17, 1945, and a male and a female on May 20, 1950: in the Nerstrand a male on September 21, 1944.

*INDIGO BUNTING — (*Passerina cyanea*). A summer resident nesting in the wooded areas throughout the county. The earliest spring arrival date is May 14, 1950 and the latest fall date is October 15, 1933. An immature female was collected (Pettingill) on September 26, 1937 and another on September 28, 1944 in the Northfield area. A male was taken on June 1, 1936 and a female on May 31, 1943 in the Nerstrand area.

*DICKCISSEL — (*Spiza americana*). A common summer resident nesting throughout the county in suitable areas. The earliest spring arrival date is May 5, 1898 (*Birds of Minnesota*, Roberts), in Faribault. The latest fall date is September 27, 1938 when a female was collected near Nerstrand (Pettingill). Other specimens were collected near Northfield, a male on May 30, 1943 and an immature female on September 26, 1943. Dickcissels were very abundant in the area during the 1950 and 1951 nesting seasons, which was probably the "Dickcissel year". The *Audubon Field Notes* (Vol. 4; No. 5; October 1950) refers to the 1950 nesting season as the "Dickcissel year in Minnesota".

*EVENING GROSBEEK — (*Hesperiphona vespertina*). According to Roberts, *Birds of Minnesota* the Evening Grosbeak is an "irregular fall, winter and spring visitant" from the northern evergreen forest. No fall records are available for the area. Spring records date from February 16, 1934 when six were seen in Faribault, to the latest

date on May 2, 1950 when ten were seen in Northfield. The year 1950 was regarded as the "Evening Grosbeak year" in Minnesota. These birds were frequently seen in the area from March 5 to May 2 during that year in greater numbers than usual. A female specimen was collected (Pettingill) in the Northfield area on May 9, 1950.

*PURPLE FINCH — (*Carpodacus purpureus*). A spring and fall migrant with occasional winter records in the area. The earliest spring arrival date is March 17, 1938 and in 1951 on the same date. The average of seven dates, from March 17 to April 20, is March 22. The earliest fall date is September 20, 1952 and the latest is November 2, 1952. Wintering dates: one was seen on December 1, 1933 and two on February 19, 1934. On the Christmas Bird Count one was recorded on December 31, 1955, six on December 26, 1954 and four on December 26, 1955 (*Audubon Field Notes*, Vol. 8, 9, 10; No. 2, April 1954 to 1956). A male was collected by Pettingill on November 14, 1948 and another on May 5, 1940 in Northfield.

PINE GROSBEEK — (*Pinicola enucleator*). A winter visitant from the north. On the Christmas Bird Count in 1954 two were seen on December 26 in Northfield (*Audubon Field Notes*, Vol. 9, No. 2, April 1955). This is the only known record for the area.

*REDPOLL — (*Acanthis flammea*). A winter visitant from the north. Two records for the county are December 30, 1933 in Faribault and was seen on the Christmas Bird Count on December 31, 1953 (*Audubon Field Notes*, Vol. 8, No. 2, April 1954). A male and a female specimen were collected by Pettingill in the Northfield area.

*PINE SISKIN — (*Spinus pinus*). According to Roberts, *Birds of Minnesota* the Pine Siskin is considered "chiefly a spring and fall migrant" south of the evergreen forests with occasional winter records. Very few records are known for the area. Two were recorded on

October 8, 1951 in Northfield. Pettingill collected three male skins on February 11, 1943 and one female on October 9, 1942.

*GOLDFINCH — (*Spinus tristis*). A summer resident nesting throughout the county. The earliest spring arrival date is March 1, 1952. The average of 13 dates, from March 1 to May 15 is March 31. The latest fall date is November 4, 1952. Later dates have been considered wintering. On January 31, 1953, 75 were seen in the Northfield area, and two on the same date in 1954. During the Christmas Bird Count in 1953, 75 were seen on December 31, ten on December 26, 1954 and ten on December 26, 1955 (*Audubon Field Notes*, Vol. 8, 9, 10, No. 2, April 1954 to 1956). Six specimens have been collected (Pettingill) in the Northfield area; two females on October 23, 1936, a male on May 8, 1937, a male on May 25, 1938, a male on October 2, 1942 and a male on May 8, 1945. In the Nerstrand area a female was collected on May 24, 1938 and another female on September 27, 1938.

RED CROSSBILL — (*Loxia curvirostra*). "A large flock of Red Crossbills" were seen near Northfield on April 5, 1923 by Prof. J. W. Hornbeck (*Logbook of Minnesota Birdlife*, Roberts). This is the only known record of this winter visitant in the area.

WHITE-WINGED CROSSBILL — (*Loxia leucoptera*). Seven were seen in Northfield by Prof. J. W. Hornbeck on November 14, 1920. This is the only known record of this winter visitant in the area, (*The American Midland Naturalist*, Vol. VII, No. 3, May 1921).

*RED-EYED TOWHEE — (*Pipilo erythrophthalmus*). A summer resident nesting in limited numbers in the county. The earliest spring arrival date is May 18, 1953 and the latest fall date is October 8, 1951. A male was collected (Pettingill) on May 8, 1937 and another male on April 29, 1939 in the Northfield area, a female was collected near Nerstrand on September 22, 1939.

LARK BUNTING — (*Calamospiza melanocorys*). A bird of the western prairies and considered accidental in occurrence in Rice county. A male was seen by the writer on April 22, 1951 west of Faribault near Cannon Lake. (*Flicker*, Vol. 23, No. 3, September 1951; *Audubon Field Notes*, Vol. 5, No. 4, August 1951). This is the only known record for the area.

*SAVANNAH SPARROW — (*Passerculus sandwichensis*). A summer resident nesting in the area, with the earliest spring arrival date April 26, 1951. Two specimens were collected (Pettingill), a juvenile female on September 27, 1938 and another female on September 26, 1939 in the Nerstrand area.

*GRASSHOPPER SPARROW — (*Ammodramus savannarum*). A summer resident nesting in the area, with May 1, 1954 the earliest spring arrival date. Four male specimens have been collected (Pettingill) one on each of the following dates: May 16, 1937 and May 23, 1937 in the Nerstrand area, and in the Northfield area on May 30, 1943 and June 17, 1943.

*LECONTE'S SPARROW — (*Passerherbulus caudacutus*). Only one spring record is known for the area, six were seen on June 6, 1951 east of Northfield. Eighteen specimens have been collected by Pettingill in the county. In the Nerstrand area, one female was collected on September 26, 1938, a male on September 23, 1939, a male and female on September 27, 1943, a male on October 2, 1943, three immature females on October 3, 1943 and a male and female on October 10, 1943. In the Northfield area the following were collected in 1941: a male on October 1, a male and female on October 2, two females on October 3, a male and two females on October 5. The Leconte's Sparrow probably nests in the area.

*HENSLOW'S SPARROW — (*Passerherbulus henslowii*). Five specimens were collected (Pettingill) in 1943 in

the Nerstrand area: a male and female on October 2, a female on October 3, a male and female on October 10. These are the only records known for the county. It probably nests in the area in limited numbers.

*NELSON'S SPARROW — (*Ammodramus caudacuta*). The only positive record of this transient in the county is the male taken on May 30, 1943 by Pettingill near Nerstrand. Also known as the Sharp-tailed Sparrow.

*VESPER SPARROW — (*Pooecetes gramineus*). A common summer resident nesting throughout the county. The earliest spring arrival date is March 12, 1933 when five were seen east of Faribault. Average of seven dates, from March 12 to April 24, is April 3. The latest fall date is October 27, 1933. Nesting: carrying food to nest was observed on June 24, 1951.

A female was collected by Pettingill on April 29, 1939 and a male on September 24, 1943 in the Northfield area. In the Nerstrand area a male was taken on May 26, 1943, a female on May 31, 1943 and a male on September 22, 1939.

*SLATE-COLORED JUNCO — (*Junco hyemalis*). A regular spring and fall migrant with many wintering dates. The earliest spring arrival date is March 10, 1939 in the Northfield area. The average of 11 dates, from March 10 to March 31, is March 25. Several May and June dates have been recorded, but no nesting record is known for the area. The latest nesting season record is June 29, 1952 when one was seen on the Heron Island at Shield's Lake. The earliest fall date is September 27, 1951 with the apparent peak in fall migration between October 7 to October 18.

The junco has been recorded on each Christmas Bird Count in the area (*Audubon Field Notes*, Vol. 6 to 10, No. 2, April 1952 to 1956). Five specimens have been collected in the Northfield area by Pettingill, a female on October 28, 1936, an immature female on October 5, 1937, a female on April 11, 1940, a

male on May 29, 1945 and a male on October 31, 1950. In the Nerstrand area a male was taken on April 13, 1940 and a female on October 15, 1943.

*TREE SPARROW — (*Spizella arborea*). An abundant spring and fall migrant with a considerable number wintering in the area. Often called the "winter chippy". The following are the average migration dates: the average of eight dates, March 16 to April 14, is March 27. The early spring and fall dates are easily confused with wintering dates. The earliest fall record is September 13, 1952 in Northfield. Winter records include three Christmas Bird Counts for the years 1953 to 1955 (*Audubon Field Notes*, Vol. 8, 9, 10, No. 2, April 1954-1956).

Five specimens have been collected in the Northfield area by Pettingill. A female was taken on November 4, 1936, a male on November 19, 1936; in 1937 a female on April 10; a female on April 12, 1940; and in 1943 a female on April 24.

*CHIPPING SPARROW — (*Spizella passerina*). A common summer resident nesting throughout the county. The earliest spring arrival date is March 19, 1939 when two were seen in Faribault. The average of 15 dates, from March 19 to April 29, is April 7. The latest fall date is November 10, 1933 in Faribault. Nesting: young in the nest seen on June 1, 1951 in Northfield, and on May 19, 1953 the adult was seen feeding the young (*Flicker*, Vol. 26, No. 2, June 1954). A male was collected by Pettingill in Northfield on May 26, 1943.

*CLAY-COLORED SPARROW — (*Spizella pallida*). Ten specimens have been collected in the Northfield area by Pettingill. A female was taken on May 12, 1937, a male on September 27, 1938, a male on May 4, 1940, a male on May 7, 1940, a male on May 11 and another male on September 23, 1943, in 1944 a male was collected on September 22 and a male on September 26, and in 1945 a male was taken on April 28 and a

male on May 8. The Clay-colored Sparrow no doubt nests in the area.

*FIELD SPARROW — (*Spizella pusilla*). A summer resident nesting throughout the county. The earliest spring arrival date is April 8, 1933 when seven were seen near Cannon Lake. The latest fall record is November 26, 1933. Three specimens have been collected (Pettingill) in the Northfield area: a male on May 4, 1940, a female on October 2, 1942 and a male on May 1, 1945.

*HARRIS'S SPARROW — (*Zonotrichia querula*). A regular spring and fall migrant. The earliest spring arrival date is May 10, 1951 when ten were seen in Northfield. Average of four dates, from May 10 to May 18, is May 11. Earliest fall date is September 13 and the latest is October 8. A total of 12 specimens have been collected in the area by Pettingill. Two females were taken on October 23, 1936; a male on May 12, 1937; a male on October 11, 1940; two males and a female on October 9, 1941; a female on September 23 and an immature male on October 9, 1943; and a male on May 12, 1945 in the Northfield area. In the Nerstrand area a male was collected on October 3, 1943 and an immature male on October 15, 1943.

*WHITE-CROWNED SPARROW — (*Zonotrichia leucophrys*). A regular spring and fall migrant. The earliest spring arrival date is May 9, 1954 and the earliest fall arrival date is September 21, 1952 with the latest October 8. Three specimens have been collected in the Northfield area: a male on May 22, 1937, a male on October 11, 1940 and a male on October 15, 1943 by Pettingill. In the Nerstrand area a female was taken on September 23, 1939.

*GAMBEL'S SPARROW — (*Zonotrichia leucophrys*). According to *Birds of Minnesota*, T. S. Roberts, it is not always possible to distinguish the White-crowned Sparrow from the Gambel's Sparrow in the field. The only positive

record of the Gambel's Sparrow appearing in the county is a female specimen collected by Pettingill in the Northfield area on May 18, 1937.

*WHITE-THROATED SPARROW — (*Zonotrichia albicollis*). A regular spring and fall migrant. The earliest spring arrival date is April 17, 1953. The earliest fall arrival date is September 13, 1952 and the latest date when seen in the area is October 25, 1951. Seven specimens have been collected (Pettingill) in the area. In the Northfield area a male was taken on April 23, 1937; a female on April 29, 1940; and a female on May 17, 1948. In the Nerstrand area a male was taken on October 1, 1938 and a female on September 23, 1939.

*FOX SPARROW — (*Passerella iliaca*). A regular spring and fall migrant. The earliest arrival date is March 23, 1953, with the latest spring date in the area May 9, 1954. The earliest fall date is September 13, 1953. An unusually early fall date was recorded on July 4, 1953 when one was seen on the west shore of Shield's Lake. The Fox Sparrow is not known to nest in Minnesota. The latest fall date is November 9, 1952. Three specimens have been collected (Pettingill) in the Northfield area. A female was taken on October 28, 1936, another female on April 18, 1940 and a female on October 9, 1941.

*LINCOLN'S SPARROW — (*Melospiza lincolni*). Three specimens have been collected by Pettingill in the Northfield area, a male on May 9, 1937, a male on May 16, 1943 and a male on September 27, 1944. Three were taken in the Nerstrand area, a female on September 27, 1938, an immature female on September 27, 1943 and a male on October 15, 1943. These are the only known records for the occurrence of this transient in the county.

*SWAMP SPARROW — (*Melospiza georgiana*). A common summer resident nesting throughout the county, with the earliest spring arrival date April 23, 1950. A total of 12 specimens have been

collected in the area by Pettingill. In the Northfield area a female was taken on May 19, 1937; a male on April 29, 1939; a female on April 13 and a male on October 11, 1940; a female on October 9, 1942; a female on April 17, a female on May 16, and a female on September 24, 1943; and in 1944 an immature female on September 28. In the Nerstrand area a juvenile female was collected on September 27, 1938, a male on September 26, 1939 and a female on October 2, 1941.

***SONG SPARROW** — (*Melospiza melodia*). An abundant summer resident nesting throughout the county. The earliest spring arrival date is March 3, 1934 when four were seen at Faribault. The average of 15 dates, March 3 to March 31, is March 22. The latest fall date is November 29, 1952. Nesting: adults carrying food on July 4, 1953 (*Flicker*, Vol. 26, No. 2, June 1954). The Song Sparrow was recorded on the Christmas Bird Count on December 21,

1952 and on December 26, 1955 in Northfield (*Audubon Field Notes*, Vol. 7 and 10, No. 2, April 1953 and 1956.) Seven specimens have been collected in the area by Pettingill. A female was collected on October 28, 1936, a male on April 10, 1937, a male on May 19, 1937, a male on April 24, 1943, a female on October 28, 1944 and a male on May 10, 1945. In the Nerstrand area a female was taken on September 28, 1939 and a male on May 31, 1943.

***LAPLAND LONGSPUR** — (*Calcarius lapponicus*). Three male specimens were collected by Pettingill on November 7, 1936 in the Northfield area. This is the only known record of this winter visitant from the north in the county.

***SNOW BUNTING** — (*Plectrophenax nivalis*). A winter visitant from the north. Earliest fall date is November 21, 1956. A female was collected in the Northfield area by Pettingill on November 7, 1936. — *Orin A. Rustad, Breck School, Minneapolis.*



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Seasonal Report

by

Mary Lupient

May was marked by very cold weather with below normal precipitation and there was frost in northern Minnesota during the latter part of the month.

June was cool until the 20th, when high temperatures began to prevail and from then until the fourth week in July it was very hot and humid. Except in the north and along Lake Superior the temperature was often in the 90's and July 19 it rose to 97 in the Twin Cities. During this period there were violent thunderstorms and very heavy rains that caused flooding by all the rivers to the extent that thousands of acres of crops and hundreds of homes along the rivers were damaged. Coming so late in the season the floods must have had a definitely detrimental effect on wild life in river valleys and areas adjacent. Nests of water birds and upland game birds were doubtless destroyed with consequent loss of a goodly amount of populations. Song birds such as meadowlarks, sparrows, and others that nest on the ground or low shrubs must have lost nests and nestlings. It is possible that there was some re-nesting as indicated by the following report of Nesting Records and Observations made by Orwin A. Rustad and Forrest B. Lee for the Bureau of Research and Planning, Division of Game and Fish, Minnesota Conservation Department. Total distance covered in survey: 588 miles. July 3, Wright County — Mallard, 1 brood; Pintail, 1 brood; McLeod County — 2 broods of Coot; Kandiyohi County — 4 adults each with 4 young Pied-billed Grebes, 1 Pied-billed Grebe on nest, Mallard, 1 brood; Lac qui Parle County — 1 adult, 4 young Pied-billed Grebes; Yellow Medicine County — 1 female Pheasant with young smaller than meadowlark, 1 coot

on nest, 3 young coots, 1 female Mallard; Sibley County — 1 Pheasant with 7 young smaller than meadowlark, courtship observed of 2 male and 1 female Blue-winged Teal, 1 Coot on nest.

The successful nesting of a Wood Duck was reported by Dorothy Legg. She saw a female followed by 21 small ducklings, June 16, on a small lake in Lakewood Cemetery, Minneapolis. Doubtless more than one female was responsible for the large brood, for occasionally two or more will deposit eggs in the same nest and then too, the young in other broods will sometimes attach themselves to a new mother.

A late spring record for Golden-eye Ducks was sent in by A. C. Rosenwinkel. He saw them near St. Paul, May 10.

Report of a late goose migration was received from John Futcher. At Winona, May 4, he saw a formation of Blue Geese and one Snow Goose heading north over the Mississippi bottomlands.

Cold weather delayed the May migrants somewhat. There was a heavy migration of Palm Warblers, Myrtle Warblers and White-throated Sparrows, May 2-3. Peak migrations of these birds usually occur in April. A large migration of late warblers, flycatchers, thrushes, vireos and some White-throated Sparrows began May 19 and lasted through May 22. Prothonotary Warblers were observed during nesting season along the Vermillion River near Hastings. Along the St. Croix River in Washington County north of Stillwater they were reported carrying nesting material, June 1, by A. C. Rosenwinkel. Blue-winged Warblers and Cerulean Warblers were present near Vasa during

the same period, observed by this writer. Dr. Dwain Warner and his class saw a pair of Black-throated Blue Warblers in Robert's sanctuary, Minneapolis, May 21. A. C. Rosenwinkel reported that a three-storied Yellow Warbler's nest was found in Crow Wing County. The lowest nest contained one Cowbird's egg, the middle nest contained two Cowbird's eggs and the upper nest one Cowbird's egg. There were no warbler's eggs in the nests. July 22 in the same area a Yellow Warbler was feeding a nearly full grown Cowbird.

There were several reports of American Egrets during the season, one as far north as Lower Red Lake, Beltrami County, reported by Lloyd Smith, May 3. The numbers varied from one to five in each flock.

Brother Theodore reported that Yellow-crowned Night Herons were back again at Winona nesting in the same spot as in other springs. There were three nests, four young in each nest.

At dusk, at Goose Lake May 8 there occurred an unusual performance by Black Terns. A narrow stream of hundreds of these birds in dense concentration flew very swiftly just above the water from the middle of the lake to the shore by the highway. When the head of the stream of birds reached the shore it turned and swiftly flew back to the starting point in the lake passing the oncoming remainder of the birds. They then turned again and flew back to the shore as before passing the returning flight. The streams were in close proximity as they passed. The birds flew back and forth for some time and finally at almost dark they settled on the water. The very swift flight without pause and the density of the formation caused some doubt as to whether they were actually feeding. The light was poor and it was impossible to determine whether they were insects. Shore birds have been known to perform in this manner without apparent reason.

In central and western sections there

was a good shore bird migration in May. Bruce Hayward of the Minnesota Conservation Department reported from the Madelia Game Farm, Madelia. He saw about 250 Golden Plovers there the week of May 4 to 10. This writer made observations of shore birds in Sibley County, May 22. There was a very large concentration of Turnstones, Dowitchers, Red-backed Sandpipers, Stilts, Sanderlings, White-rumped Sandpipers, Bird's Sandpipers and small peeps. There were from 75 to 100 Phalaropes, more than half of which were Northern Phalaropes. Making observations with me were R. E. Cole, Lester Badger and Ned Morse. Flocks of shore birds near Dassel were being harried by a Duck Hawk on this same date. Because of so little rain in May the water was low in the Minnesota River bottomlands, consequently there was much mud. However there were very few shore birds present until the arrival, May 28, of flocks of hundreds of small peeps that flew about feeding.

The Minnesota Ornithologists Union, the Duluth Bird Club and the Duluth branch of the University of Minnesota were hosts to the Wilson Ornithological Society, May 13 to 15. On a field trip to Minnesota Point we saw a Piping Plover and its nest. On another field trip along beautiful Echo Trail led by Harvey Gunderson we saw goodly numbers of warblers and other song birds which relieved the minds of some of us who were concerned regarding the small number of migrants in May. Only one good migration, May 19-23 was recorded in the Twin City area.

In Washington County, June 8, A. C. Rosenwinkel reported that a pair of Cedar Waxwings was engaged in nest construction nine feet up in a spruce. About a dozen Cedar Waxwings came to this writer's yard, May 13, and stayed several days. They ate petals of apple blossoms. At one time four of them perched side by side on a small branch and passed a petal to one another back

and forth for several minutes. Later the tree was loaded with fruit so losing the petals to the birds did not injure it.

Dickcissels were not very abundant this year. A few called from fields and telephone wires in southern sections of the state, June 12.

The first Nighthawk appeared in the Twin Cities May 17. There was a fair migration the last week in May but they seemingly were not as abundant as usual. Several Western Kingbirds again lived all summer in the sand dune area around Anoka and no doubt nested.

For the past five years Brother Theodore reported the nesting of the Bell's Vireo in Winona County. Each year the number has increased and this year he recorded 17 pairs. Also in Winona County this year he found five pairs of nesting Henslow's Sparrows and three pairs of Blue-winged Warblers. In Hous-

ton County he reported the following: Hooded Merganser with seven young, Wood Duck with six young, one pair of Duck Hawks, three pairs of Yellow-breasted Chats and five pairs of Prothonotary Warblers.

Other unusual observations were reported up to August 1 as follows: Mockingbird at Frontenac, seen by several observers, May 11, Black Rail seen at Goose Lake by R. E. Cole, May 8. He used a spotting scope at short range and could see every mark on the bird. Western Tanager, May 8, Chisago County by this writer, Summer Tanager in Minneapolis the last week in May by Margaret Lachore, Scissor-tailed Flycatcher, July 3 by Frank Kelley, north of Williams at Long Point, Lake of the Woods. This bird must have been blown about by the tornadic winds that occurred this summer in order to appear so far from its territory. — *Minneapolis, Minn.*

MUSEUM AT 'U' PUBLISHES TWO BIRD BOOKLETS

Minneapolis — Do the birds fly right by your yard? Are you stumped when Johnny comes home from school asking how to build a birdhouse?

"Cultivate Your Garden Birds", a booklet recently published by the Minnesota Museum of Natural History at the University of Minnesota tells how to attract birds to your home, yard and garden during spring, summer and fall. Its companion pamphlet, "Birds of the Minneapolis-St. Paul Region, a Combined Field Checklist and Migration Chart", tells when and where to look for 285 species of birds and contains space for recording observations of the various birds.

Twenty-one black and white illustrations in "Cultivate Your Garden Birds" show how to build bird baths, houses and feeders. The pamphlet answers questions on the kinds of summer birds you can entice to your window or feeding station; what flowers, trees and shrubs to plant for food and nesting sites; how to attract birds with dripping water and bits of string, yarn, feathers and mud for their nests; and how to discourage squirrels and less desirable birds from taking advantage of your hospitality.

Both pocket-sized booklets can be obtained postpaid from the Minnesota Museum of Natural History, University of Minnesota, Minneapolis 14, Minn. "Cultivate Your Garden Birds", pamphlet No. 2, sells for 35 cents. "Birds of the Minneapolis-St. Paul Region", pamphlet No. 1, is 25 cents.

The Canadian Lakehead

Edited by
A. E. Allin

May was an average month at the Lakehead. The mean temperature of 42.2° was one-half degree above normal. On May 6 there was an unusual high temperature of 81.9° and the temperature of 20.3° on May 16 was a record low. The first half of the month was dry but heavy rains in the latter half brought the total precipitation to a normal 2.29". The ice went out of Whitefish Lake on May 2 a week earlier than in 1956. June's mean temperature of 55.6° was 1.9° below normal. The low for the month was 30.7° on June 2. Precipitation was approximately normal, but the month was very dull, only seven days being mainly sunny. Although there did not appear to be killing frosts the fruit crop on Mountain Ash and Saskatoons is poor. The mean temperature for July of 65.5° was 2.1° above normal chiefly as a result of a very warm period during the last week. The precipitation of 1.83 was well below the normal 3.26".

The migration pattern for the spring of 1957 was very unusual — a condition common to the eastern half of the continent. In the June issue of *The Flicker* we referred to the unusual movement of the Killdeer in mid-March and to the small wave of migration March 31-April 1. There was a major movement on April 19. The wave of migration on May 8 was also noted in other areas of the country. We awakened to find the trees full of Palm and Myrtle Warblers and Chipping Sparrows. Harris's, White-crowned and Lincoln's Sparrows also were present. On the same day there was also a major movement of late-migrating "northern" Robins which regularly pass through the area long

after the local birds have commenced breeding.

For the fortnight following the above movement, new birds appeared slowly and in small numbers. On May 25, however, there was a major migration wave which was also noted about the same time from Manitoba to the Atlantic Coast. It coincided with the Field Day of the Thunder Bay Field Naturalists' Club when a record 122 species were reported. From subsequent observations it would appear that either a large proportion of our Passerine birds arrived at this time, or else they trickled into their breeding grounds until they were present in their usual numbers. Despite the scarcity of the three thrushes during migration, they were heard singing in numbers in July. The Speirs recorded innumerable singing Tennessee and Nashville Warblers in July, and the majority of local breeders could be found where they were to be expected.

There were gaps in the picture, however. Only one Harris's Sparrow was reported and the only White-crowned Sparrows recorded were a few on May 7 and 8. The form "*gambelii*" was not reported during the past season. Not a single Black-billed Cuckoo has been recorded at the Lakehead during 1957. The House Wren is very scarce as is the Tree Swallow. The Bank Swallow is uncommon; the majority of their old colonies are vacant but Speirs found several large occupied colonies, 200 miles northeast of the Lakehead along the Trans-Canada Highway.

The Flicker, on the other hand, was very common during migration and was present in large numbers during the breeding season. Its presence attracted

a great deal of attention and casual observers. A large percentage of the calls directed to us for the purpose of identifying unknown birds, pertain to observations of Yellow-shafted Flickers.

The migration of shore birds was an excellent one. All the common species were reported. Hudsonian and Marbled Godwits, Black-billed and Golden Plovers, Baird's and White-rumped Sandpipers and Dowitchers were present in small numbers. On May 23, Robert Robb observed 35 Hudsonian Curlews. Ruddy Turnstones again appeared after being absent in 1956.

The Gulls and Terns proved to be of unusual interest. The Common Tern, very rare locally, was reported on June 1. Keith Denis reported a Caspian Tern on May 25, the third local record at the Lakehead. On July 23, I saw another Caspian Tern, the first to be seen locally during summer months. Glaucous Gulls were reported on several occasions from mid-April until the end of May. On May 22, I found an Iceland Gull associating with a Glaucous Gull and a mixed flock of Herring and Ring-billed Gulls. A few Bonaparte's Gulls appeared on May 23. Although the Ring-billed Gull was reported by Atkinson (1894) as being "abundant at all seasons, and breeds in company with the Herring Gull" it has been only a rare visitor at the Lakehead in recent decades, one, two or three individuals being reported each spring between mid-April and early May. May 24, 1953 was a late observation. In 1955, L. S. Dear reported a juvenile off Rossport and in early September, 1956, we saw an immature bird on Lake Nipigon. In 1956 an unusual number of Ring-billed Gulls appeared at the Lakehead, and at Dorion the Speirs found them very common during May, but only a few subsequently. This year they again occurred locally in moderate numbers and the Speirs again found them in large numbers feeding on the fields near Dorion. Only a few were present in June and July. Dr. J. M.

Speirs postulates the possibility of a breeding colony on Lake Nipigon. It is known that this species has extended its breeding range in recent years. Possibly Atkinson's early records are correct and this gull is reoccupying old territories. It is only known to breed in Ontario in the Georgian Bay region and at the eastern end of Lake Ontario.

A few Whistling Swans were seen. The migration of geese was poor. A small flock of five Blue Geese and one Snow Goose was present in the local harbor in late April and early May. On May 8, this group was joined by a Lesser Canada Goose which we watched feeding with its companions. This was a new local record for this observer. The duck migration was an average one. Dr. Speirs reported a Gadwall on June 7. This is the third Lakehead record for the species. A pair of Wood Ducks was seen on May 8 by Dr. MacClaren. They had been previously recorded locally on two occasions. Shovellers are becoming more common. Several pairs were present in early June, but we have no evidence they bred here. A small group of Lesser Scaup remained into the summer in the local harbor and were probably non-breeding birds. Scoters are rare spring visitors. On June 1, I saw a White-winged Scoter and on June 5, two were seen with an American Scoter. This is only the second spring record for the latter species.

No rarities were reported locally by club members. Three Baltimore Orioles were seen on May 28. We observed one at Stanley and the Speirs reported one at Dorion and one at Rossport. I had seen only two in the previous 19 years of local observing. An Indigo Bunting was seen on May 30, another on June 28, and on July 21, the Allins saw three adult males at one cross-road in Scoble Township. Previously we had seen only four in 19 years. As usual the occasional Mourning Dove, Bobolink, Brown Thrasher, and Catbird was reported.

During the first half of 1957, three

new species of birds were added to the local bird list, and all three were made by the same observers, Dr. and Mrs. J. M. Speirs who spent the period between mid-May and mid-July at Dorion continuing their studies on the life history of Lincoln's Sparrow. On May 25 and again on May 28, they heard the mellow "see-you-all heeereer — see-you-all theerrrrre" song of the Wood Thrush. On June 8, 18 and 20 they saw a Red-shouldered Hawk and observed it in detail. Unfortunately it did not confirm its identity by its Blue Jay-like call. The third newcomer was the Eastern Meadowlark, the clear whistle of which was heard on June 28, 29 and July 1. We have searched for "*magna*" since we knew it occurred at Duluth. We do not know when the Western Meadowlark reached the area, but Dear who has studied birds at the Lakehead for more than 50 years states "up until 1934 this species was represented by only a few widely separated pairs, but since that time they have rapidly increased in numbers" (Dear, L. S. "Breeding Birds of the Region of Thunder Bay, Lake Superior, Ontario" 1940).

We are not surprised visiting naturalists found species not previously recognized in the region. They probably visit areas overlooked by local observers who probably tend to take for granted a given bird is a common species rather than a closely similar species which is not expected in the area. Some of our readers will recall David Allin finding the first nests of the Blue-winged Teal for the island at Duluth on the M.O.U. Field Day May 21, 1949. The same day he found several dead Greater Scaup, a species entirely unexpected there. Dr. and Mrs. Harold Axtell, Buffalo, found the Yellow Rail locally, but local observers have never located it.

A fourth species has been added to the fauna of Thunder Bay although for an area somewhat remote from the Lakehead. On June 2, C. E. Garton and party found a Black-crowned Night

Heron on one of the Slate Islands in Lake Superior about 140 miles north of Fort William. Although this was another site record it was observed at length at close range by competent observers and there is no question of its identity.

The toll of wild life due to modern traffic is well recognized. More recently the airplane has been added to the automobile as a cause of such accidents and we recently referred to Herring Gulls being killed by a plane taking off from the local airport. This species is an important scavenger in our Lakehead cities. Recently a cat was killed on a Port Arthur street; a gull immediately swooped down to feed on it but a second car hit both cat and scavenging gull, tossing the dead bird against the windshield of a third car.

Friends who are not naturalists wonder why we are interested in "bird-watching" and other outdoor studies. I suppose primarily it is our love of the great outdoors, a desire to escape from the crowded, polluted conditions, of our modern cities and the most recent "first" on the hit-parade. There is also the hope we will see some rare species perhaps new to our life-list, new for the season, the local area or the province. Most trips provide some observation of interest; few years pass without a new bird being added to our life-list even though we remain in surroundings long familiar. To add a new species to state or provincial list of course is unusual. During the past 15 years only ten new species have been added to Ontario's list bringing the total of 356 species and 25 additional sight observations. These additions may be of some interest to readers from our neighboring state, who should realize that Ontario stretches from the Carolinian Zone along Lake Erie to the tundra along our northern sea, Hudson's Bay. In this vast area of 400,000 square miles, stretching 1,000 miles from Point Pelee to Cape Henrietta Maria the following 10 widely-

diversified species were added from 1942 to 1956: White-winged Dove, Black Vulture, Eared Grebe, Vermilion Flycatcher, Black-throated Gray Warbler, Cassin's Kingbird, Ross's Goose, Green-tailed Towhee, White Ibis, Yellow-billed Loon.

In a previous issue of *The Flicker* (29: (1):36) we referred to an Alewife being taken in Black Bay on August 31, 1956. We discussed the death of millions of these fish annually along the shores of Lake Ontario with resultant pollution of the beaches. In that note we stated the cause of death was a mystery. Dr. J. M. Speirs has called our attention to a paper by J. J. Graham "Observations on the Alewife (*Pomolobus pseudoharengus* (Wilson) in Fresh Water", (Univ. Toronto Biol. Ser. 62: 41, 1956) in which the author believes the phenomenon is due to a temperature gradient. The Alewives are acclimatized to cold water; during the summer they enter warm off-shore waters with fatal results. It is of interest to ornithologists that the phenomenon occurs at an opportune time to provide ready food for the colonies of Black Tern, breeding along the north shore of that lower lake. More recently the Smelt gained entrance to

the Great Lakes above Nigara Falls. A few years ago the populations of Lake Huron and Michigan were almost decimated. More recently they have been dying off in immense numbers in Lake Erie with resultant pollution of the beaches. Some biologists have attributed this kill also to the waters becoming too warm for this species. We have not noted any such phenomenon in Lake Superior where waters remain cold throughout the summer.

The Canadian Lakehead is a poor area for the study of reptiles. The only common snake is the Garter Snake and Bell's is the only turtle to be regularly expected. In recent years there have been occasional reports of the Snapping Turtle in areas west of Fort William, but none for the regions immediately adjacent to the Lakehead cities. On June 23, the Allins were fortunate in finding a Snapping Turtle of medium size on the bank of the Mattawin River, 25 miles west of Port Arthur. The same week end a second Snapping Turtle was found in the Kaministiquia River near the western boundary of Fort William — *Regional Laboratory, Ontario Department of Health, Fort William Ontario.*

A recent announcement of the need for Volume I, Nos. 3 and 4 (1929) and Volume VIII, No. 2 (1936) of *The Flicker* to complete the files of the library of Cornell College, Mount Vernon, Iowa has failed to provide the missing copies. The library would appreciate it if you would search your files to see if you could provide the missing numbers. Correspondence should be made with J. Harold Ennis, curator of the Memorial Library of Ornithology, Cornell College, Mount Vernon, Iowa.

Notes of Interest

DOWN THE MISSISSIPPI — On the morning of May 27, 1957, Clare L. Johnson of Grand Rapids and I traveled by boat down 17 miles of the Mississippi River for the purpose of obtaining data relative to Wood Duck members. This census is conducted annually by personnel of the Minnesota Game and Fish Department along a densely wooded stretch of the river, which extends from a point approximately eight miles southeast of Grand Rapids, Minnesota to the town of Jacobson.

This year it was decided that an incidental record would be maintained of all birds, game and non-game, noted during the trip and a resume of our notes follows.

Of the 41 adult waterfowl which were observed, there were included, 15 Mallards, 10 Hooded Mergansers — all females, nine Wood Ducks, and two Blue-winged Teal. Four ducks were not identified. A highlight of the trip was an unaccompanied brood of seven downy American Goldeneyes which, at first, displayed no alarm at our immediate presence. Their attitude toward us changed, however, when the hen arrived in a state of anxiety, from some distance downstream. She quickly called her brood toward the opposite side of the river. Few duck broods appear in northern Minnesota as early as this date and the brood of American Goldeneyes was the only one encountered.

The wooded banks of the river harbored the usual species of non-game birds. On one or more occasions were seen or heard the Great Blue Heron, Spotted Sandpiper, Black Tern, Barred Owl, Eastern Kingbird, Bank Swallow, Crow, Blue Jay, Black-capped Chickadee, Veery, Robin, Red-eyed Vireo, Yellow Warbler, Redstart, Yellow-throat, Chestnut-sided Warbler, Oven-bird, Red-winged Blackbird, Baltimore Oriole, Scarlet Tanager, Rose-breasted Grosbeak, Song Sparrow, English Sparrow and Cowbird.

Of these birds, the Bank Swallow and the Spotted Sandpiper were of particular interest. The Bank Swallow was the most numerous species actually observed during the trip. Favorable nesting areas for these birds were not common, but the swallows utilized whatever suitable site was provided by the sloughing-off of portions of the steeper banks of the river. Nine colonies were noted ranging in approximate size from 10 to 120 adult birds.

The Spotted Sandpiper was our constant companion. In all probability we were never out of sight of this species. Their habit of flying ahead of the boat made an accurate count very difficult, but there were at least 130 of these birds observed during the trip. Their numbers are somewhat surprising considering the general nature of the beach line which is a narrow, oozing, clay ledge with only a limited number of the firm, sandy areas with which these birds are usually associated.

Although we were never far from "civilization," quiet stretches of the river, crowded to the very edge with tall trees and dense brush, rendered the illusion of more remote wilderness. A trip such as this is recommended for the ardent bird watcher. It yields something which our back yards, roadsides, and city parks cannot quite fulfill. — *Bernard A. Fashingbauer, Game Biologist, Minnesota Division of Game and Fish, P-R Project W-11-R-13, Grand Rapids, Minnesota.*

WOODCOCK SINGING GROUNDS — Although the woodcock nests throughout eastern and northeastern Minnesota in suitable localities, reliable records are still needed to outline its breeding range. Relatively recent observations by various individuals indicate that breeding woodcock are more widely distributed within the state than was previously known.

Evidence of a "colony" of breeding woodcock was found during the spring of 1957 in the north-central portion of Minnesota. There, in a rather narrow strip of land confined to the general vicinity of Morrison Brook, $3\frac{1}{2}$ miles northwest of Hill City, were found the precise singing ground locations of four male woodcock and the approximate locations of at least two others. All of these singing grounds were confined along a road transect slightly greater than one mile in length.

Efforts were made to locate only the singing grounds established within an audible distance (approximately 0.2 miles) of gravel roads as an effective census is dependable upon automobile travel. Very likely, a number of woodcock have established singing grounds along adjacent portions of Morrison Brook which are sufficiently far removed from the roads for the courtship antics of the birds to be inaudible to the observer pausing to listen along the census route.

Woodcock activity was first noted in this area on May 4 and courtship flights continued with no appreciable diminishing in intensity until the last week in May. After this time activity became sporadic, ceasing almost entirely by the second week of June.

It is anticipated that field work in future years will result in the locating of additional singing grounds near Morrison Brook and very likely in other areas of the state.

People interested in the study of birds will find the courtship of the woodcock a rich experience. It is relatively easy to locate singing grounds in the spring, and anyone finding a group of woodcock singing grounds is urged to notify personnel of the Minnesota Division of Game and Fish. Game biologists wish to locate breeding colonies of these birds for banding purposes. — *Bernard A. Fashingbauer, Game Biologist, Minnesota Division of Game and Fish, P-R Project W-11-R, Grand Rapids, Minnesota.*

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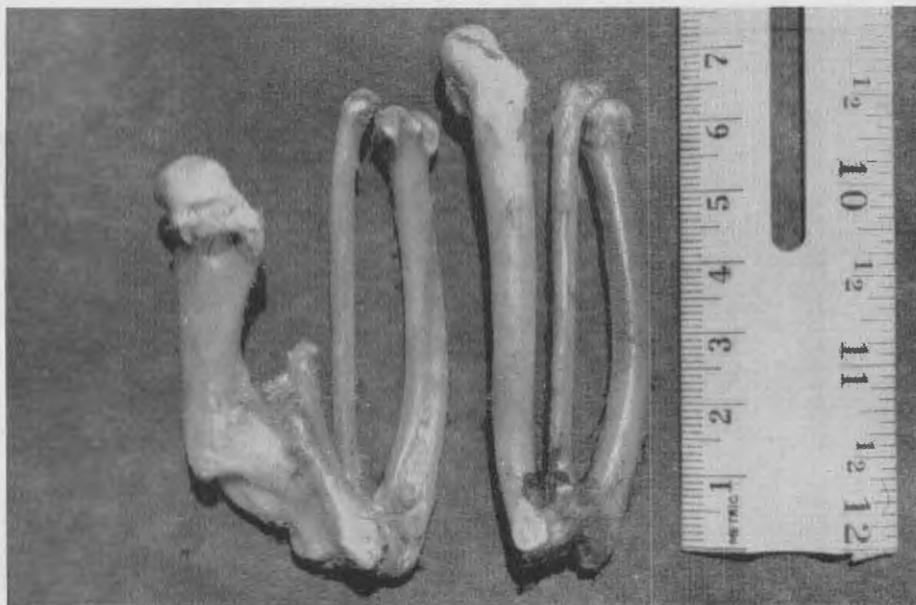
TITMICE NOW NESTING IN MINNESOTA — A pair of Tufted Titmice nested in Washington County on White Bear Lake in June, 1956. This was the first actual nesting record for Minnesota. The Tufted Titmouse, considered an infrequent southern visitor, has been suspected of nesting in Minnesota, but until now, the nest of young have not been seen. Reference to breeding pairs is made by Dr. Dwain Warner in his Carimona Woods Report in June, 1950, *Flicker*.

A pair first came to our feeder on May 21, 1956. They came several times every day for sunflower seeds until June 4. After that only one came at a time and not every day until mid-June. Then again they came often daily and always carrying a seed away suggesting the feeding of young.

On June 24 I finally found young titmice high in a tree about 300 yards from our feeder. On June 30 the adults and three young came to our back yard. The family came each evening to feed, but only the adults landed on the feeder. On July 13 the young landed on the feeder. One juvenile opened a seed alone. Another juvenile waited to be fed. It was already hard to tell young from adults because the juvenal tails were almost full length.

Four tits came daily, often together, to our feeder until early September, then only occasionally until September 18. They were not seen after that date. — *Ruth Self, Birchwood, White Bear Lake, Minnesota.*

BROKEN PHEASANT WING MENDS — On February 6, 1957, a cock pheasant (*Phasianus colchicus*) that had been killed by an automobile was picked up on Minnesota State Highway 60, two miles east of the State Farm Game Research Center near Madelia, Watonwan County.



When examined, it was found that the left humerus of the pheasant had been broken, the two broken ends had overlapped approximately one-half inch, and then had grown back together again in that position (Fig. 1). As a result, the left wing was actually one-half inch shorter than the right wing.

Imbedded under the skin on the mended wing was a No. 6 shotgun pellet, the probable cause of the break.

The bird was moderately fat, in good condition, and appeared capable of flight. — *Maynard M. Nelson and Stanley W. Harris, Minnesota Division of Game and Fish.*

* * *

ARCTIC THREE-TOED WOODPECKER IN WINONA — An Arctic Three-toed Woodpecker was observed by Frank Kelly and the writer on May 4, 1957 while conducting a group of beginning bird students through Latsch Prairie Island Park at Winona, Minnesota. The park, maintained by the Winona Park-Recreation Board, has several stands of pine planted within it. The bird was first observed going up a jack pine that had recently died. As the woodpecker ascended, it peeled off strips of bark leaving newly exposed patches on the trunk. The bird was easily approached to within 12 feet and was observed for approximately ten minutes. The absence of the yellow crown identified the bird as a female.

Dr. Roberts states in *Birds of Minnesota* that wandering individuals may be seen in late fall, winter, and early spring at some distance south of the coniferous forests of the state. The bird's appearance has been recorded in Hennepin County and as far west in Minnesota as Yellow Medicine County. An 1891 nesting record far south of the usual breeding range is given for Hennepin County.—*J. S. Futcher, Avifaunal Club, Minneapolis, Minn.*

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THE FLICKER

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THE COVER

North Shore in Winter by Orwin Rustad

THE PRESIDENT'S PAGE

On November 19, 1957, I had the opportunity as president of the M.O.U. to speak to the Federated Garden Clubs of Minnesota on the subject of a state bird. The occasion was their annual meeting and dinner held at the Mount Olivet Lutheran Church in Minneapolis. About 75 members were present including district directors from various parts of the state as well as the national district director from Chicago.

One of the Federated Garden Clubs' three main projects this coming year is birds, and they are enthusiastic about seeing that the legislature chooses an official bird in 1959.

The Federated Garden Clubs expect to have about 3,000 members by June, 1958. Such a group, if properly guided, could be a strong nucleus for educating citizens throughout the state to the need for a state bird. Also this group could be a healthy and persuasive factor in influencing the legislature to designate the loon as our state bird.

The officers of the Federated Garden Clubs want information, publicity, pictures, etc. that will help them to sell the "loon story" to all of their members. The Garden Clubs publish a magazine and therefore they can use information that the M.O.U. will furnish them. Also the clubs are located in many cities throughout the state. Members of the M.O.U. should take every opportunity to meet with these local garden clubs and help give them the "loon story."

A few things that M.O.U. members should stress in talking about the loon are: that the loon will be exclusively Minnesota's official state bird, no other state has the loon; as the North Star state Minnesota needs a northern bird; as the land of 10,000 lakes it needs a water bird; as a wilderness state it needs a bird with a wild ringing melodious cry; and as a state that has much to offer tourists it needs a bird with a striking black and white pattern. The loon has these qualifications and the color pattern can easily be represented on maps, folders, posters, and other literature.

Beginning in this centennial year the loon can help advertise out state and our one-hundredth birthday. Let's start to get the cooperation of our legislators now and in 1959 ask them to select the loon as Minnesota's official state bird.

Sincerely,

Arnold B. Erickson

Brother Hubert Lewis, F.S.C. — In Memoriam

by

Brother Hubert Gerald, F.S.C.

This well-known naturalist, a member of the staff of Cretin High School, St. Paul, Minnesota, for many years, inspiration and one of the first directors of the St. Paul Bird Club, died at Kirkwood, Missouri, on November 13, 1956, in his 81st year after having served loyally and devotedly as a Christian Brother for almost seven decades.

Long and prominently active in American scientific circles as well as in boy-guidance councils throughout the United States, Brother Hubert Lewis shone particularly in the fields of electricity and radio activity. Long ago, when but few educators in the United States were interested in the study and experimentation of wireless telegraphy and modern radio, Brother Hubert had established at Christian Brothers College, St. Louis, Missouri, a transmitting station, 9YC, which, in range of activity, compared favorably with the best of today.

He was one of the first men in this country to hear the human voice over his crystal set. And he was able to communicate with vessels on the Mississippi River and in the Gulf of Mexico on the sending set which he designed and erected himself, as far back as 1912. The earliest official government call books on file at headquarters of the American Radio Relay League, West Hartford, Connecticut, record that the call of the Christian Brothers College in St. Louis was changed to 9XC in 1915. Incidentally, Brother Hubert's own call in 1916 was 9AAQ.

His manifold interests in scientific matters is almost beyond belief. Among other things, he proved himself an authority on sun spots and was an acknowledged expert in bacteriology. The latter



Brother Hubert Lewis

of these two facts, in particular, he turned to much valuable service in behalf of his religious Brothers and students.

Brother Hubert came to St. Paul in 1928 to teach physics at Cretin High School. He remained for five years and during that time he continued his scientific investigations concerning the relation of sun spots to the condition of the weather. But on holidays he studied birds.

A pioneer in youth guidance work especially in connection with Boy Scout activities, Brother Hubert always welcomed scouts interested in obtaining their bird merit badges to accompany him on his hikes. He took great interest

in boys and in their hobbies and was always at their service when they phoned the school or called in person.

One of those hikers of a quarter of a century ago, recalls: "Brother Hubert always contended that it was just the scare that he'd been given about his health many years before that had gotten him out hiking, but he certainly relished it when we were with him. I think it was his determination to make the hike a real challenge that made these outings so much fun. Brother's patience with us was lovable. Playing nursemaid must have been trying, yet he was always good-humored about the whole thing. And then about four o'clock or so when we'd been on the go for eight hours, he'd turn to Brother Pius with a twinkle in his eye and say, "Say, I wonder if there's anything left in the pack." And out would come the inevitable candy bars and oranges or apples.

"In regard to birds, he seemed not to have more than one call for them all, and that a sort of sibilant whistle through the teeth on two notes, the first higher, the second lower: roughly *do-la* of the scale. But for some strange reason that seemed to attract anything that he wanted to attract at the moment, from chickadees to warblers. When he was looking for a nest, however, it was a different matter. Then it was a question of quiet.

"I remember when we were looking for one sparrow's nest (White-throated, I believe) on the Gunflint trail and we saw the bird. Next day we came back and the bird flew out of the spot again.

'I'm sure he's nesting here,' said Brother. So we looked and we looked. We thought we turned over every blade of grass in the place. 'We'll find it,' said Brother. So we backed away about 30 feet or so and stood there for maybe 20 minutes until the bird appeared finally, hopped around, cocked its head at us, jumped from branch to branch, finally took us as part of the scenery, and burrowed into a little nest that was concealed so perfectly in the grass that it had been no wonder we couldn't find it. *It was this sort of triumph that made bird-study interesting with this man!*"

Brother Hubert was born in Bucklin, Missouri, on May 31, 1875. At the age of fourteen he entered the high school department of the Christian Brothers training school at Glencoe, Missouri, to prepare himself for his life's vocation — teaching. Two years later he received the habit of the Christian Brothers and after three years of intensive study began his teaching career at Feehanville, Illinois. (Today, Des Plaines.) Even at that time he was interested in nature. His knowledge of birds and trees was a source of wonder to his fellow teachers and to his students.

In the course of a long and fruitful career laboring for God and country in Missouri, Illinois, New Mexico, Tennessee and Minnesota, Brother Hubert engaged in multifarious duties — from mechanic and nurse to college professor of science and mathematics. His captivating mannerisms in dealing with boys and with men of affairs resulted in close and beneficial contacts for all concerned. — *Minneapolis, Minn.*

Members of the Minnesota Ornithologists' Union will be sorry to hear of the death of Mrs. Carmen W. Hamilton, 12900 Pioneer Road, Hopkins. Mrs. Hamilton, who died September 8, 1957 was the builder of "Melody Hill" bird houses and feeders.

The Inter-relations of a Forest Tent Caterpillar Outbreak, Song Birds and DDT Application^[1]

by

B. A. Fashingbauer, A. C. Hodson and W. H. Marshall^[2]

Introduction

The spectacle created by a severe infestation of the forest tent caterpillar, *Malacosoma disstria*, HBN., is indeed startling. Outbreaks of this insect often result in such complete defoliation that the early summer tourist is confronted with hardwood forests resembling the mid-winter season in appearance. Some conception of the magnitude of an outbreak may be gained by noting that the 1951 outbreak encompassed about 11,000,000 acres in the northern portion of Minnesota (Circular 152, Office of Minnesota State Entomologist). Hodson (1941) has discussed the history of previous outbreaks of this insect in Minnesota.

In an outbreak area, larvae are so abundant that they become highly irritating to people living or visiting in the region. Naturally resort owners and residents wish relief from this pest. Aerial spraying of an insecticide offers alleviation, but in 1951, the cost tended to limit the application of the spray to the vicinity of dwellings. In that year spraying was carried out on approximately 12,270 acres (Office of Minnesota State Entomologist). It must be pointed out that costs on a per acre basis would be considerably lower if large areas were treated.

Both entomologists and ornithologists should be deeply concerned over the biological implications of such outbreaks and of control operations. The present day study attempted to determine, in the

field, how a representative *spraying operation* affected bird behavior and survival and also what effect *complete defoliation* might have upon the birds. In other words, what would be the consequence of both *spraying* and *not spraying*!

The field operations were carried out by the senior author in the summer of 1951 as part of the requirements for the M.S. degree at the University of Minnesota (Fashingbauer, 1951). The junior authors advised in planning the field work and assisted in preparation of the report. A. W. Buzicky, associate state entomologist, arranged for and supervised spraying operation. Frank Pugh and Joe Mockford, rangers of the forestry division, the Minnesota Conservation Department, were extremely helpful in the field. The Lake Itasca Forestry and Biological Station served as headquarters and the study was financed by the U. S. Fish and Wildlife Service.

Methods and Field Conditions

By comparing the size of the bird populations supported within an area defoliated by larvae, an area in which defoliation was stopped by spraying and a check area, in which few larvae existed, the possible effects upon defoliation and spraying might have upon bird behavior and survival may be recorded and evaluated. In addition to census work considerable time was spent in making direct observations of bird habits relative to nesting, feeding, and choice

1 Paper No. 3760 Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

2 Bureau of Research and Planning, Minnesota Department of Conservation and University of Minnesota.

of singing perches in all three plots.

Three 14-acre areas similar in shape, vegetation and topography were located in Hubbard County in the north-central portion of Minnesota. Two of the study plots were established in a region heavily infested by the Forest Tent Caterpillar in 1950, and where egg mass counts indicated that they would again be completely defoliated the following spring. One plot received an aerial application of DDT to prevent the defoliation, and defoliation was allowed to take place in the other plot. A check plot was located approximately eight miles distant and was almost completely free of Forest Tent Caterpillar larvae.

The general area lies at an elevation of between 1300 and 1500 feet above sea level and constitutes part of the upper Mississippi drainage. The soil of this region is a sandy loam with some quite rocky portions.

Cover types — The major tree species in each of the study areas was Quaking Aspen (*Populus tremuloides*) commonly mixed with Paper Birch (*Betula papyrifera*). Bur Oak (*Quercus macrocarpa*) and a very few Jack Pine (*Pinus banksiana*) and an occasional Large-toothed Aspen (*Populus grandidentata*) were scattered throughout. The hardwood timber in the plots was of rather even-aged, 36-year-old stands, averaging approximately 45 feet in height and 4.4 inches D.B.H.

A dense underbrush, which consisted chiefly of hazel (*Corylus americana* and *C. rostrata*), Round-leaved Dogwood (*Cornus rugosa*) and Green Alder (*Alnus crispa*) was present on all plots.

Small openings in the tree canopy were scattered throughout the plots. In these openings Prairie Willow (*Salix pumilis*), Pin Cherry (*Prunus pennsylvanica*) and Wild Raspberry (*Rubus idaeus*) were found in abundance.

Large-leaved Aster (*Aster macrophyllus*) and Wild Sarsaparilla (*Aralia nudicaulis*) were by far the most abundant of the herbaceous plants. Other com-

mon species were Bracken Fern (*Pteridium aquilinum*), False Lily of the Valley (*Maianthemum canadense*), Early Meadow Rue (*Thalictrum dioicum*) and Bellwort (*Uvularia grandiflorum*).

Seasonal progress of the defoliation by caterpillars — To assess the possible interrelations of birds and the aspects of spraying or non-spraying, a description of the phenology of the defoliation is essential. The development of the larvae and woody vegetation in the course of this study was as follows:

May 3. Coincident with the first hatching of the tent caterpillar larvae, the buds of aspen growing on favorable sites had unfolded. Hatching was quite local but by the seventh it became very extensive and the larvae were beginning to feed on the newly opened aspen buds. Hazel buds were just beginning to unfurl. Both hazel and aspen catkins were well developed.

May 8. Larvae were feeding extensively and were congregating in clusters on stems and tree trunks when resting. Four days later the larvae had for the most part attained the second instar and moderate-sized portions of some aspen already were almost completely defoliated. Hazel foliage was becoming apparent and the forest floor was partially covered by leafy shoots of the herbaceous plants.

May 14. Entire branches of many aspen were completely stripped. The remaining aspen leaves were generally about two inches in width. The hazel foliage was well developed, with leaves almost an inch in width being quite common.

May 18. The larvae had reached the third instar and the terminal portion of most trees was defoliated. Scattered individual trees were almost completely bare. Paper Birch and Large-toothed Aspen were beginning to leaf out. As the foliage of hazel and dogwood continued to develop, visibility through the shrub stratum became quite limited. The

forest floor was now moderately covered with herbaceous growth. In the infested region the development of the aspen foliage was being halted by the feeding activity of the Forest Tent Caterpillar.

May 22. The larvae had attained the fourth instar and approximately the terminal one-fifth of all the aspen in the infested region was completely defoliated.

May 24. The foliage of the trees and shrubs in and adjacent to the check plot appeared completely developed. In the infested region, however, extensive stands of aspen were completely denuded and hazel was stripped. The larvae were beginning to move up into the foliage of the birch trees, which thus far they had more or less avoided. Defoliation continued at such a rapid rate that by the 30th, at which time almost all the larvae had attained the fifth instar, scarcely any aspen foliage remained in the infested region of the study.

May 30. The hazel and birch defolia-

tion was almost as complete as that of the aspen and the larvae were swarming over the forest floor as the first signs of starvation were noted. Very few clusters of larvae remained evident on the trunks of the trees.

June 4. Herbaceous plants constituted the only remaining green vegetation in the area; for a comparison of defoliated and check plots at this time, refer to Figures 1 and 2. The forest floor and the roads into the infested region were literally covered with caterpillars (see Figure 3).

June 11. Starving larvae were accumulating in the road-cuts and the number of caterpillars wandering about the forest floor was noticeably reduced. Two days later a count taken of larvae on the surface of a road near the defoliated plot revealed approximately one larvae per *four* square feet compared to approximately 15 larvae per *one* square foot occurring over much of the same road on June 7.

June 14. The first spinning larvae



Figure 1. Foliage conditions on defoliated plot, June 5.

were noted and cocoons opened on the 16th indicated that the transformation from the prepupal to the pupal stage was beginning. Two days later cocoons were very common throughout the defoliated region and on the 21st the first completely developed pupae were found. For the past few days a greenish cast had been noted throughout the defoliated tree canopy as the development of new leaves progressed. Fruits of Wild Strawberry and Pin Cherry, though not ripened, were well formed.

June 26. The defoliated region began to take on the appearance of early spring, with almost all of the new leaf buds of aspen now unfolded and the leaves averaging one inch in width. Dogwood was also becoming partially re-foliated but the new hazel buds were still tightly closed.

July 6. The new aspen foliage was fully developed and differed from the aspen foliage which had remained free of tent caterpillar attack in being a lighter green color.

July 8. The first Forest Tent Caterpillar adults were noted and the emergence in general was very light. The low numbers of moths decreased further by the 18th, substantiating a predicted heavy parasitism of the cocoons of the tent caterpillar in the region of study.

July 23. Forest tent caterpillar moths were very scarce and it was quite evident that the life cycle (extending from the time the larvae hatched from the egg in early spring to the laying of eggs by adults in mid-summer) had been completed for the year.

Spraying Operation — Approximately 40 acres, surrounding the study area referred to as the sprayed plot was sprayed from the air between 5:25 and 6:05 a.m. on May 21. The airplane used was a converted Piper Cub J-3 which was equipped with spray booms, with 13 nozzles designated 80-6 Ong and a 40-gallon tank for holding the spray liquid. A mixture of equal parts of a 25 per cent DDT oil solution concentrate and No. 2 fuel oil was applied with a pres-



Figure 2. Foliage conditions on check plot, June 5.

sure of 60 pounds per square inch. The rate of application was approximately *one pound of technical DDT in one gallon total liquid per acre.*

Weather conditions were nearly ideal. The sky was very clear during the period of spraying with only small scattered clouds appearing along the horizon. The ground fog which had persisted that morning had already lifted and was entirely gone at the time of the first spraying run. A north wind with a velocity of approximately five miles per hour prevailed during the operation but since the plane was flown in a north and south direction, there was no significant sidewise drift of the spray across the area.

Smoke pots were used to guide the pilot on his runs and at least moderate success was obtained in covering the area evenly with the spray. On two occasions a sudden gust of wind or inversion prevented the smoke from rising properly above the tree canopy and three narrow swaths did not receive an application of the insecticide.

The study plot located within the sprayed area was bounded on all sides by a sprayed strip approximately 320 feet in width. This overlap was planned to aid in complete coverage of the study plot with the spray and to minimize any tendency of the larvae to migrate into or out of the confines of the 14-acre study area. It was later found that the tent caterpillar larvae migrated inward from the non-sprayed forest bordering the sprayed area for a distance of approximately 80 feet and completely defoliated the sprayed forest within this strip.

The Effects of Spraying on the Larvae

-- Less than three hours after the conclusion of the spraying operation, an investigation conducted within the sprayed area showed the operation to be highly effective. Caterpillar "knock-down" due to contact with the DDT was very great. Larvae were hanging in great numbers from their silken threads and the ground was literally alive with their writhing forms.

At the time of the spraying there was



Figure 3. Forest Tent Caterpillar larvae on gravel road, June 4.

a considerable size range of the larvae, but the vast majority had attained the third or even fourth instar. All instars appeared to be affected by the spray. A count made in two one-half square foot plots within the sprayed area showed a "knock-down" of 46 larvae in one and 28 in the other. These plots were believed to be representative of conditions existing throughout the sprayed area.

Within a very few days careful checks revealed an almost complete kill of the caterpillar larvae in the sprayed area, with the exception of those larvae within the three swaths which were missed in the spraying operation. Within these three swaths the larvae continued to develop at an apparently normal rate and they remained more or less within the confines of these strips to pupate.

Census Technique — The bird census work was based upon a technique described by Kendeigh (1944) which utilizes the number and location of singing males plotted during the season as an indicator of the breeding bird population inhabiting an area.

The plots generally were censused consecutively, one each day. Thirteen complete censuses were conducted in each plot in addition to several censuses in each which were interrupted by inclement weather. All of the censuses were conducted between May 14 and July 23, inclusive, and were begun between 6:30 and 7:00 o'clock a.m., with each census requiring approximately three hours for completion.

Although an attempt at a thorough bird census was made on May 14, it was found to be a very unsatisfactory indication of the potential breeding bird population of the study area concerned, as bird migration was still underway and there was little apparent attempt by the birds to establish territories. It was not until about May 20 that the daily census work was considered a reliable indication of the breeding bird population within the plots.

The Effects of Defoliation and Spraying on Bird Behavior and Survival

The Breeding Population — There was no great difference in the total breeding bird population of the three study areas. The sprayed plot had approximately three breeding pairs per acre; the defoliated and check plots each had approximately four breeding pairs per area (Table 1).

The somewhat lower number of breeding pairs in the sprayed plot may be at least partially explained by the fact that within the confines of the plot there occurred small woodland pools which were not present in the other two study areas. These woodland pools, which dried up in mid-summer, appeared to be rather poor bird habitats as birds were not observed using them. Furthermore, nine species were represented in the plots by one or less territories per plot, and had the size of the study areas been larger, the chances of observations on

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these species would probably have been greater.

A review of the literature indicates that a bird population the size of that found in the study area is of the same order of magnitude as found in other forest types. No published account regarding the bird population of the aspen forest was located, but the following results obtained by various workers will be included here for comparison.

TABLE 1. ESTIMATED NUMBER OF BREEDING PAIRS OCCURRING WITHIN THE RESPECTIVE STUDY PLOTS.

Species	Defoli-		
	Sprayed	ated	Check
Red-eyed Vireo	12	13	10
Oven-bird	7	12	13
Least Flycatcher	0	12	11
Veery	6	6	7
American Redstart	10	2	3
Crested Flycatcher	4	4	3
Scarlet Tanager	1	2	2
Chestnut-sided Warbler	1	0	2
Yellow Warbler	1	0	1
Red-eyed Towhee	0	1	1
Black-billed Cuckoo	1	0	1
Mourning Warbler	0	1	1
Rose-breasted Grosbeak	+	+	1
Bluejay	0	0	1
Wood Pewee	0	1	0
Black-capped Chickadee	+	1	0
Northern Yellowthroat	+	0	0
<i>Total</i>	43+	55+	57
<i>Ave. No. breeding pairs per acre</i>	3.1	3.9	4.0

The plus sign indicates that less than one-half of a breeding pair's territory lay within the plot.

Kendeigh (1944) lists an average of 221 breeding pairs per 100 acres in the mixed climax deciduous forest types of Ohio. In his work with the spruce budworm, Kendeigh (1947) found a population density of 319 breeding pairs per 100 acres in the spruce-fir association

of the northern coniferous forest. He considered this population to be extraordinarily high and attributed the cause to the abundant food supply provided by the spruce budworm infestation. In Pennsylvania, Hotchkiss and Pough (1946), while conducting experiments with the effects of DDT upon bird life in mixed hardwood forests estimated the normal breeding population at 2.7 pairs per acre. Silloway (1923), reported an average of about three pairs per acre in a mixture of coniferous and hardwood forest covering the foothills of the western Adirondack region of New York. Stewart et al (1951), in the bottomland forest of Maryland, determined the normal breeding population to be 390.5 pairs per 100 acres.

The numbers of the Least Flycatcher and the Redstart found in the study areas is rather puzzling and cannot be explained satisfactorily. The Least Flycatcher was observed in rather scattered locations throughout the sprayed plot only on May 26, June 1, June 5 and July 2, and from all indications there was not a single pair of this species resident within the sprayed area. They were, however, quite frequently observed in the non-sprayed defoliated region adjacent to the sprayed area during collecting trips conducted by the writer and occurred in considerable numbers in the defoliated and check area. The relative abundance of the Redstart in the study plots was in sharp contrast to that of the Least Flycatcher (Table 1) as the sprayed area supported a considerably larger population of Redstarts than either of the other two plots.

It seems unlikely that the relative abundance of the Redstart was responsible for the absence of the Least Flycatcher, since these birds differ sufficiently in their feeding habits so as not to compete directly with one another in this respect. The spray did not appear to affect the food supply of the Redstart and it is very doubtful that it affected that of the Least Flycatcher.

Strangely enough, Stewart et al (1946), in conducting a study involving the application of DDT at a rate of two pounds per acre to the bottomland forest in Maryland, found the Redstart to be the only species adversely affected.

Shortly after the field work of this study was completed, there was published data which requires consideration. Stewart and Aldrich (1951) and Hensley and Cope (1951), while engaged in population studies of birds in northern Maine (1949-50), found that it was not possible to reduce the breeding bird population of an area beyond 19 to 21 per cent of the original breeding population despite intensive removal by the use of firearms. They reported that the surplus floating population of birds which existed in the forest was found to act as a reserve supply, replenishing areas that had been depleted. If this information is applied to the present study, it may

appear to render these findings less definite.

For example, if the spraying operation actually did kill birds present in the area at that time, these individuals might readily have been replaced by a reserve bird population, and the census the following morning would not detect any appreciable change in the breeding bird population. Thus, there does exist the possibility of the spray having a deleterious effect upon the birds without being detected.

However, there is one important point which largely nullifies the foregoing possibility. In carrying out the study in Maine, these workers were cognizant of the distinctly different behavior of the new males from that of the males formerly occupying the territories. They report that the new arrivals were "much more active and vocal, singing more vigorously and more frequently". While

TABLE 2. ESTIMATED SIZE OF TERRITORIES OF BREEDING MALES WITHIN THE THREE PLOTS.

<i>Species and No. determinations</i>	<i>Size of Home Range (Acres)*</i>		
	<i>Sprayed</i>	<i>Defoliated</i>	<i>Check</i>
Red-eyed Vireo (10-9-7)	.91 0.63-1.24	.90 0.65-1.26	.83 0.65-0.99
Ovenbird (7-12-11)	.95 0.79-1.16	.72 0.54-1.15	.67 0.42-0.88
Least Flycatcher (0-12-7)	none —	.68 0.32-0.97	.84 0.60-1.07
Veery (5-5-5)	1.32 1.16-1.42	1.39 1.01-1.88	1.07 0.78-1.43
Redstart (9-2-3)	.81 0.56-1.20	.91 0.61-1.21	.82 0.60-1.21
Cr. Flycatcher (1-3-2)	2.69 —	1.54 1.21-1.79	1.51 1.46-1.56
Ch.-sided Warbler (1-0-2)	0.58 —	none —	0.90 0.69-1.12
Yellow Warbler (1-0-1)	0.54 —	none —	0.50 —
Red-eyed Towhee (0-1-1)	none —	2.69 —	1.42 —
Wood Pewee (0-1-0)	none —	1.37 —	none —
Bl.-cap. Chickadee (0-1-0)	none —	1.51 1.51	— —

* The average and the extremes are shown in each case.

conducting the present study, no such apparent difference in the males' vocal activity from one day to the next was detected — prevailing climatic conditions being considered. Thus, although this relatively recent publication of their work certainly deserves consideration in studies of this nature, it is felt that the findings as presented here are indicative of conditions as they actually existed.

Size of the Territory — There appeared to be no appreciable difference in the size of the territory of any one species throughout the three plots (Table 2), when one considers the overlaps in the extremes as well as the average in each case. For the most part, the territory of a species was somewhat larger where the population of that species was the smallest, indicating that the size of the territory is apt to vary with the amount of unclaimed area available, in addition to possibly varying indirectly with the quality of the area. Kendeigh (1944) also found the size of the territory to vary indirectly with the size of the breeding population and considered this relationship to indicate the degree of population pressure to which the birds of an area are exposed.

Actually, there was no indication that the resident males in the defoliated area maintained larger territories than the males of the same species nesting in the other plots despite the almost complete lack of foliage in the former.

Singing Perches — It is noteworthy that there was no detectable difference in the choice of singing perches by any one species in the three plots.

Despite the completely defoliated condition in one plot at the time that territories were being established, the males continued to sing from perches of a type and at a height similar to those chosen by the same species in the other two study areas.

Nesting Sites — Defoliation of shrubs and trees was near completion with the onset of the nesting season for most of the species. Despite the striking lack of

foliage the birds did not abandon the infested region and there was no difference in the choice of the nesting site by the birds inhabiting the defoliated area as compared to the same species in the other plots. The nests located in the defoliated region were constructed and located in the customary manner of the species (Figure 4).

Relatively early nesting species, such as the Ovenbird and Ruffed Grouse, were already incubating when defoliation was in its early stages. It should be pointed out that since the Forest Tent Caterpillar larvae did not feed on the herbaceous vegetation to any extent, the cover for ground-nesting species was relatively little disturbed.

The trees and shrubs in the defoliated plot remained leafless during the incubation period of most nesting birds. At about the peak of hatching, however, the new aspen leaves had unfolded and the shrubs had well-developed leaf buds. During the period in which the majority of the young birds were still in the nest the amount of cover was increasing rapidly and by the time most of the young birds reached the fledgling stage a completely new set of leaves covered the trees and brush.

The renesting attempts generally occurred sufficiently late with most species that the normal amount of cover was available at the start.

Peak of Hatching — The peak of the nesting season was determined for each plot by recording, whenever possible, for each nest discovered, the period beginning with the first date of incubation and concluding with the date of hatching. With nests which were discovered after incubation had begun, the extent of this period was calculated by subtracting the average incubation period for the species as given by Roberts (1936) from the date of hatching. With nests which were abandoned or destroyed before hatching had taken place, the extent of this period was calculated by adding the average incubation period to

the date incubation was begun. There was a decided lag with regard to the commencement of nesting in the defoliated plot. The reasons for this retarded nesting in the defoliated area are not known.

Nesting Success — Designating a successful nest as one in which at least one of the eggs hatched and one nestling left the nest of its own volition after completing development, approximately 38 per cent of the nests in the defoliated plot were successful, as compared with 46 per cent in the sprayed plot and 27 per cent in the check plot.

The degree of Cowbird parasitism occurring within the study areas is rather interesting. Ninety per cent of the nests in the defoliated plot were parasitized as compared to 29 per cent in the sprayed plot and 33 per cent in the check plot. Superficially there appears to be a significant difference with regard to the degree of parasitism in the respective plots; however, this difference may be at least partially attributed to the small

size of the samples for the check plot and the sprayed plot and the species composition of the birds whose nests were examined. In each of the study areas the Red-eyed Vireo was rather heavily parasitized, suggesting that it was the host species and not the available cover that determined the degree of cowbird parasitism occurring within three plots.

It is possible that the lack of foliage in the infested region was an aid to the cowbird in discovering nests of the other birds. To the observer, the denuded nature of this vegetation appeared to be only a slight aid in locating nests. Despite the lack of foliage, nests located above the herbaceous vegetation blended amazingly well with the general background. Although a nest was placed in a shrub bare of leaves, it did not stand out as boldly as one might conceive. Those nests located on or very near the ground surface in the defoliated region appeared as well concealed as those in areas not defoliated, since the herbac-



Figure D. Nest of Least Flycatcher in the defoliated plot.

ous ground cover was not disturbed by the Forest Tent Caterpillar.

Feeding Habits — In regions with an enormous insect infestation there is always the possibility that the birds might change their feeding habits in order that they may utilize this readily available food supply. Despite a close watch during the course of this study, there was no indication of any species altering its established methods of securing food in order to prey upon the Forest Tent Caterpillar. This is not meant to imply that the birds completely ignored the larvae. They did feed on them when the larvae were present in the places where the birds were accustomed to feeding.

Field observations and the examination of the stomach contents of adult birds collected during the course of this work outside of the study plots disclosed that a considerable variety of birds were eating Forest Tent Caterpillar larvae (Table 3). McAtee (1926) lists a total of 36 species of birds known to prey upon the Forest Tent Caterpillar larvae.

The analysis of the contents of 40 bird stomachs collected in defoliated areas resulted in the following information: 21 of the stomachs, representing 11 different species, contained tent caterpillar larvae. The number of larvae found in the birds' stomachs ranged from one to ten, with the greatest number present in the stomach of a Red-eyed Vireo. Generally the tent caterpillar larvae made up only a part of the entire stomach contents. Evidently, as had been noted in the field, the birds do not gorge themselves on the larvae alone but merely include them as a portion of their diet.

The analysis of the data on stomach contents indicated that the birds preyed on Forest Tent Caterpillar larvae of small size. Thus in the latter part of May and early June, during which time all or at least a large percentage of the larvae had not yet completed their fourth instar more of the stomachs contained larvae. The stomachs of birds collected

at a time at which practically all of the larvae had already completed the later stages of development generally contained Forest Tent Caterpillar larvae which were still in the early stages of growth. It therefore appears that the birds probably sought out the larvae which were still small in size.

TABLE 3. A LIST OF THE BIRDS FOUND TO PREY UPON THE FOREST TENT CATERPILLAR.

<i>Species</i>	<i>Field observations</i>	<i>No. stomachs examined</i>	<i>No. larvae found per stomach</i>
Ruffed Grouse	x	1	0
Black-billed Cuckoo	x	3	4,6,8
Crested Flycatcher	x	6	1
Least Flycatcher	x	1	0
Bluejay	x		
Crow	x		
Catbird	x		
Olive-backed Thrush	x		
Veery	x	5	9,6,3
Blue-headed Vireo		1	3
Red-eyed Vireo	x	8	1,10,2, 3,5,2,3
Yellow Warbler	x	1	2
Myrtle Warbler		1	1
Chestnut-sided Warbler		1	2
Oven-bird	x	1	2
American Redstart		2	4
Red-winged Blackbird	x	4	0
Cowbird	x	4	3
Rosé-breasted Grosbeak	x	1	0

Very little information was obtained relative to the utilization by birds of the pupae of the Forest Tent Caterpillar. It would seem that for the majority of the breeding bird species in the area it would be quite a task to tear a tent caterpillar in the pupal stage from the tough silken fibers which encase it. In one instance a Ruffed Grouse was observed apparently eating Forest Tent Caterpillar pupae. Hodson (1941) relates an observation concerning crow predation upon thous-

ands of cocoons littering a woods trail.

Observations concerning bird behavior with regard to the moths were quite meager since in the region of the defoliated plot, 97 per cent to 99 per cent of the Forest Tent Caterpillar pupae were parasitized and the resulting emergence of moths was very light. In a single instance each, an adult Redstart, a fledgling Cowbird and a nestling Least Flycatcher were noted to feed on what appeared to be tent caterpillar moths. Positive identification of the moth eaten was not possible.

Discussion

Whether or not the birds are effective in controlling insect infestations and conversely whether such outbreaks contribute to, or mitigate against, the welfare of the birds are points of broad fundamental interest. The possible effects of spraying with insecticides are of immediate practical import. On the basis of this intensive field work the following conjectures may be made.

Birds Controlling Insects — Despite the variety of birds preying on the larvae, three factors brought out in this report seem to indicate that the birds exert little effect in reducing numbers of the insect:

(1) A density of three to four breeding pairs of insectivorous birds per acre was low compared to the immense numbers of caterpillars per acre.

(2) The birds' feeding habits did not shift to intensive utilization of larvae or pupae.

(3) The heavy parasitism of the pupae in the area obviously was the major factor in reducing the numbers of moths.

These conjectures are in agreement with Kendeigh (1947), who calculated that birds were capable of reducing the population of spruce budworms only 4.3 per cent during a severe outbreak. Based on Tinbergen's concept, Kendeigh contemplated that to be of importance, the influence of birds and other predators would probably have to be exerted before the number of insects passed a cer-

tain threshold of abundance. In conclusion, he states that the greatest effect of the birds upon the Spruce Budworm was to prolong the intervals between successive outbreaks. The effect of birds as a controlling agent upon the Forest Tent Caterpillar very likely acts in a similar manner. This present study did not touch on this concept.

Effects of Defoliation on Birds — With regard to the effects of the insect outbreak on the birds, it has been noted that breeding male densities in the defoliated plots were very similar to those within the check and sprayed plots. Territorial size, perches of singing males, nesting sites and hatching success were similar in the three plots. However, the hatching of eggs in the defoliated area was delayed for ten days.

Despite the Forest Tent Caterpillar larvae constituting an increase in the available food supply, the food habits of adult birds in defoliated areas did not shift significantly to these larvae. With regard to the contribution that the infestation might make to the food supply of young birds, the comparatively early nesters, such as the Ruffed Grouse, had completed incubation before the larvae had begun to pupate and the chicks may readily have taken Forest Tent Caterpillar larvae for food. Generally, however, because of the caterpillar's relatively rapid development, larvae were no longer available in significantly large numbers when the peak of the hatching season occurred. Therefore, it is believed that the Forest Tent Caterpillar contributed only very slightly to the food supply of nestlings or fledgling birds.

Effects of Spraying on Birds — This study did not disclose any direct effects of the use of one pound of technical DDT per gallon of oil solution at the rate of one gallon of liquid per acre on the resident bird population. Although the total estimated number of breeding birds within the sprayed plot was somewhat less than in the defoliated and

(Continued on page 146)

DEATH OF

By Orville

Nature fashioned this marsh centuries ago among moraines in the northwest part of the North Star State. The water brought forth lush flora and attracted fauna of varied kinds.



Showing the extensive ditch draining the water from the marsh.



Ditching operation or folly . . .

A MARSH

lordsletten



The years passed by . . . man's advance brought roadways which divided the marsh in two . . . then in 1957 the marsh to the right was drained, causing another valuable wetland habitat in Minnesota to be destroyed.



s in action. Wis-
time will tell.



. . . a teal flew by, a Mallard pair were taking a last swim, and two sentry-like Blue Herons stood watch while another marsh died.

(Continued from page 143)

check plots this condition may have been due to the presence of woodland pools (little used by the species in question) in this area and not the others. Further, by chance three species had portions of their territories within this plot, a situation that occurred with only one species in one of the other plots. One species (Least Flycatcher), common in the two unsprayed plots, was absent in the sprayed plot — this cannot be explained as other birds of similar food habits were found within the sprayed plots. Conversely another species (American Redstart) was much more abundant in the sprayed plot than in the unsprayed ones.

There was no observed death of birds or movement of birds into or out of the sprayed plot. The life habits, such as choice of perching sites, nest location, nesting success, and feeding habits appeared to be similar in all three plots.

A number of other attempts to determine the effects of DDT upon bird populations have been carried out in various parts of the United States and Canada. (Hotchkiss and Pough, 1946; George and Mitchel, 1946; Kendeigh, 1947; Linduska and Slurber, 1948; Linduska, 1949; and Robbins and Stewart, 1949). It is generally concluded by these investigators that a single application of DDT to a forested area at a rate of *one pound per acre* will not result in detectable harm to the bird population.

As the concentration of the insecticide becomes increased, however, considerable damage to the bird population has resulted. For example, Linduska and Surber (1948) report a 50 per cent reduction of the bird population following the use of 4.36 pounds of DDT per acre in carrying out an experimental program of tick control in Texas. In Maryland, these same investigators report that the aerial application of five pounds of DDT



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per acre caused a very heavy bird mortality.

Fortunately, concentrations of DDT required for the control of the Forest Tent Caterpillar in Minnesota in 1951 were not sufficient to cause heavy bird mortality. The present study indicates that, adherence to the rate of application of one pound of technical DDT in one gallon total liquid per acre caused no detectable loss of bird life.

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THE NORTH SHORE TRIP

The annual meeting of the Minnesota Ornithologists' Union and the Thunder Bay Field Naturalists' Club will be held Saturday, February 22, 1958 at 5:00 p.m. C.S.T. This year's meeting will be held in the Grand Marais high school gymnasium and will follow a banquet served by the Congregational Ladies Aid of Grand Marais.

The field trip will start at 8:00 a.m. from the J. K. Bronoel home, 2010 East First Street, Duluth. The last stop before leaving Duluth will be at the Lester Park Bridge on London Road.

Reservations for the banquet should be made with Mrs. A. M. Fenstad, Grand Marais, Minnesota. Banquet tickets are \$2.00. Hotel reservations in Grand Marais may be made at either the Shoreline or East Bay hotels. Remember that this is during the height of the skiing season, so hotel reservations should be made early. If you belong to a M.O.U. affiliate club, consult your local chairman for further details, or write to Mrs. Harvey Putnam, 1407 Woodland Ave., Duluth, Minnesota.

Birding In the Black Hills

by

Whitney and Karen Eastman

Would you like to go birding in a new and different place where you can add some new ones to your life list, see new plants and animals and exercise your camera on some breathtaking mountain scenery? If the answer is, yes, but my vacation isn't long enough, or I can't afford a long trip, give a thought to the Black Hills.

Hill City in the heart of the Black Hills is just under 600 miles from the Twin Cities, and if you are one of these tourists who likes to rise up at 3 a.m. and make distance, you can get there in a day, but you'll have a lot more fun and arrive safely and rested if you take two days. If you are really a dyed-in-the-wool birder, you won't be able to resist stopping for a look around as the terrain, flora and fauna gradually change from the familiar to the different and exciting.

Either Route 14 or 16 across South Dakota is a good choice, particularly if you go in June or July when birds are nesting and singing. If you have a little extra time to spare and are making the trip around Labor Day, or if you start from farther north in Minnesota, Route 103 along Big Stone Lake on the Minnesota side from Ortonville to Browns Valley is a fine country road for observing fall migrants. Cross over into South Dakota near Browns Valley and take South Dakota No. 10 to Sand Lake Wildlife Refuge for a look at geese, ducks, shorebirds and those gorgeous Western Grebes and White Pelicans.

Drop down to Route 212 somewhere along the way and go to Belle Fourche, thence south to Spearfish and the Black Hills. If you are lucky, you will see Sage Hens on this route, but if your

luck isn't that good, and you really want to see them take a few extra hours to follow No. 212 northwest from Belle Fourche into Wyoming and Montana. Sage Hens are positively guaranteed for all following this procedure. Then you can proceed down Spearfish Canyon to Hill City — but more about Spearfish Canyon later.

Let's assume this is your first trip west, you are making it in June or July, and you choose Route 16, entering South Dakota just west of Worthington. The Western Meadowlark with his melodious song is the most conspicuous bird. The first new "life lister" is soon spied as a sparrow-sized black bird with flashing white wing patches darts across the road. You have seen your first male Lark Bunting, and they become increasingly abundant, together with their more soberly dressed wives and children. As you pass a clover or alfalfa patch, you are pretty sure to hear a cheery "dick dick cissel" from the wires as this miniature edition of the meadowlark calls his name. South Dakota's state bird, the pheasant, brightens the landscape, and in the marshes you will find ducks, grebes, herons and rails if you take the time to seek them out. The Eastern Kingbird is a common roadside bird all across the state. In fact, it occurs all the way to the Pacific Coast. However, as you proceed west you will find more and more Western Kingbirds as well.

After crossing the Missouri River at Chamberlain and rising up to the Missouri Plateau, the land takes on a more western flavor, with large herds of grazing cattle, wide open spaces and bigger hills, interspersed with wooded

coulees, where concentrations of birds are found. Hawks are less common on the plains than they used to be, due, no doubt, to the persecution they have been subjected to. However, you will see Swainson's Hawk, with his beautiful brown bib, sitting confidently on a fence post. Look for Golden Eagles soaring overhead. By now you should have spotted the flashy black and white magpies with their long glossy tail streamers.

Stop at Kadoka Junction long enough to go out back of the Phillips 66 station to see the Burrowing Owl and Prairie Dog colony. It's quite a show.

By all means take alternate 14 and 16 for the loop through the Badlands where Mother Nature has gone all out to produce the fantastic and bizarre. Bird life is not abundant, but interesting. If you haven't already found the Spotted Towhee in some wooded coulee, you are sure to find him here. He seems always to be singing from some juniper thicket no matter how hot it is — and it is apt to be hot. Here you will perhaps get your first glimpse of the Rock Wren and Say's Phoebe.

Another interesting stop is Wasta on Routes 14 and 16 where you can take the road to the right by the tourist station just east of town. It is best to park your car here and proceed on foot up into the hills. Great Horned Owls are apt to be hunting on the hillside, and the Blue Grosbeak, Black-headed Grosbeak, Spotted Towhee and Bullock's Oriole provide a feast for eastern eyes.

Route 16 and alternate 85 will take you to Hill City, and Palmer Gulch Lodge, where we stop, is just over three miles away. There is a lot to see right around the lodge. First, you will notice the familiar robin. But, take a closer look. There are both eastern and western robins here because this is the overlapping zone for eastern and western birds. The Eastern Robin such as we have in Minnesota has white in his

tail. His western cousin has an all-black tail and appears to be a somewhat shyer bird. The White-winged Junco is a common resident. At first glance he looks pretty much like our Slate-colored Junco, but look for the white line through his wings. Take a good look at the flickers. You have both Yellow-shafted and Red-breasted on one side and red on the other. The noisy Magpie will be scolding from the pines or flying across the meadow.

The Western Wood Pewee looks pretty much like the Eastern, but listen to him. He has a rather low "pee-ur" call instead of the familiar "pee-a-wee." His nest is apt to be found on a horizontal pine branch. Replacing our familiar Myrtle Warbler is Audubon's Warbler with a yellow throat instead of white. The Chipping Sparrow is a common nester in the pines as is the Plumbeous Vireo, western counterpart of the Blue-headed Vireo.

Across the meadow from the lodge is a beautiful view of Harney Peak, highest point east of the Rockies, 7,242 feet. Occasionally a Golden Eagle can be seen soaring above it. To the left are the jagged spires of Mt. Elkhorn, and closer at hand, just across the meadow, is an inviting trail leading into the forest and up to the peaks. As the shadows lengthen and dusk settles over the hills, the timid deer may come out and graze in the meadow, and the Great Horned Owls start talking to each other across the valley.

The Black Hills are friendly mountains, green and wooded with well-marked trails and gentle slopes for the novice mountain climber as well as rougher terrain for the more enterprising. There are no poisonous snakes, poison ivy or dangerous animals to be encountered in Palmer Gulch. So you can start off for a day's or a half-day's ramble with nothing to fear. The trail following the water pipeline up a canyon along a series of beaver ponds, gradually increasing in elevation with corresponding

changes in plant and bird life, is a good way to begin exploring the Hills. In the low shrubbery on either side of the trail Yellow-throats and MacGillivray's Warbler, western relative to our Mourning Warbler, are nesting. At a beaver pond with dead trees standing in the water you will find the Dakota Song Sparrow, singing like a hoarse Eastern Song Sparrow; Pine Siskins; Traill's Flycatcher, a western member of the Empidonax group; and with just a little luck and persistence — the Arctic Three-toed Woodpecker with his patent leather back and jaunty yellow cap.

Climb a little higher among the rock outcroppings and pines, and a group of Gray Jays will probably come down to investigate the intruder on their domain. A little squeaking will bring them very close. The Red-naped Sapsucker, close relative of our Yellow-bellied Sapsucker, but with a little different arrangement of red on his head and nape, is here, as are the Hairy Woodpecker, Brown Creeper, Kinglets, Red-breasted Nuthatch and Red Crossbills.

When you reach the proper elevation, Townsend's Solitaire will serenade you with his incomparable song. Come back in September, and you will find flocks of them down at the lodge eating berries, but they like privacy and a more rarified atmosphere for their nesting activities.

The Western Tanager is one of the prize birds of the Hills, quite common and not shy.

A rocky canyon will produce a pair of nesting Western Flycatchers, little yellow-bellied members of that puzzling Empidonax group. It is also home to a family of Canyon Wrens whose song is described by Peterson as "a gushing cadence of clear curved notes tripping down the scale." Enhanced by the echoing canyon walls it is one of the most memorable bird songs one is apt to hear. The Russet-backed Thrush, western counterpart of the eastern Olive-backed, nests near by. A gray Ruffed

Grouse hen explodes out of a thicket to distract you from her half-grown chicks.

The next day, a little leg-weary from unaccustomed climbing, you will probably decide to do your sight-seeing by car. Spectacular mountain scenery will be found along the Needles Highway. The rather forbidding terrain of the Needles and Cathedral Spires is not conducive to abundant bird life, but look for Turkey Vultures, Duck Hawks and Red-tailed Hawks soaring about the peaks. You may spy a mountain goat perched on a rocky pedestal above the road.

Of course, you will visit the Shrine of Democracy, that monumental piece of sculpture which occupied Gutzon Borglum for 14 years. The faces are visible for 60 miles, and Lincoln's face is 60 feet from hairline to chin. Particularly interesting from the birder's viewpoint are the White-throated Swifts gliding back and forth before the faces, busily catching insects for their hungry broods in the rocks.

Crystal-clear Sylvan Lake is one of the beauty spots of the Hills in its rocky setting. It is a man-made lake, very deep and clear, and, therefore not very hospitable to birds. A steep trail has been carved out of the granite down Sunday Gulch behind the lake. There in the evergreens you will find Golden-crowned Kinglets and other common Hills birds, but, remember, it's easier going down than coming up.

On a trip to Hill City you are sure to find the heavenly-hued Mountain Bluebird and the equally dazzling Violet-green Swallow. The sight of 30 of these little swallows basking on a sloping barn roof in the westering sun, stretching and displaying their grass-green, violet and sparkling white plumage, is one of our treasured memories of the Hills. Yellow-headed, Brewer's and Red-winged Blackbirds are frequently seen in the streets of Hill City where they have come from their homes in the nearby marsh or meadow, seeking gravel or bits of food.

From Hill City continue on the gravel road toward Mystic, and you will come to a huge burned-over area that looks like the inferno with the fire put out. The earth is scorched right down to the granite, and blackened tree stumps rise to varying heights up to the full height of the original tree. It is a sad sight, but "It's an ill wind that blows nobody some good." The woodpeckers have taken over. Red-heads are abundant, but the fellow you have come to see is Lewis' Woodpecker, a little larger than a Hairy, magnificently attired in a black coat, old rose vest and gray collar. We counted 20 on a hillside one day in early July. Look for nesting Sparrow Hawks, too.

There are lots of good birding spots near Rapid City. The most spectacular man-made attraction is at Dinosaur Park above the city where five life-sized concrete and steel replicas of prehistoric animals have been constructed. There you may get a look at the wild life of the Hills 135,000,000 years ago. Nesting unconcernedly at the feet of the giants is the little Lark Sparrow. Skirting Dinosaur Park is the Skyline Drive and Hangman's Hill where Pinyon Jays can be found. We also found a flock of about 25 drinking at a watering trough in Spring Valley, between Hill City and Rapid City. The Pinyon Jay is one of the clowns of the bird world, dull blue, with a long, sharp bill, short tail and waddling gait, not unlike the starling.

In the open county near Rapid City you will find the Long-billed Curlew and Upland Plover, and in the rocky outcroppings the Rock Wren makes his home. Look and listen for the Blue Grosbeak in brushy places along stream beds.

The roads through both Dark and South Canyons where Rapid City residents have constructed summer cottages are very interesting from an ornithological standpoint. The sheer canyon walls harbor White-throated Swifts, Canyon Wrens, Duck Hawks and Prairie Fal-

cons. On a rock in the middle of the fast-flowing stream a Water Ouzel is apt to be bobbing and then walking right down into the water in search for the marine life that constitutes his diet. He may even favor you with a song if he is in the mood, and if he does, you are in for a rare treat. The Spotted Towhee, Redstart, Bullock's Oriole, Black-headed Grosbeak and Long-tailed Chat, western counterpart of our Yellow-breasted Chat, are to be found in these canyons. Here, too, is the dainty Lazuli Bunting as well as his eastern cousin, the Indigo Bunting.

Pettingill says, "Unquestionably the best place for bird finding, if not for sight-seeing, in the Black Hills is Spearfish Canyon." It is like Dark and South Canyons, but there is more of it, and the forest growth is much more extensive. Most of the birds mentioned thus far will be found here and many more. The Water Ouzels, to us, are the outstanding attraction. Be sure to stop at Roughlock Falls where Water Ouzels nest every year. This waterfall is more accessible than some of the more spectacular which you will see from the road.

No trip to the Black Hills is complete without a jaunt down to Custer State Park or Wind Cave National Park or both to see the buffalo herds. We have had better luck finding the buffalo in Wind Cave Park, not far from headquarters. These are the animals which appeared in Walt Disney's "Vanishing Prairie," and if you have seen this excellent movie, you will be much interested to see its star performers in the flesh. The buffalo were estimated to be 50 to 75 million strong once, but by 1889 they were down to less than 1000. They are thriving under protection now. The Custer herd numbers about 1200. In fact, they slaughter large numbers of the great beasts every year to keep the herds down to the size the range will support. They range free and live on grass just as their ancestors did. Custer

State Park sells about \$75,000 worth of meat a year. You might sample some of it in a buffaloburger at some way-side restaurant. It is quite tasty.

Other animals are also thriving in a semi-wild state in the parks. You will find Bighorn Sheep and Pronghorn Antelope. Don't let those donkeys get their heads in your car windows or you will have quite a problem getting them out again. Tourists have given them so many handouts, they try to exact tribute from any car that even slows down. A Prairie Dog colony is an interesting place to while away some time, and a huge billboard on the spot portrays the little animal's niche in nature's scheme.

Bird life on the prairie includes Horned Larks, Brewer's Blackbirds and Western Meadowlarks. In the wooded coulees near Wind Cave headquarters the Long-tailed Chat is pretty sure to be scolding. Say's Phoebe was nesting over the door of the exit from Wind Cave at the time of our visit, and Canyon Wrens had set up housekeeping under a highway bridge over a nearby stream.

If time permits an extension of your trip to another section of the Black Hills; i.e., Devil's Tower National Monument, Wyoming, that imposing chunk of rock is well worth a visit. It rises up out of the prairie like a giant tree stump, 1280 feet from the level of the stream below it, 865 feet from its apparent base at the foot of its regular columns. Geologists are not entirely certain of its origin but generally agree

that at one time it was molten and was forced upward, cooled beneath the earth's surface, and the surrounding material gradually eroded away. They attributed the symmetrical columns to regularly arranged cracks due to contraction of the cooling mass. They estimate its age at 50,000,000 years and believe it was uncovered fairly recently during the last million or two years.

There is about an acre and a half of apparently level land at the top of the tower. Prairie Falcons and Duck Hawks have both nested in the rocks near the summit. The four and one-half miles of wooded nature trail through the grounds at the base of the tower provide good birding. You probably won't find anything you haven't already seen in the Hills, but lots of old friends. We were impressed with the abundance of singing Ovenbirds. The superintendent and his wife are interested in birds and keep records, so be sure to have a chat with them as they may have something to show you.

The Prairie Dog colony near Devil's Tower is a particularly tame one, and if you enjoy feeding small animals by hand, we found them very fond of fig bars, but they enjoy a varied diet of tourist offerings.

When the time comes to say goodbye to the Black Hills, we feel sure you will agree that this is a perfect vacation spot for a Minnesota birder anxious to explore new birding fields with a minimum expenditure of time and money. — *Minneapolis, Minn.*

A 15-page mimeographed address list of the membership of the Minnesota Ornithologists' Union is available at cost, 15c, from the Museum of Natural History, University of Minnesota, Minneapolis 14, Minnesota.

Seasonal Report

by

Mary Lupient

Your reporter attended the 1957 annual meeting of the American Ornithologists' Union which was held in Cape May, New Jersey, September 10-15. This town which is situated on the ocean front afforded a fine opportunity to observe Great Black-backed, Laughing and Herring Gulls on the beach. It was interesting to watch the Herring Gulls pluck mussels from the rocks, fly high and drop them on the hard sand presumably to open the shells. If they did not open, the gulls picked them up, rose still higher and dropped them again and again until the shells did open. Did the gulls' ancestors discover accidentally that mussels could be opened in this manner, remember it and hand the knowledge down to their offspring? This action occurred repeatedly every day.

Nearly every day of the meeting we parked on highways bordering salt marshes and watched hundreds of Great Blue, Little Blue, Green and Louisiana Herons besides Black-crowned and Yellow-crowned Herons feeding or resting. With them were large numbers of Snowy and American Egrets. At the edge of nearby Stone Harbor there is a sanctuary containing a large grove of trees. Near sunset these trees had the appearance of blooming as hundreds of the birds mentioned above drifted in, tilting and volplaning to a landing. We saw Glossy Ibis feed their young in these trees. Fish Crows and Common Crows perched together, so the difference in size was easily noted. Many species of small birds such as sparrows, warblers, flycatchers and others flitted about in a thicket nearby.

Besides the large birds inhabiting the salt marshes there was a large population of Clapper Rails moving about in

the grassy vegetation where Fiddler Crabs abounded. There were flocks of the dainty little Least Terns, Common and Forster's Terns and a few Royal Terns that flew above us calling. We saw dozens of Black Skimmers feeding and at rest. Ospreys were common and in many cases built nests on the cross arms of telephone poles placed along the highway. In some instances there were not enough poles to accommodate them so poles topped by platforms were put up and used by the ospreys.

On one trip we visited Brigantine Refuge several miles beyond Atlantic City where dykes were built in a circular form to keep fresh and salt water from mingling. We drove on these dykes and observed Avocets and Marbled Godwits, familiar birds of our western prairies in the fresh water. Hundreds of birds inhabit this refuge.

On a beach near Atlantic City there were flocks of Knots, Willets, Sanderlings and other shore birds.

Each day there was an early morning trip to a small lake near Cape May where birds were abundant. We observed White-eyed Vireos, Yellow-breasted Chats, Carolina Wrens and some familiar ones we see in Minnesota. One morning we went to a farm on the outskirts of Cape May and saw several Cattle Egrets accompanying a herd, really a big thrill for me. On the morning of the last day of the meeting we started on a half-day boat trip along the inland waterways near Cape May and out a short distance into the ocean. Observation of bird life was very convenient as we moved slowly along. One Purple Sandpiper was noted.

We visited Hawk Mountain Sanctuary on our way home. The lookout is situat-

ed on a ridge amid beautiful mountain scenery on all sides. To reach it one must climb one-half mile through a forest along a path leading from the highway. The point where the path and the highway meet is a considerable distance up the mountain side. Due to the fact that the wind was in the wrong direction the flight was poor that day. Later we stopped at the new auditorium at Hawk Mountain where Mrs. Rosalie Edge very graciously presided at a tea.

Comment on the papers presented at this meeting of the American Ornithologists' Union was complimentary, the field trips were expertly handled, and we were to be congratulated on having so efficient a committee on arrangements.

In Minnesota the mosquitos were a scourge but the weather was mild and the fall foliage wondrously beautiful. The first snow fell in northern sections October 22-23 and a hard freeze occurred

in the whole state October 25. Beginning the last ten days of August, warblers migrated leisurely and were still going through the Twin Cities area in early October. Many of the waves were large, so apparently the warbler population was not reduced. A goodly number of Red-breasted Nuthatches accompanied the warblers, but many of them remained in northern and eastern sections. Both kinglets were abundant and migrated in the latter part of September.

Flycatchers began migrating as usual the first week in September. Slate-colored Juncos were very abundant, migrating in large flocks in September and October. In the Twin Cities the first White-throated Sparrows arrived September 26, and Tree Sparrows were seen at the Hill Farm, October 9.

Apparently Bluebirds nested successfully for there was a goodly number of flocks in Bluebird territories during the fall. There were thousands of Robins in flocks the week of October 10-20, singing merrily as though it were spring. They were reported from all sections of the state. Some lingered around the Twin Cities during October, weathering a cold spell that occurred the last week of the month.

Swallows and Nighthawks began migrating at the usual time, but some lingered rather late. A flock of about 300 Nighthawks were seen by R. E. Cole at the Hill Farm near St. Paul, September 29. Tree Swallows were still with us October 9. There were hordes of Red-winged Blackbirds and large flocks of both Rusty Blackbirds and Grackles everywhere in the river valleys during October.

Evelyn Putnam reported the Evening Grosbeaks had arrived in Duluth in late September.

About 50 American Egrets were seen near the Cedar Avenue bridge near Minneapolis, September 4. There were few reports of these birds this fall, but the observations may not have come in.

Shore birds were coming back early in



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August but because of high vegetation in the river lowlands it was difficult to make observations. There were some bare mud flats, but only a relatively few shore birds were reported feeding on them. Dr. W. J. Breckenridge reported a very large concentration of shore birds about 20 miles west of Hutchinson, August 18. In the concentration there were many Stilt Sandpipers. In western Minnesota, August 5, Bruce Hayward saw many of both phalaropes in a very large migration of shore birds.

There were many records of Franklin's Gulls over the Twin Cities and surrounding country, particularly the river lowlands, during September and the first week of October. Approximately 5000 were seen by Karen and Whitney Eastman over the back waters of the Mississippi near Red Wing, October 6. Bonaparte's Gulls were at Duluth, Twin Cities, and several other localities, usually flying with the Franklin's Gulls.

Hunters reported a good sized duck population in western and northwestern Minnesota. Fall rains left shallow standing water in these areas and water birds abounded. A large concentration of several species of ducks, among them Golden-eyes, was observed by Paul Murphy at Goose Lake, White Bear, October 27. There was a movement of ducks from Canada as far south as the Minnesota border during the last of October brought on by unseasonably cold weather, but at date of this writing October 28, there have been no reports received of the northern migration in Minnesota, although some individuals have arrived.

Reportedly there was a considerable movement of Blue and Snow Geese through northwestern sections the last week in October.

The grouse population was estimated to be up over last year and is undoubtedly on an upward swing so that, although foliage was thick, hunters got their bag limits. At the Hill Farm, near St. Paul this writer was astonished

to see a Sharp-tailed Grouse at the edge of an open piece of land surrounded by forest. With it was a Ruffed Grouse. For ten minutes they appeared to be mildly sparring as if each was endeavoring to make the other leave. They were not belligerent, and it did not appear certain what the action indicated. There was a good crop of Ring-necked Pheasants this season, but the hunter's take was poor due to the new law which prohibited hunting in unharvested fields without the farmer's permission. During the first part of the hunting season corn was standing, and for this reason shooting of pheasants was extended one week longer.

The Minnesota Ornithologists' Union field trip to Duluth for the hawk count occurred September 21-22. On the 22nd the flight was really spectacular. Nearly 3000 hawks were sighted and apparently many more migrated back of the ridge. Excepting the Golden Eagle, all species of hawks common to Minnesota were recorded that day. The birds were predominantly Broad-winged Hawks, and at times there were many flocks of approximately 100 each spiraling high almost beyond sight. Ravens, Crows, Bluejays, Pine Siskins and other birds moved with the migration of hawks. Hundreds of Sparrow Hawks were seen by observers along the North Shore. On a trip to Park Point, Duluth we were thrilled to see a Parasitic Jaeger harrying the gulls. It was a beautiful and expert aerialist. Golden and Black-bellied Plovers, American Pipits and Lapland Longspurs roamed the grassy portions of the park. A flock of Sanderlings ran on twinkling legs along the waves that lapped the beach.

An interesting report just in, states that Gary Kuyava saw a Swallow-tailed Kite on the flyway at Duluth, October 25. He followed the bird for an hour and had ample opportunity to check his identification. — *Minneapolis, Minnesota.*

The Canadian Lakehead *Edited by A. E. Allin*

The late summer and early fall of 1957 were unusually fine months at the Canadian Lakehead. The mean temperature for August was 62.2°, a degree above normal. The precipitation of 2.1" was one inch below normal. The temperature reached 90° and 91° on August 1 and 2, all-time highs for those dates and a dangerous low of 34° on August 27 was also a record. The average temperature for September, 52.6°, was 1.6° below normal; the precipitation of 2.8" was also below average, although September was a cloudy month. The first local frost on September 17 was ten days later than usual. The 22° temperature on September 27 was an all-time low. October was a beautiful sunny month with a mean temperature of 42.3°, almost one degree above normal. The month was very dry and the streams and wells are low. The precipitation of 1.0" compares with a normal of 2.6". The first ice was noted in the rice beds of Whitefish Lake on October 19. We picked our last Michelmas Daisies on November 1. As late as October 20, Lowery's Asters and Common Buttercups were still in bloom.

As noted in the last issue of *The Flicker*, the fruit crop is very poor this season. There would appear to be little food available for winter visitors. This particularly applies to the Pine Grosbeak as the Rowan crop is a complete failure.

In the last *Flicker* we noted four species of birds which had been added to the fauna of the Lakehead, viz. Red-shouldered Hawk (June 8), Wood Thrush (May 25) and Eastern Meadow Lark (June 28) reported by Dr. and Mrs. J. M. Speirs at Dorion, and the Black-crowned Night Heron seen by C. E. Garton off the Slate Islands. In The Newsletter of the Thunder Bay Field Naturalists' Club II:(3):39 the Speirs report another addition to our local bird list, a Towhee seen near Dor-

ion, on May 21, 1955. Their record of a Loggerhead Shrike, August 9, 1955 appears to be the second for that species. Dr. D. MacLulich saw the first at Silver Islet in the mid-thirties.

Apart from the above, few unusual records were made during 1957. R. Robb reported a Ruddy Duck on September 14 and K. and N. Denis saw two on September 17. R. Philpott saw a Turkey Vulture on October 13, the fourth local record. On October 9, William Crocker shot an adult male Surf Scoter in the local harbor. This is a rare visitor, our only previous record being that of one shot at Whitefish Lake by Col. L. S. Dear in the fall of 1931.

As usual, shore-birds were our earliest migrants. Three unidentified "peeps" were seen on July 8 but it was mid-August before waders appeared in numbers. It was not until August 18 that we saw our first returning Solitary Sandpipers and Lesser Yellowlegs. Least and Semipalmated Sandpipers appeared on August 23. It seemed too early for Night Hawks to be migrating in late July but we cannot otherwise explain the 25 we saw over Whitefish Lake on July 25. Keith Denis reported the only other major movement of Night Hawks on August 20 when he saw 55. Although not migrating, there was an early movement of ducks into the local harbor. American Golden-eyes and Pintails were common there by mid-August. We have referred on previous occasions to the increasing numbers of Pintails breeding locally.

Late in August, throughout September and into October, there was a particularly good flight of shore-birds. On September 26, club members reported Golden Plovers, Solitary and Pectoral Sandpipers, four Dowitchers, a Stilt Sandpiper, Killdeers and Semipalmated Plovers. They saw Black-bellied Plovers and Hudsonian Godwit on October 12. Pectoral Sandpipers were unusually common but

the flight of Golden Plovers was spectacular. On September 28, Keith Denis counted 69 in one flock and on the 29th the Allins saw two flocks with some 100 birds in each. There were numerous reports until mid-October.

Although we have stated there was no local frost until September 17, this was not true of outlying areas. White River, 150 miles northeast of Fort William, is reputed to be the coldest place in Canada. There, the temperature fell to 30° on August 14. On August 17, the same day we saw our first "peeps", there was a major movement of small birds including Nashville and Myrtle Warblers. There was another major movement on August 29. E. Denis reported 100 Horned Larks on August 25. This was an unusually early date as the Prairie form does not occur locally and the northern migrants are not expected until much later. A third major movement of warblers and vireos occurred from September 15 to 19. Rusty Blackbirds, which probably breed not too far outside our region, were first noted in large flocks near Upsala on August 24. They were abundant throughout September and October at least until October 19.

Thrushes were uncommon locally during spring migration although they were common on their breeding grounds later in the summer. They appeared in their usual numbers on fall migration. Eastern Bluebirds were frequently reported in early October. Robins were unusually abundant from September 11 to 17 and again about October 6.

The Ruby-throated Hummingbird is a regular, but uncommon visitor which has not yet been found breeding at the Canadian Lakehead. Vera Murie reported one on September 19 and Dorothy Allin saw two in our garden on September 21. These appear to be late records for this diminutive bird.

Slate-colored Juncos were quite uncommon in the spring of 1957 but they have been common this fall. Large numbers appeared on September 28 and

we saw hundreds on October 3. Lapland Longspurs, as usual, were common in the fields and over the wild rice beds, during the latter half of September. On September 28, N. and K. Denis reported from 500 to 1000 Horned Larks in Paipoonge Township. These were apparently Hoyt's, the form migrating most commonly through this area as determined by specimens collected on previous occasions. There were numerous reports of White-crowned and Harris's Sparrows at the end of September. On September 22, Mrs. C. Rydholm reported the presence of 150 to 200 Evening Grosbeaks. During the next few weeks they were very common in the two cities and are still present in smaller numbers.

We have learned to expect the first Pine Grosbeaks in early October. This year we did not hear their delightful calls until October 19 and they are still uncommon. An adult male and two immature were seen feeding on the fruit of Highbush Cranberry on November 3. Usually they resort to this food only at the end of the winter when other sources of food have become exhausted. On October 19, the first Common Redpolls also appeared. It is of interest the mass movement of geese occurred at the same period. Marion Smith reported the first Snow Buntings on October 26. By November 3, they were common.

Will this be a Snowy Owl year? One was seen in the local harbor on October 18. Another was found injured on a load of iron ore from Atikokan on October 24 and there were two at least at Whitefish Lake on October 26, when we also saw the first American Rough-legged Hawk of the season. Two Bald Eagles were seen over Whitefish Lake on October 24. An immature Red-tailed Hawk was shown us on October 18. A local hunter had shot it from a tree because "he thought it was a partridge" (Ruffed Grouse). A Saw-whet Owl was given to C. E. Garton on October 9. On October 13, R. Philpott reported a Turkey Vulture at Silver Islet, the fourth

record for this district.

Based on observations of recent years, we anticipated Ruffed Grouse would be abundant this autumn. In the general area surrounding the Lakehead they are fairly common and in local areas very numerous. Apparently in the Kenora District, the birds are still uncommon. Our own observations have been made in the triangle pointed by Pigeon River, Whitefish Lake and Fort William. This is at the extremity of the Superior extension of the Great Lakes deciduous forest. Large stands of Jack Pine occur in the area. The grouse are predominately red phased. As usual a small per cent possess a copper ruff and tail band rather than the usual black coloration. There have been very few reports of Spruce Grouse, Sharp-tailed Grouse or Hungarian Partridge. On October 27, we discovered a Ruffed Grouse a few feet from a large ant hill which had evidently been recently used as a dust bath. Some observers would include such behavior as an example of "anting". Due to the absence of Mountain Ash berries, the grouse are less likely than usual, at this period, to leave the ground for feeding. One was seen budding in the late evening of October 27 and another on November 3.

The migration of geese and ducks has been of some interest. We have already referred to the occurrence during the early fall of Pintails and Whistlers in the local harbor. The bluebills appear to have resumed a migration pattern with which we were familiar but which has been somewhat altered in recent years. The majority of the 5000 ducks on Whitefish Lake on September 28 were probably Ring-necks, and they remained common until the end of October. The Lesser Scaup appeared in late September and were present in numbers throughout October. We saw our first Greater Scaup on October 26. The Ring-necks and Scaups which we have examined were a few ounces lighter than those studied on several previous occasions. Few if any Buffleheads have been seen, although the American Golden-eye

has been present in greater numbers than for several years. (Biologist Elsey reports this species uncommon this year in the Fort Frances area).

Although a few geese were seen and heard earlier in the month, the main flight occurred on October 17, 18 and 19. About 5000 Snow Geese were seen in one movement at Auden on October 20. A small flock of Lesser Snows was present on Whitefish Lake during the latter part of October. This is most unusual. In the March, 1957 *Flicker* we referred to the colony of Snow and Blue Geese nesting in 1956 at Cape Henrietta Maria on our northwest sea coast. The Indians state this colony has been present since about 1946. This year the colony is much bigger than in 1956. According to Ontario Department of Lands and Forests Biologists, there is indiscriminate breeding between the Blues and Snows which may well prove to be color phases of one species.

We have frequently referred to the studies carried out at Dorion by Dr. J. M. and D. H. Speirs. This season they were assisted by a student, Bobby Taylor. One of Bobby's projects was the banding of the supposedly few Purple Finches frequenting the fish hatchery area. Before he was forced to return east, Bobby had banded 140 individuals. Only nine returns were taken in his mist nets.

Another new animal species has been introduced locally, this time an amphibian. During the past summer, the Ontario Department of Lands and Forests released 32 adult Bull Frogs into the lakes of Sibley Park. These had been obtained in southern Ontario. It will be interesting to see whether the deep chug-a-rum of "*catesbeiana*" will be added to the voices of the local night.

M.O.U. members may be interested to know that Dr. J. Murray Speirs referred to frequently in these columns and Dr. A. E. Allin were recently made Ordinary Members of the British Ornithologists' Union. — *Regional Laboratory, Ontario Department of Health, Fort William, Ontario.*

Regulations Governing A Birdskin Collection

by
R. Barthelemy

At one time the collecting of birdskins and bird eggs was a popular hobby. Many of our museums contain some of these specimens but generally speaking most of the small collections deteriorated or were discarded by their owners or their heirs. Collecting is now regulated by the state. Order number 1098 of the Division of Game and Fish, State Department of Conservation lists rules governing scientific collection permits. Dr. John Moyle is supervisor of the Bureau of Research and Planning which issues these permits. It is possible to establish a good collection of birdskins by utilizing those dead birds found in the community or along the road. Four of the 11 rules apply directly to such an idea.

1. *Permits will be issued only to individuals employed by or acting as agents for institutions eligible to receive scientific collecting permits.*

The words 'employed by' indicates the teacher. The phrase "acting as agents for" could identify any citizen or group who would make proper arrangements with the school.

2. *Teaching institutions, to be eligible for collecting permits, must have a course in biology or zoology listed in the regular curriculum. In this course must be enrolled a minimum of 15 students annually. The teaching institution must also maintain a room or rooms set aside specifically for the display and housing of collecting wild animals, birds or fishes, unless such animals are used exclusively for bona fide research purposes.*

Most high schools teach biology regularly to more than 15 per year. The

biology room meets space requirements of the law. Additional storage can be maintained elsewhere, but headquarters must be in the biology or zoology department. This would make it possible to keep a supply of birdskins in an elementary school for the convenience of those teachers. The collection will only be used if it is convenient to the teachers and if they learn to include it in their thinking.

3. *A scientific collecting permit shall be valid only for the use of the individual named on the face thereof. It shall not be transferable and cannot be used by assistants or others delegated by the permittee.*

A permit is to a person collecting for an institution. If the teacher moves to a different town his permit could be considered void and a permit should be requested for the new teacher.

4. *All specimens taken under the collecting permit must be incorporated in a permanent museum or used in the furtherance of scientific research studies.*

All specimens go to a public collection, none to a private one.

It usually is not good conservation to shoot birds for a high school collection, but it is good conservation to preserve those birds found dead and to make use of them. No gunshot birds should ever be accepted, it gives the youngsters wrong ideas.

If the biology teacher is not interested in birds perhaps the superintendent could be requested to seek that qualification in future applicants. It is not fair to expect a teacher to spend many hours a week of his own time making or maintaining a collection for the com-

munity. If this is done the teacher should have the right to transport those specimens to his next community.

Skins should be given to the children for handling, the kindergarten and lower grades are the most ready and important to be influenced, junior high school is too late to do much good. A simple method of preservation using no poisons should be used, because of the unskilled handling of this lower age group.

Evening meetings of interested adults

can train a few persons to do this work thereby putting the bulk of the labor on members of the community where it belongs. Skulls and mammal skins might also be considered.

A group that organizes and operates a specimen conserving plan for several years will probably find an increase in the acceptable limit of bird knowledge and an increased interest in club affairs on the part of both youth and adults of the community.—*Silver Bay, Minnesota.*

Notes of Interest

THE EFFECTS OF AERIAL SPRAYING WITH DDT ON WOOD FROGS — As reported elsewhere in this issue of the *Flicker*, the author carried out field studies on the inter-relations of birds and the forest tent caterpillar spraying operations in Hubbard County, Minnesota during the summer of 1951.

Incidental to these studies, data was obtained on Wood Frog (*Rana sylvatica*) mortality in two small woodland pools located within the sprayed area. On May 13 and 16 a total of 111 small Wood Frogs were counted in a search conducted along the entire boundaries of the pools. The area was sprayed from the air on the early morning of May 21. The pools were re-visited at two hours and at 33 hours after the spraying operation. The frogs were considered to be as numerous as before and they displayed apparently normal activity. A film of oil was noted on the water's surface which was covered with writhing Forest Tent Caterpillars that had dropped into the pool as a result of spraying.

By noon on May 23 — 2½ days after the spraying — the situation had changed drastically. At this time 25 dead frogs were found on one pool and 10 on the other. On June 1 and again on July 2 no live frogs could be found in either pool.

With the assistance of William D. Tunis, graduate student at the Lake Itasca Forestry and Biological Station, the stomach contents of 34 of the dead frogs were examined. All but two stomachs contained Forest Tent Caterpillar larvae in numbers ranging from one to 14 and averaging five. A variety of other insects was also found.

It is not known whether direct contact with the oil-DDT film on the water's surface or the eating of the dead or dying larvae and other insects caused the death of the frogs. In any event a drastic reduction in frog numbers, if not elimination of the local population occurred. — *B. A. Fashingbauer, Bureau of Research and Planning, Grand Rapids, Minnesota.*

* * *

BLUE JAY BANDED EIGHT YEARS AGO — On February 5, 1949 we banded a Blue Jay with colored bands at our home on White Bear Lake, Washington County. Until March of 1957, the Jay was seen at our feeder frequently, but with periods of absence, throughout the year. It was seen nesting nearby several years.

Another Blue Jay was captured in our feeder-trap at White Bear Lake, then taken to the University of Minnesota Museum of Natural History and color-banded and released there on February 7, 1951. It returned to our White Bear Lake feeder several months later and was seen occasionally at different times of the year until April 1956. — *Ruth Self, Birchwood, White Bear Lake, Minnesota.*

