



# TORONTO FIELD NATURALISTS' CLUB NEWSLETTER

Number 262

November 1971

Visitors welcome!

## NOVEMBER MEETING

Visitors welcome!

Monday, November 1, 1971, at 8:15 p.m.

at the

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION

252 Bloor Street West

SPEAKER: Dr. Fred Cooke, of the Faculty of Biology, Queen's University

SUBJECT: "Where the Andes Meet the Sea" -- a naturalist in Patagonia and  
Antarctica (illustrated with coloured slides)

The OISE Building is between the St. George and Bedford exits of the St. George subway station. Entrance is on the west side of the building, via a covered walk from Bloor Street. Parking is reached from Prince Arthur Avenue (the first street north of Bloor). There is no charge in the small lot west of the building; a charge of 50¢ is made in the underground garage if an attendant is on duty.

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Members who wish to pay their dues and/or donate to the Jim Baillie Reserve are invited to use the coupon below.

## November Outings

Saturday WILKET CREEK PARK - BIRDS Leader: Mr. Don Baldwin  
November 6 Meet at the upper parking lot at the entrance on Leslie Street just  
8:30 a.m. north of Eglinton Avenue East. Morning only.

Sunday TORONTO ISLAND - BIRDS Leader: Mr. Peter Iden  
November 21 Meet inside the Island Ferry Terminal. We will be taking the first  
9:00 a.m. ferry. Bring lunch to be carried all morning.

Saturday NIAGARA ESCARPMENT FROM THE AIR Leader: Dr. Walter Tovell  
November 27 Take the Airport Road north from Hwy. 401 to the Derry Rd. lights in  
9:30 a.m. Malton. Turn left, travel 9/10 mile, and turn left again down the  
entrance road to the hangars. (You will pass a blue hangar en route.)  
Drive into the Restricted Area and park. Don't go into the Skyport  
Hangar! We will gather near the Millardair white hangar.

The flight will leave at 10:00 a.m. and will last a little more than 1 hour. We will be flying along the Escarpment from Devil's Glen Park to the Niagara River.

Fare \$10.00. Number of reservations available, 31. Call the Outings Chairman before November 12. Please send a cheque or money order to the address below before November 19 to confirm your reservation.

No lunch is required. You may wish to bring a camera and take pictures through the cockpit window!

Mr. Stu Corbett, Outings Chairman  
52 Haileybury Drive, Scarborough  
(261-6807)

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JUNIOR CLUB This will probably be the last chance for children between 8 and 16  
Saturday to enrol for this season. Further information may be obtained from  
November 6 the Director, Mr. Mike Singleton (447-4197).  
10:00 a.m.

FIELD Meet at St. James-Bond United Church, on Avenue Rd. just north of  
BIOLOGISTS' Eglinton. On-street parking can be difficult, but there are several  
GROUP private parking lots nearby on Eglinton.

Thursday  
November 11  
8:15 p.m. Chairman: Mr. Don Burton (222-6467)

CONSERVATION Meet in Room 378 of The College of Education, 371 Bloor St. W., at  
& ECOLOGY Spadina. Guest speaker: Mr. Stan Stocker, M.Sc. Subject: "Char Lake--  
GROUP Ecological Studies in the Arctic" illustrated with coloured slides.

Wednesday  
November 17  
8:00 p.m. Chairman: Prof. Wm. Andrews (425-4607)

BOTANY GROUP Meet in the library of Hodgson School, Davisville Avenue just east of  
Thursday Mt. Pleasant Rd. (parking entrance from Millwood Road., the first  
November 18 street north). Speaker: Dr. R. M. Saunders. Subject: "A Naturalist  
8:00 p.m. in the Rockies". All welcome.  
Chairman: Miss Florence Preston (483-9530)

THE  
BIRD  
GROUP

The Bird Group is for all members who want to learn more about birds, especially beginners.

The topic at the October 26 meeting will be "Bird Identification", presented by the chairman, Mr. Red Mason, who will show his film on birds of the swampy areas. At this meeting, those attending will be invited to make suggestions for the content and format of future meetings.

The November meeting of the Bird Group will be held on Tuesday, November 23. The program will be determined at the October meeting.

Chairman: Mr. Red Mason (621-3905)

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We are pleased to welcome the following new members, enrolled from September 1 to 30:

Mr. & Mrs. Ian Adams, Mr. & Mrs. Harold H. Alexander, Miss M. H. Anderson, Mr. Harry B. Barrett, Miss P. Barry, Miss Shirley Bates, Mrs. D. Bienkowska, Mrs. D. Brown, Miss Marguerite Brown, Miss Gillian M. Burdett, Mr. & Mrs. Don Carmichael, Mrs. Barbara Charland, Mr. & Mrs. Oscar G. Clarke, Mrs. A. F. Coby, Mrs. Mary Cooke, Prof. James E. Cruise, Dr. & Mrs. J. Dainty, Miss Kathleen A. Davies, Mr. John E. Dawson, Mr. Val Dobrovolsky, Miss A. Duff, Mr. James Fairchild, Mr. Stan Fairchild, Miss Doris Farr, Miss Elizabeth Ferguson, Mr. & Mrs. Philip Fraser, Mr. Jerry Friedman, Dr. D. C. Geale, Miss Pamela A. Goddard, Mr. Donald F. Hewitt, Miss Joan Hobson, Mrs. Heather Howkins, Miss Hazel Hunter, Mr. J. L. Johnstone, Miss M. K. Jones, Mr. Paul A. Keddy, Mr. & Mrs. David S. Kelly, Miss Lorraine Lospin, Mr. & Mrs. R. M. Loudon, Mrs. J. C. McCullough, Mr. & Mrs. Dennis McDermott, Miss U. Malone, Mr. & Mrs. Wm. J. C. Mann, Miss Christine Merlo, Mr. Dennis Metcalfe, Miss F. Elizabeth Mobbs, Mr. & Mrs. R. G. Morley, Dr. & Mrs. Gordon Murray, Mr. Ed O'Connor, Miss Mare Olito, Rev. & Mrs. Peter Park, Mr. Alex C. Simpson, Mr. Paul Smith, Mrs. Edna Somerville, Miss Ethel L. Stockwell, Mr. & Mrs. Ron Watkins, Mr. & Mrs. A. K. Watt, Mr. Glenn Whilsmith, Mr. & Mrs. M. C. H. Withers

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We were sorry to disappoint those who hoped to buy F.O.N. Christmas cards at the October meeting, as these were not available from the F.O.N. However, we can promise to have a good supply at the November meeting. And they are really beautiful--two lovely little black-capped chickadees painted especially for the F.O.N. by Robert Bateman. (By the way, watch for a program about Bob on "The Nature of Things".) \$2.50 per dozen.

President - Mr. Clive Goodwin

Secretary - Mrs. H. C. Robson  
49 Craighurst Ave.,  
Toronto 12, Ont.  
(481-0260)

NEWS & VIEWS

\*\*\* Prof. R. U. Kidden attended the September meeting of the club and sent me a nice letter telling how pleased he had been with everything - except - our use of non-returnable plastic throwaway cups!!!!

He writes: "We, who consider ourselves knowledgeable about ecology, and sympathetic with the environment, are the very ones who should not resort to such disgustingly inefficient use of a non-degradable material made of non-renewable petroleum products."

I think he's right. In fact we could extend this thought to other things as well. For example, the use of recycled paper for the Newsletter. In Japan 45% of the paper used is recycled; in the U.S.A. 20%; in Canada less. Last summer "Environment" became the first national magazine in the U.S.A. to print its pages on entirely recycled paper.

Each ton of recycled paper used saves 17 trees. So let's save trees and reduce garbage.

Thanks Prof. for the thought.

\*\*\* Ontario has a small national park - Point Pelee; now it has a large one as well - PUKASKWA. Some 725 square miles in area, it is situated on the North Shore of Lake Superior and includes 50 miles of rugged shoreline and one of Ontario's highest "peaks", Tip Top Mountain (2120 ft.). At present there are no access roads and the area abounds in wild life. Should be a great place for nature study and camping.

\*\*\* Zoo animals on Staten Is., New York are having a tough time. Apparently, there is so much lead in the air about New York City that the animals are starting to suffer from lead poisoning. So far a leopard and some snakes have died. I wonder how the humans on Manhattan Is. nearby are making out, especially the ones caught in endless traffic jams and forced to breathe lead contaminated exhaust fumes.

\*\*\* Some more fortunate animals are benefitting from man's activities. Herons are starting to come back to London since the English cleaned up the polluted Thames and brought back the fish. The fish have brought back the herons, and a slight problem has developed; the herons are swiping goldfish from backyard ponds.

\*\*\* Did you notice Peter Peach's picture in a recent issue of the Globe? Dr. Peach as many of you remember was a former president of our club. Now, representing Pollution Probe, he and many others are fighting hard to save Sandbanks Provincial Park from further encroachments by a local cement company. Sandbanks is a beautiful park, bright blue with flowers and orange with Monarchs in the fall. The drifting sand dunes make it unique and are the last of such formations left in North America. Now they are being carted away to make cement - thanks to a lease given to the Lake Ontario Cement Co. by our provincial government. Do your bit to save them! Write now to your member of Parliament about your concern over the sandbanks and ask that no further development be permitted in the park.

\*\*\* I was interested to hear that the Dept. of Lands & Forests is planning to use landscape architects to help them build logging roads on Crown lands with "an eye for aesthetic beauty" and to "integrate forestry practice with aesthetics, recreation and wildlife management". Sounds like a good idea, unless it becomes an attempt to hide the undesirable and unnecessary - like a logging road. I hope some naturalists get on the team too.

\*\*\* Birding the bi-monthly magazine of the American Birding Association had some interesting reports on rare birds - their 40 most wanted birds. Here are a few excerpts.

- \* Ivory-billed woodpeckers are alive and may be well in up to four different states. In fact one was photographed in Louisiana recently. Others have been seen in Florida, Texas and South Carolina.
- \* Eskimo curlew: none were sighted this spring on the Texas coast or elsewhere.
- \* Everglades kite: numerous seen particularly at LOXAHATCHEE Refuge and the TAMAMI Trail areas.

A copy of Birding will be on the desk at November meeting.

\*\*\* Coming. Next issue will contain "Tales from the Sunny South" - accounts of readers' holiday trips taken to those sun-soaked lands where flowers do bloom and birds do sing while winter winds do whine in the frigid North. Might help you prepare your own trip. So far, except for my own trips, I have few accounts so please send your stories in now to be included. Other material is most welcome also. Thanks to all those who have been writing.

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#### COMING EVENTS

##### SHERIDAN COLLEGE OF APPLIED ARTS & TECHNOLOGY

The Continuing Education Division will be conducting a 10-week course on birds and birding for the beginner called "Strictly for the Birds".  
Instructor: Miss Rosemary Gaymer, our V.P.  
PLACE: Oakville Campus, 1430 Trafalgar Rd. - go north from the Queen Elizabeth.  
TIME: 7:15 p.m., Wednesdays starting on Nov. 17th.  
COST: about \$20.  
CURRICULUM: 8 evening sessions and at least 2 field trips.  
The course is definitely for the beginner and is an introduction to birds and birding.  
SPECIAL: Sheridan will offer a discount on the fee to anybody belonging to a recognized field naturalists' club, like the T.F.N.C. Membership card to be produced.  
FOR FURTHER INFORMATION: Please call the Continuing Education Division,  
at the Oakville Campus: 362-5861  
or the Brampton Campus: 364-7491

##### ROYAL CANADIAN INSTITUTE

Saturday evening lectures, Convocation Hall, University of Toronto, at 8:15 p.m.  
Further information: 922-2804.

This winter's series is devoted to historical anniversaries in Canada.

Nov. 6 - "The Fifty Million Year Pedigree of the Horse" - with colour slides.  
Dr. Loris S. Russell.

Nov. 13 - "Rutherford in Canada" - with slides. J. L. Heilbron.  
Rutherford's early career, the circumstances which brought him to Canada and the work that won him the Nobel Prize in Chemistry in 1908.

Nov. 20 - "Insulin - 50 Years of Life - And More" - with slides and demonstrations, Albert M. Fisher.

Nov. 27 - "The Changing Atmosphere" - with colour slides. J. R. H. Noble, Assistant Deputy Minister, Atmosphere Environment Service, Environment Canada.

What can meteorology contribute to the future of Canada?

Dec. 4 - Niagara-on-the-Lake, Peter John Stokes, restoration architect.

#### McLAUGHLIN PLANETARIUM

Information: 928-8550.

to Nov. 28: Omens of Disaster - some of the omens illustrated are eclipses, comets, Northern Lights, meteors, supernovae.

#### ROYAL ONTARIO MUSEUM

Information: 928-8550.

Exhibits: Nov. 9 - Dec. 12. Perch, Publisher and Printer.

All the processes required in making a natural history book, illustrated by showing the steps needed to produce Freshwater Fishes of Eastern Canada (SCOTT). The exhibit will show the unique role of museum sciences in such an undertaking.

Nov. 16 - Jan. 15. FROHBERG Collection of Minerals. Mineral Gallery. Recently purchased by ROM with assistance from International Nickel Co.

Field World Sunday talk: Nov. 7. 2:30 p.m. Film on archaeological discovery at Senneville, Quebec.

Free Tours: Fridays. 12:15 p.m.

Nov. 5 - About Birds. Nov. 10 - Facts about Fossils.

Nov. 16 - Geology: the changing earth.

Regular Sunday Films: 2:30 p.m.

Nov. 14: Overture - people of the world; Overture - development of a chick; The searching eye; African craftsmen - the Ashanti; Ishi in two worlds - a Yahi Indian chief.

Nov. 21: The conquered planet - a fantasy expedition to Mars; Red planet Mars; Rise & fall of the Great Lakes; Blake - a bush pilot.

Nov. 28: At the autumn river camp - the NETSILIK Eskimo.

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#### Books and Pamphlets

\*\*\* The Ontario Department of Mines and Northern Affairs publishes many things which are sure to be of interest to our rockhound members. Look for the orange coloured "Rocks and Minerals Information" on Mrs. Gads' desk at the November meeting. Order forms are also available.

## ALGONQUIN CANOE TRIP

by Ed O'Connor

It began under a sun filled July sky on the shores of Round Lake.

At Northern Wilderness Outfitters eight canoes were drawn half out of the water onto the sandy beach and trippers moved among them stowing packs in a flurry of activity. Over all there was a feeling of eagerness, almost urgency, to be on our way. At that there was time to make a few tentative steps in getting to know one another but only time would associate names with faces.

With the stowing of the last pack, canoes were moved into the water and pushed through the shallows before we could climb inboard. A rough, straggling line formed up and we began the 1/4 mile journey to the river taking us into the park.

Once in the narrow, twisting confines of the river we found ourselves in a different world. The slight breeze that refreshed us on the lake crossing was now sheltered from us by high reeded banks and we began to feel the heat of the sun on our backs. The voice of Mike Singleton, our leader, reached us, muffled by several turns of the river ahead, "If you want to cool off hang a foot over the side."

Our progress was slowed by constantly bumping into the riverbank on sharp bends that showed up our lack of experience and by those ahead stopping suddenly to study plantlife or the little green frogs that stored goggle-eyed at our passing. We spoke little, being content to listen to the sounds of birds.

Just when it seemed the river must take us right through the park we came to a dead end. Portage.

Canoes unloaded we lashed the paddles for easier carrying. Then we were shuffling down the trail under a canoe or staggering under heavy packs. In spite of a few green hands like myself we made good time. Surprising, but not so surprising when I came to know them better, the ladies were a big help.

One more portage brought us to the shores of North Tea Lake and we gazed out over the broad expanse of water that sparkled like a jewel in a rolling, green hill setting. From a great distance we heard the eerie and beautiful call of a loon and the machine gun like hammering of a woodpecker.

Once launched the canoes spread out over the lake surface setting a leisurely pace as we tried to absorb all the beauty of the land and water. In my canoe Karen Larsen hoisted a beach towel sail on paddle and we tried to catch the slight breeze. While passing close to one of the islands we came across a redheaded duck with her young. When she seemed to panic at our presence we moved away.

First camp was made on the mainland shore with the pebble strewn beach as our kitchen and tents erected in the nearby scrub. A search for Dinner One brought good natured laughter as we dug through pack after pack. With the fire going volunteer cooks took over, made up from anyone so inclined. I'm afraid Elizabeth Kiddle was to outshine us all in this field.

With dinner over we found our first chance to relax and get acquainted about the fire. From the friendly chatter to the singing when Allan Ludbrook produced a mouth-organ it was evident this group would go a long way together. It was to prove out in the days that followed, through bad weather and hardships taken in stride.

Give a hardy group good and knowledgeable leaders such as Mike Singleton and Norm Cramp and the result is a foregone conclusion. We hiked miles through bush and old trails, discovering plant life and having names put to it by Mike and Norm. We paddled more miles and portaged into Wilkes and Biggar Lakes. We found deer sign in droppings and bear sign in droppings, trees clawed to mark territorial boundaries, and fallen logs torn apart in a search for grubs.

The loons were our constant companions, night and day, and it would be hard to imagine a wilderness without the sound of their weird and beautiful laughter. On one island campsite I rose early one morning and walked to the rocky tip. Morning haze still rose from the water surface but I could make out a pair of loons that stared back at me in curiosity a short distance away while calling out to their neighbour in the next bay. Just then a great blue heron flew directly toward the island and veered in flight as he saw me. Moments like this can stay with one a lifetime.

Several times at night I heard the far off howl of a lone wolf, lonely sounding music to the ear. It leaves me with the same feeling I used to get as a boy listening to the far off wail of a train. It pulls at the heart.

Long before we were ready for it our week was up and we must head out. Back to the outfitters to return the equipment and double up in canoes to reach the parking lot. It was a sad trip but taken in stride by these people who had been through so much together.

We arrange to meet in the restaurant in the town of South River for a farewell dinner. There we bring the tables together, under the curious stares of customers, as though we're once more about the campfire. Laughter as the waitress brings Norm Cramp his tea in a cup made from a tin can in camp.

Dirt streaks our sun- and wind-burned faces. Our hair looks as though it had never seen a comb and clothes as though we'd slept in them (likely we had).

After eating there's a pause as though everyone is hesitating to make the first move to end this happiness and companionship. There's a sense of great sadness in all.

We will keep in touch and likely we'll be going back to Algonquin next summer but one wonders if you can ever recapture such happiness.

My guess is we can.

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#### Books and Pamphlets

\*\*\* Dr. David HOENIGER, a former executive member of the club, has just had two booklets published by the University Press of Virginia, Charlottesville, Virginia.  
The Development of Natural History in Tudor England.  
The Growth of Natural History in Stuart England - From Gerard to the Royal Society.  
Order through the Press or Mary Robson. Cost \$1.50 each.

\*\*\* Stream Improvement.  
Common Pests of Evergreen Trees in Ontario.  
Both available free from the Department of Lands and Forests, Parliament Buildings, Toronto.

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## OUR READERS WRITE

Dear Mr. Talvila:

I thought you might be interested to hear of an incident at the building where I work, the Toronto Dominion Centre at Bay and King Streets in downtown Toronto.

You may have read reports in the newspaper in the past few months, and particularly last fall, of the high bird mortality, caused by migrating birds being injured or killed at the Toronto Dominion Centre, while flying to their destinations.

On Friday, September 24th, I was shocked to see a flock of blue jays being tumbled about by the wind and fighting with every ounce of strength to get past the Centre. Friday was a fairly windy day, but even on a day when the winds are light, there are cross-currents swirling around the Centre, especially near the top of the buildings. On the ground, it is impossible to walk in a straight line as the winds are so strong. Bad enough for a human, but deadly for a bird. As I work on the 35th floor, I have a marvelous view to the West and North and so was able to see about half a dozen flocks of birds in trouble flying past the Royal Trust Tower.

One in particular that I noticed became caught in the updraft. He was trying to fly past the Centre, parallel to it, but the wind was too much for him and it carried him headlong toward the glass walls. Incredibly he managed to get a foothold (or should I say clawhold?) on the very tiny ledge of one of the windows and, teetering dangerously for several minutes, finally managed to get his balance and his wits about him. That day I had my binoculars with me because I was leaving that evening for Red Bay with the F.O.N. and so studied him for about 20 minutes. The muted blues and greys of his body contrasted sharply with the stark steel of the Trust Tower. Measured against the size of this building, he seemed very small and pathetic indeed. At last, when he had gained strength and courage, he took off and flew through the corridor the buildings.

That one came through it alive. Many more were collected in buckets 35 floors down.

I have read that migrating birds are attracted to the bright lights of the Centre and for this reason, at night the blinds are closed to shut off this dead attraction. However, it seems obvious that the high winds around the buildings are just as dangerous and perhaps could also be a substantial factor in explaining this phenomenon.

Linda L. Anderson

Dear Sir:

### AN UNUSUAL BIRD-BATH!

Early in September my wife and I were in our canoe, drifting down stream in the mile and a half of the Burnt River that separates our cabin from the village of Kinmount. We were surprised to see a small bird, in shape and colour resembling a phoebe - a species common in the area - dive several times in quick succession onto and finally into the slow-moving water. At first we thought it might be picking up flies, but there were no flies in evidence on or just above the water. After the last splash the bird flew up into a tree at least 20 feet high and while we watched it went through a very vigorous shaking, squirming and preening, exactly as if it were trying to rid itself of a host of irritating and unwanted but very small passengers.

The phoebe has a reputation for harboring lice and/or mites - indeed, we once suffered an infestation from a nest above one of the cabin windows - but I have never heard that they bothered the bird itself.

Has any other member witnessed similar avian ablutions?

G. A. L. Gibson

Dear Mr. Talvila,

This year at the cottage we have had a little trouble with whitebreasted nuthatches flying into the picture window. I have spent very little time there this summer, but my father and sister have had a busy time picking up dazed nuthatches. We have a constant stream of chickadees, white and redbreasted nuthatches and chipmunks visiting the feeder set up at the side of the cottage, but only the whitebreasted seem to have any trouble with the front window. One of the whites visiting the feeder for a couple of days obviously had a broken leg, but whether or not from flying into the window wasn't known.

One morning there was a good deal of commotion going on and my sister went outside to investigate. There was a chipmunk making off with a whitebreasted nuthatch in its mouth. Recovering from her surprise, my sister set off in pursuit waving her arms and demanding the release of the captive. The chipmunk eventually dropped the bird and when it was picked up it was discovered to be the one with the broken leg. My father and sister took the bird to the vet and while one held the bird and the other kept its leg extended, the vet put splints on. Incidentally, this is the second bird we have taken to this vet and he accepts no payment for treating wild creatures.

The nuthatch returned home but unfortunately, though it lived through the night, it died the next day. So, as something had to be done about that window, they bought a large sheet of opaque plastic and hung it outside. Now it looks as though there's a constant heavy mist over the lake and our bird-watching from that window is at an end, but we all agree, it's better than injured birds so it's there to stay.

Eileen M. Nicol

The following has been recently received by the club. It's a bit late to see many sanderling now but search through your summer records for anything which might help.

REQUEST FOR INFORMATION: SANDERLING

During the autumn migration of 1971, the Long Point Bird Observatory hopes to band and colour-mark several hundred Sanderling at Long Point, Ontario. Information on the movement of these birds away from Long Point will facilitate research presently underway on the energy requirements of their migration. We would appreciate it if everyone sighting these birds would report their observations to:

Long Point Bird Observatory,  
269 Beta Street,  
Toronto 14, Ontario, Canada.

The following information would be appreciated:

Date and time of observation  
Location, including nearest city or town  
Colours: note--birds will be coloured on the breast and the abdomen with two of the following colours: red, orange, pink, purple, yellow, green, blue, brown, black and white (no colour).

Leg that has been banded: this will tell if the bird is an adult or an immature.

Any other information on what other birds are with the marked individuals would be very useful.

M. S. W. Bradstreet  
Research Committee  
Long Point Bird Observatory

### TRIPS AND TOURS

Federation of Ontario Naturalists: F.O.N. Niagara River regional gathering sponsored by the Niagara Falls Nature Club is planned for Nov. 27-28th. Visits will be made to Dr. Axtell's bird feeding sanctuary, the Niagara River, the Falls, School of Horticulture, Queenston, Niagara-on-the-Lake. Probable birds seen: 20 species of duck and waterfowl, 12 gulls, mockingbirds, tufted titmice and barn owls. For more details see the desk at November meeting or phone the F.O.N. 444-8419.

Massachusetts Audubon Society: Many tours have been arranged to such places as East Africa, Mexico, Venezuela, Texas, Great Britain, Spain, Churchill, etc. Tour dates vary from now to next fall. See the desk for a complete description.

Bird Bonanzas: 1972 bird watching tours are available to all parts of the world. Write to Bird Bonanzas, Inc. 6630 BISCAYNE BLVD. MIAMI, FLORIDA 33138 for a complete description. Brochure available at the desk.

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The writer of the following article, Jack Gingrich, wishes to remain anonymous so we will respect his views. The article represents your club's recommendations regarding binoculars and it has been read and revised by other club members as well. Because of its length it will appear in two instalments.

### B I N O C U L A R S - Part I

The purchase of a pair of binoculars is often the most important investment a naturalist makes. The money spent on such a purchase may be repaid many times over through years of pleasure. Although it is those interested in birds who make most use of binoculars, naturalists with other interests also find them useful. Once binoculars have been acquired, they become useful for many other things such as boating, sporting events, theatre and vacation trips. Fortunately, the binoculars most suitable for bird watching are not the most expensive. The purpose of this write-up is to assist you in choosing binoculars most suitable for your requirements, and also to show you how to get the best use from them.

Binoculars have "dimensions" - figures which describe their optical "size". There are three important dimensions:

1. the magnification (sometimes called the "power")
2. the diameter of the objective lens; and
3. the angle of view (sometimes called the "field of view").

The first two dimensions are normally expressed in a form such as 7 X 35 where the X is usually read as the word "by". (This is similar to length and width dimensions being expressed as 2 by 4 where the written form is 2 X 4.) The first number, before the X, represents the magnification; the second number, after the X, represents the diameter, in millimeters, of the objective lens. The third dimension is usually shown elsewhere on the binocular, and is not included in the 7 X 35 designation. The importance of these three dimensions will now be separately discussed.

## MAGNIFICATION

The magnification of binoculars is the most important dimension because the whole purpose of binoculars is to magnify. A magnification of 7 means that objects viewed through the binoculars appear to be 7 times taller and 7 times wider than if viewed without optical aid. Thus the magnification is measured in "diameters"; with a magnification of seven diameters, the actual magnification of area is 49 times! Another way of looking at it is to consider that a magnification of 7 makes objects appear to be 7 times closer.

The greater the magnification, other things being equal, the more expensive are the binoculars. One of the most common mistakes is to buy the highest magnification which can be afforded. It is obvious that low magnification is not desirable because distant objects are not magnified enough for identification, but there are important reasons why large magnification may also be undesirable:

1. If the magnification is too large, the difficulty in holding the binoculars steady makes the extra magnification ineffective. It is impossible to hold the binoculars completely steady, and your eye must constantly correct for the inevitable jiggle; it is somewhat like reading in a vehicle on a rough road. If the magnification is doubled, the amount of correction required by the eye is also doubled, and there is a limit to what the eye can do.
2. The larger the magnification, other things being equal, the less is the angle of view. For example, suppose that binoculars with a magnification of 7 enable the viewer to see a circle 12 feet in diameter one hundred feet away. Anything lying outside of this circle is not visible through the binoculars without shifting them to a different direction. Similar binoculars with a magnification of 14 instead of 7 would permit a circle of only 6 feet in diameter to be seen one hundred feet away. In other words, increasing the magnification causes a smaller part of the object to be magnified more to fill out the same apparent space in the view through the binoculars. A large angle of view is extremely desirable for bird-watching; the reasons for this will be described later when angle of view is discussed. Higher magnification results in reduced angle of view.
3. An increase in magnification causes a reduction in brightness of the image seen by the eye unless the diameter of the objective lens is also increased. The length of the binoculars must also be increased to obtain more magnification. This increases the size, weight, and cost of the binoculars. Thus, binoculars with larger magnification tend to be larger and heavier. For bird-watching, lightness is important because the binoculars are worn around the neck for long periods at a time.

When all these things are considered, the most suitable magnification for general use of binoculars, and also for bird-watching, is about 7. Most bird-watchers have binoculars with a magnification of 6, 7 or 8; a few experts may use higher magnification, particularly for specialized viewing such as hawks very high overhead or ducks far out on the lake. Do not buy binoculars with a magnification greater than 8 unless you are aware of the disadvantages and want a second pair for specialized viewing.

## DIAMETER OF OBJECTIVE LENS

The objective lens is the large lens, farthest away from the eye, into which the light from the subject first enters the inocular. Contrary to popular belief, the diameter of this lens is not an indication of the angle of view. Many people think that by getting a larger diameter of objective lens they automatically get a larger angle of view. This is not true. Actually, it is the small eyepiece lens, next to your eye, which is larger in diameter for larger angle of view!

The purpose of a large diameter of objective lens is to gather more light so as to create a brighter image for your eye. If the optical efficiency were 100% (which it is not!), the diameter of the objective lens should be seven times the diameter of the pupil of your eye in order to gather in exactly the same amount of light as your eye would if you were 7 times closer to the object being viewed, assuming a magnification of 7. If the binoculars had the same opening in the objective lens as your eye has, there would only be one-49th, or about 2% of the light reaching your eye (with a magnification of 7 and with 100% optical efficiency)! Because of various losses in the lenses, and reflections from their surfaces, it is necessary to make the binoculars with even larger diameters to get sufficient brightness.

Actually, most binoculars give a brighter image than your eye would receive if it were viewing the object directly. A 7 X 35 binocular of normal quality does so, and you can thus see better at dusk with them than with the unaided eye. Binoculars with smaller diameters of objective lens, such as 7 X 25, would give a duller image, but probably still not noticeably different from 7 X 35 in bright sunlight. 7 X 50 binoculars would give increased ability to see in dim light, but would not make any difference in normal lighting. There is a limit to the diameter of the objective lens beyond which further increase in size is useless because the extra light received by the objective lens does not reach your eye because of the size of its opening.

The greater the magnification, the larger the objective lens should be in order to give the same brightness. The larger the objective lens, the greater the cost. Typical diameters of objective lens are 30, 35, 40 and 50 millimeters. The most suitable sizes for general viewing, and for bird-watching, are about five times the magnification: 6 X 30; 7 X 35; or 8 X 40. Anything with a greater diameter than this is generally a waste of money unless you specifically want the ability to see in very dim light, and are willing to pay for it. 8 X 50 binoculars are popular, however, and may be relatively inexpensive because of volume of production.

It is important to realize that the light gathering ability of the objective lens may be spoiled by poor internal optics or lack of non-reflective coatings; a high quality 7 X 35 binocular might actually give a brighter image than a poor quality 7 X 40!

## ANGLE OF VIEW

The angle of view of binoculars is of equal importance to the magnification, but is ignored by many purchasers. If you can afford a more expensive pair of binoculars, the best place to put your money is in a wider angle of view, not in large magnification and not in a large objective lens. Possibly one reason for most people ignoring this important aspect is that it is not included in the familiar designations such as 7 X 35 or 8 X 50. Instead, it is usually listed elsewhere in either one of two forms:

1. as an angle (such as  $7.5^{\circ}$ ); or
2. as a diameter of view which can be seen at a specified distance (such as 395 feet at 1000 yards).

The two examples above ( $7.5^{\circ}$  or 395 ft. at 1000 yds.) are actually equivalent!

Here is a conversion table for the two systems, and also the diameter which can be seen at 100 ft., which is a more practical distance to be viewing birds at:

ANGLE	DIAMETER which can be seen at 100 ft.	DIAMETER which can be seen at 1000 yds. (3000 feet).
4°	7 feet	210 feet
5	8.7	262
5½	9.6	288
6	10.5	314
6½	11.4	341
7	12.2	367
7½	13.1	393
8	14	420
8½	14.9	446
9	15.7	472
9½	16.6	499
10	17.5	525
10½	18.4	551
11	19.3	578
12	21	631
13	22.8	683
14°	24.6 feet	737 feet

If the angle of view is not clearly indicated along with the other two dimensions somewhere on the binoculars, it is likely that the angle of view is quite small, and such binoculars, although very low in price, are actually not really a bargain since for a few dollars more much greater satisfaction can be obtained.

There are two reasons why large angle of view is desirable:

1. A large angle of view makes it much easier to quickly locate in the binoculars something which has been spotted by eye. In bird-watching, as well as in most general usage of binoculars, things which you wish to examine through binoculars are first seen without them. You do not normally search through an entire tree with binoculars hoping to spot a bird. Instead you watch for any movement in the tree, and when such indication of bird activity is found, you then raise the binoculars and try to get that exact part of the tree quickly into the centre of the binocular's view. If you take too long to do this, the bird may have disappeared! If the angle of view of binoculars is large, then relatively inaccurate pointing of the binoculars will get the bird somewhere in view, not necessarily right in the centre, but this is easily corrected. However, if the angle of view is small, very accurate pointing is required to get the desired part of the tree in view. Although the branch you wish to examine may look distinctive without the binoculars, many branches look alike when only a small portion is visible. Thus, the larger the angle of view, the better it is for bird-watching and also for most other uses.

2. Suppose that the spring migration is at its peak and you have found a myrtle warbler in a tree and you are observing it. Although they are fairly common during migration, you do not see myrtle warblers all the year, and you naturally wish to enjoy seeing this attractive warbler for a while. But, of course, if you knew that there was also a parula warbler in the same tree, you would immediately cease observing the myrtle, and swing your binoculars excitedly to the parula, which is much rarer in our area here. Now suppose that the myrtle warbler is 100 feet away from you, and that your binoculars have an angle of view of 6 degrees. Then, if the myrtle warbler is centred in the binoculars, you can see any other bird within a radius of only about 5 feet. That parula warbler might be 7 feet away from the myrtle, and you would not see it! But if you had binoculars with an angle of view of 8° or more, you would be able to see the parula while looking at the myrtle. In other words, a large angle of view allows you a much greager possibility of seeing other birds near the one you happen to be aimed at. Some of these other birds may be much more interesting to you than the one you are watching. Another aspect of this is that if the bird flies to another branch, a large angle of view will give you a much better chance of keeping it in view as it flies, without losing it. Finally, you will be better able to describe the location to your friends who are trying to see the same bird as you if your angle of view is large enough to pick out important clues about nearby branches without losing sight of the object of interest.

The typical angle of view in reasonably priced binoculars is usually about 7½°. Anything smaller than this is to be avoided unless you cannot afford anything better. However, if you can afford a wide angle binocular, your money is much better spent for this feature than for excessive magnification or diameter of objective lens.

Reputable manufacturers of binoculars attempt to get good, sharp undistorted images over the entire angle of view. However, for bird-watching you really don't need sharpness at the outer part of the view. Normally, birds which you are observing do not fill the entire view, only a small portion in the centre. The purpose of having wide angle binoculars is not to get a sharp image at the outer fringes of the circle of view, but to be able to detect movement in these areas. Thus, you may accept a slightly inferior binocular (with regard to sharpness well off centre of the circle of view) in order to get a wide angle at reasonable cost.

For good results in bird-watching, an angle of view of at least 7½° is recommended. Anything above this which you can afford is going to increase the usefulness and effectiveness of your binoculars. With angle of view, the more the better! With the other two domensions, this is not true.

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