

Gordon MacKungie

The

This is Young Naturalist Year: 1966-67
Do you have a Young Naturalists Club in your town?

Young Naturalist



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Canada's Great Ice Cap

Part 1 — of two parts

If you were to fly over Baffin Island in the eastern part of the Canadian Arctic, you would notice that large areas of that island are covered with snow and ice, even in the warmest period of the summer. Many lakes would be frozen over. In the mountains, the peaks would have snow caps from which long "rivers" of ice flow down to the sea. These rivers of ice are called "glaciers". In the interior of the island is a flat plateau on which you might be surprised to see a very large area of ice. This is the Barnes Ice Cap. It is almost 100 miles long and covers an area of land the same size as the entire province of Prince

Edward Island.

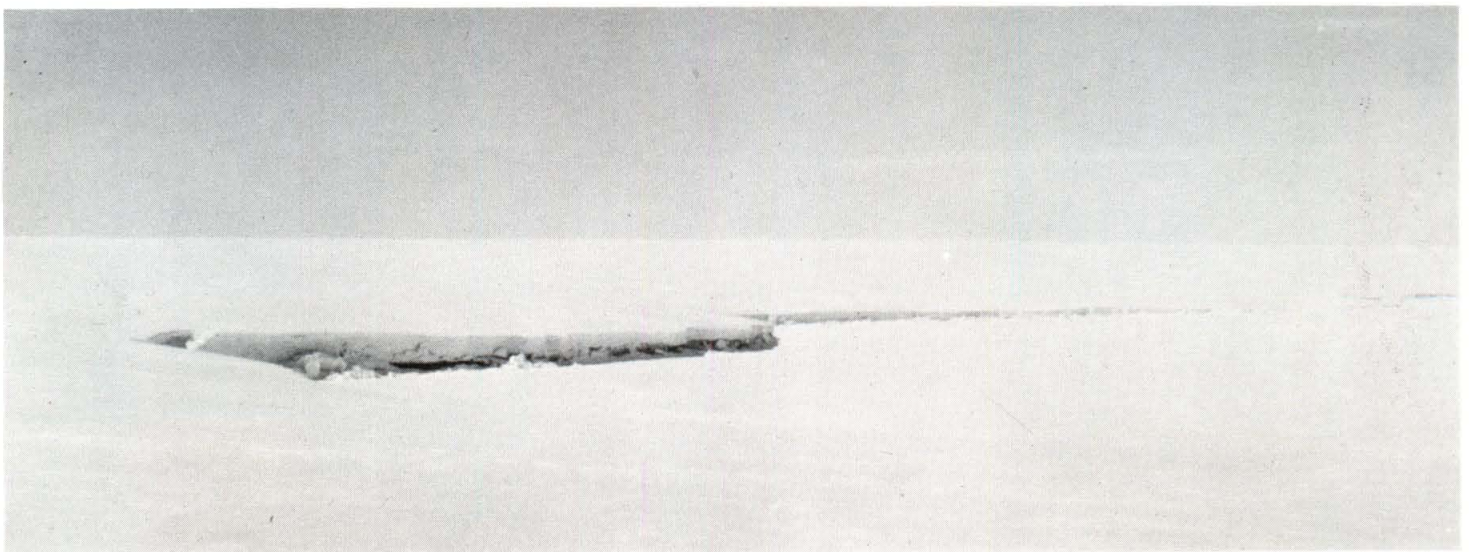
What is the difference between a glacier and an ice cap? Both are made of ice. A glacier is usually found flowing very slowly down an old river valley in mountainous country. An ice cap is found on the rolling surface of a plateau where it covers many hills and valleys. Glaciers flow downhill as a result of the force of gravity, the force that makes an object fall. An ice cap flows in all directions and may even flow uphill. How can this happen?

Take some putty or Plasticine and roll it into a ball. Place the ball on a flat surface. Now press gently on the

top of the ball with your hand. What happens? The putty spreads in all directions. Your hand is supplying the force to move the putty. In an ice cap, this force is created by the great thickness of ice and snow. The Barnes Ice Cap is 2000 feet thick. This great thickness of ice creates the pressure to push the ice in all directions and sometimes to push it uphill.

How do glaciers form? During the long, cold Arctic winter, snow falls over the mountains and the plateau. As the summers are short and cool, not all of the winter's snow melts. Some

See ICE CAP — Page 3



C. W. Bridge

Here is the great Barnes Ice Cap, the only cap of its kind in Canada. It is almost 100 miles long and covers an area of land the same size as the entire province of Prince Edward Island. It is 2000 feet thick.



Department of Lands and Forests

The number of Canvasback Ducks wintering in Ontario has varied from 2,000 to 27,000 in the last eight years.

Wintering Waterfowl In Ontario

Part I — The Canvasback and Scaup ducks

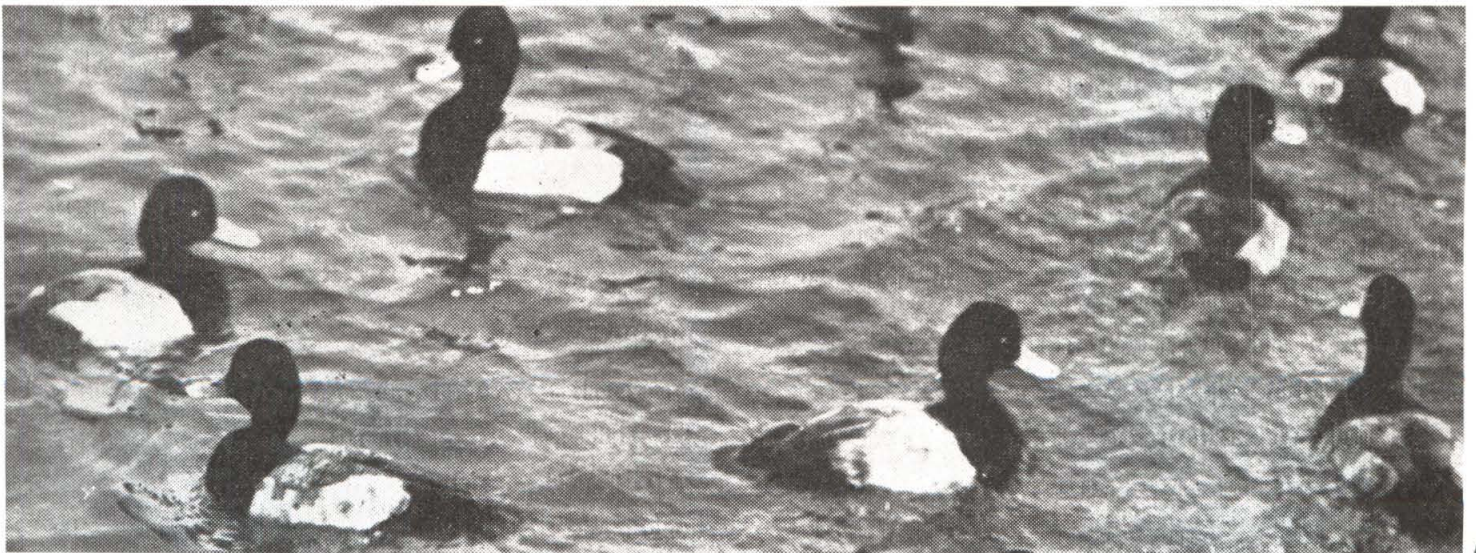
Ducks and geese that breed in Ontario have to leave most parts of the Province in winter. However, the hardiest species find enough open water between the St. Clair River and the St. Lawrence for their winter needs. Because the extent of ice cover on Lakes Erie and Ontario varies from year to year, the number of ducks that stay also varies. Thus, in the last eight years the winter count for Ontario carried out in early January has varied from about 28,000 to 90,000.

Diving ducks far outnumber the dabbling ducks during the winter in Ontario. Although concentrated in relatively few places, the scaup usually is the commonest wintering species. Large rafts may be seen off Hamilton and Toronto, near Wolfe Island and in the St. Lawrence, and at a number of places in Lake Erie. Since the Lesser Scaup tends to go further south for the winter than the Greater Scaup, it is likely that most, if not all, of the scaups that stay in Ontario are of the

Greater species.

The number of Canvasbacks staying in Ontario for the winter has changed much over the years. In the last eight years the total estimated has been between 2,000 and 27,000. Some years ago, in more fortunate times when the Canvasback nesting grounds were not affected by drought, over 40,000 were estimated remaining in Ontario.

H. G. LUMSDEN



Hugh M. Halliday

During the winter large rafts of Scaup Ducks may be seen off Hamilton and Toronto, and in the St. Lawrence River.

Club News



Our news this month comes from the Kingston Junior Naturalists. This Club held its first meeting of the new term in September. David McArthur was elected secretary and Wendy Adlam treasurer, marking the first time that the Club has had a treasurer. Shorebirds were the feature topic of this meeting, as well as of the Club's September field trip. The trip was made notable by the discovery of a Whimbrel on Wolfe Island.

Club members kept themselves busy during the summer. Six juniors joined in the annual spring bird count sponsored by the senior club, and several members had interesting summer trips. Those travelling farthest were Barbara and David Edwards, who visited Trinidad in the West Indies. Ken Edwards went to Grand Manan Island in the Bay of Fundy where he made some

exciting observations. He saw a Scissor-tailed Flycatcher, a rare bird in the Eastern Canada, and he found the nest of a Semipalmated Plover, also unusual for the region.

The Kingston Junior Naturalists would like to build up a natural history library, and would welcome any contributions of books. They should be sent to Dr. Frank Cook, Department of Biology, Queen's University, Kingston.

Send us news of your Club's activities! They should be mailed to Mrs. H. D. Wilkins, 213 Rosedale Heights Drive, Toronto 7. If there is no club in your area and you would like help in starting one, write to the Federation of Ontario Naturalists, 1262 Don Mills Road, Don Mills, Ontario.

The Moose — Browser of the North

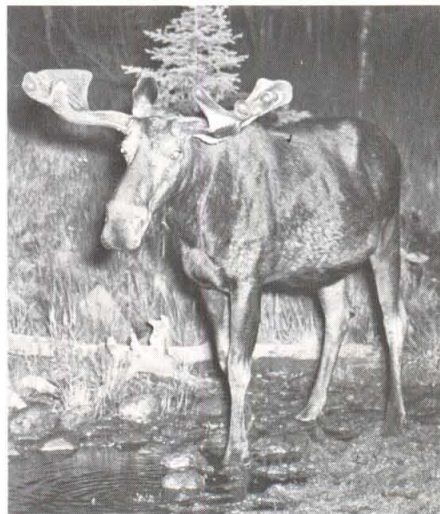
Part 2 — Conclusion



The cow moose has one calf — rarely two — in May, and is very clever at keeping out of sight. There are many tens of thousands of moose in Ontario, but you won't see them very often. In summer you have a good chance, because they love to feed on rooted water plants, and wade out in plain sight. In fact, they like even the roots, including the thick pineapple-coarse roots of water lilies.

Moose occupy a huge area in Canada where there were none when the first explorers arrived, especially Ontario, Quebec and British Columbia. At the same time, while gaining new ground, they have lost very little of the old. In Ontario, for example, there used to be moose in Frontenac, Leeds and Lanark counties, but there are none now. With such a small loss and an enormous gain in area, there are far more moose now than in the days of Christopher Columbus.

People sometimes ask if moose are



Department of Lands and Forests

dangerous. The answer is no, but with the qualification that it is wise to watch out for any bull moose in September or early October that just doesn't run away. Nobody was ever killed that I know of, but a friend of mine spent an uncomfortable hour in a tree while a bull moose snorted and pawed below, and reduced his pack-sack of personal

belongings to shreds and tatters. Another friend took to a tree, only to see the moose go away in such a manner as to leave doubt that it had ever meant harm. He thought he had disgraced himself in the eyes of his French-Canadian axeman, and then discovered that the old woodsman was two limbs higher up in the same tree. No less a person than Col. Theodore Roosevelt, then President of the United States, was chased so persistently by a moose that his terrified guide insisted on him shooting it.

If, in September, you make a noise that suggests to a bull moose that there is a rival bull around, he might cause trouble. I knew of a man who used to work on forest surveys in the west, who had a voice with the rumble of a bull calf. After he was treed a couple of times it was clear that for him to cry "chain" or shout out measurements in September was risky. Once in September, I heard a bull call near me in broad daylight. I answered at once and then suddenly realized that there were no trees in the alder swamp for several hundred yards. Fortunately for me, nothing happened.

C. H. D. CLARKE

The dolphin seems to be the fastest swimmer in the world. In seeking an explanation for this remarkable swimming ability, scientists have discovered that the dolphin has an unusual kind of skin. A rubber copy was made of the skin and tried on a boat. The boat with this cover travelled faster than another boat without a coating.

ICE CAP — from Page 1

snow in the mountains and the higher areas of the plateau lasts through the entire summer. During the summer this snow changes and becomes slushy. When the winter comes, the slush freezes solid and more snow falls on top of it. The next summer, the snow again changes to slush that freezes during the winter. After a few years the snow at the bottom of the pile is pressed into ice. If this process continues for many years, a glacier or ice cap may be formed. Once a large mass of ice has been built up, the glacier or ice cap will start to move over the land.

C. W. BRIDGE

Finches

OF CANADA

Finches have stout, cone-shaped bills for opening the tough seeds on which they live during most of the year. Many of them go a long way north for nesting, coming down to the settled parts of Canada only in winter. Others nest farther south, wintering in the United States. Still others stay in the same area the year 'round. They are a very large family, with about 50 members in Canada and some 375 world-wide. Finches have perhaps more variety in plumage, habitat and song than any other group of native birds.

Its white outer tail feathers and black back are a "dead giveaway" when the SLATE-COLORED JUNCO flies. Rankiest of finches, the EVENING GROSBEEK feeds on seeds of the box elder or Manitoba maple. The brilliant CARDINAL is a year 'round resident in southern Ontario; a few are found in Manitoba and Quebec. Birdwatchers look for the typical "roller-coaster" flight of the northern PINE GROSBEEK. The smallest Canadian finch is the GOLDFINCH, which waits until midsummer to build its delicate nest of thistle-down.



SLATE-COLORED JUNCO

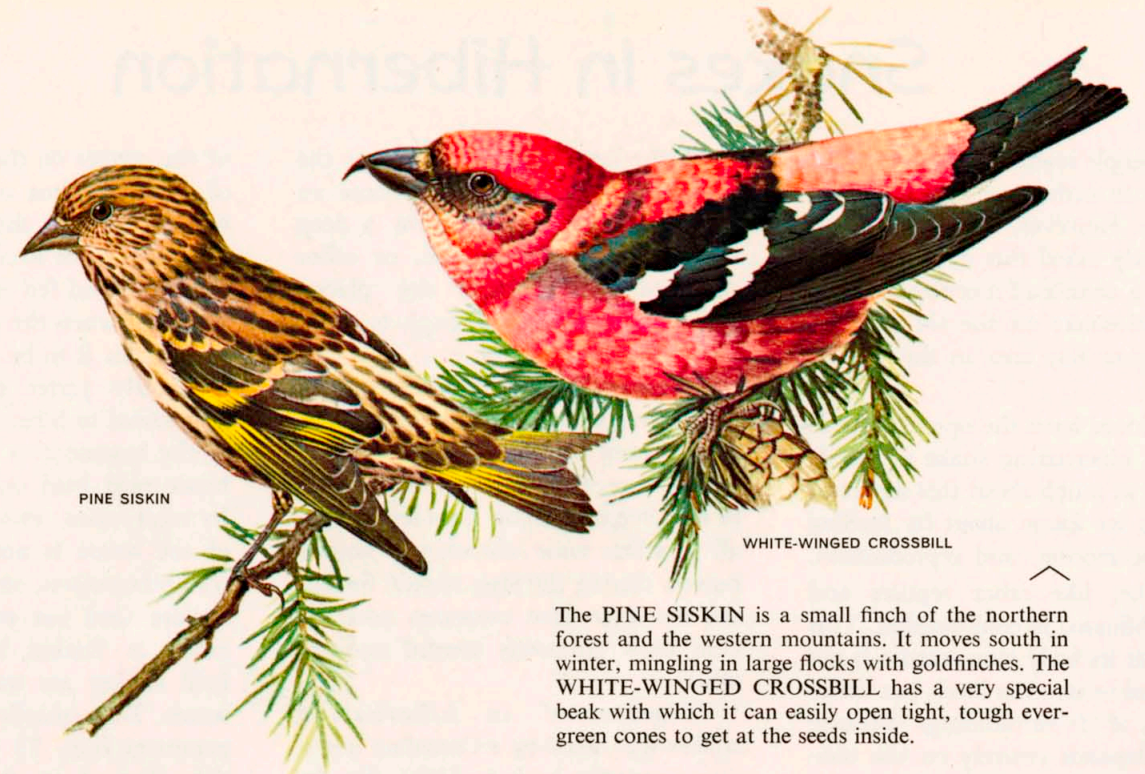
CARDINAL

EVENING GROSBEEK

GOLDFINCH

PINE GROSBEEK

J.F. LANSDOWNE



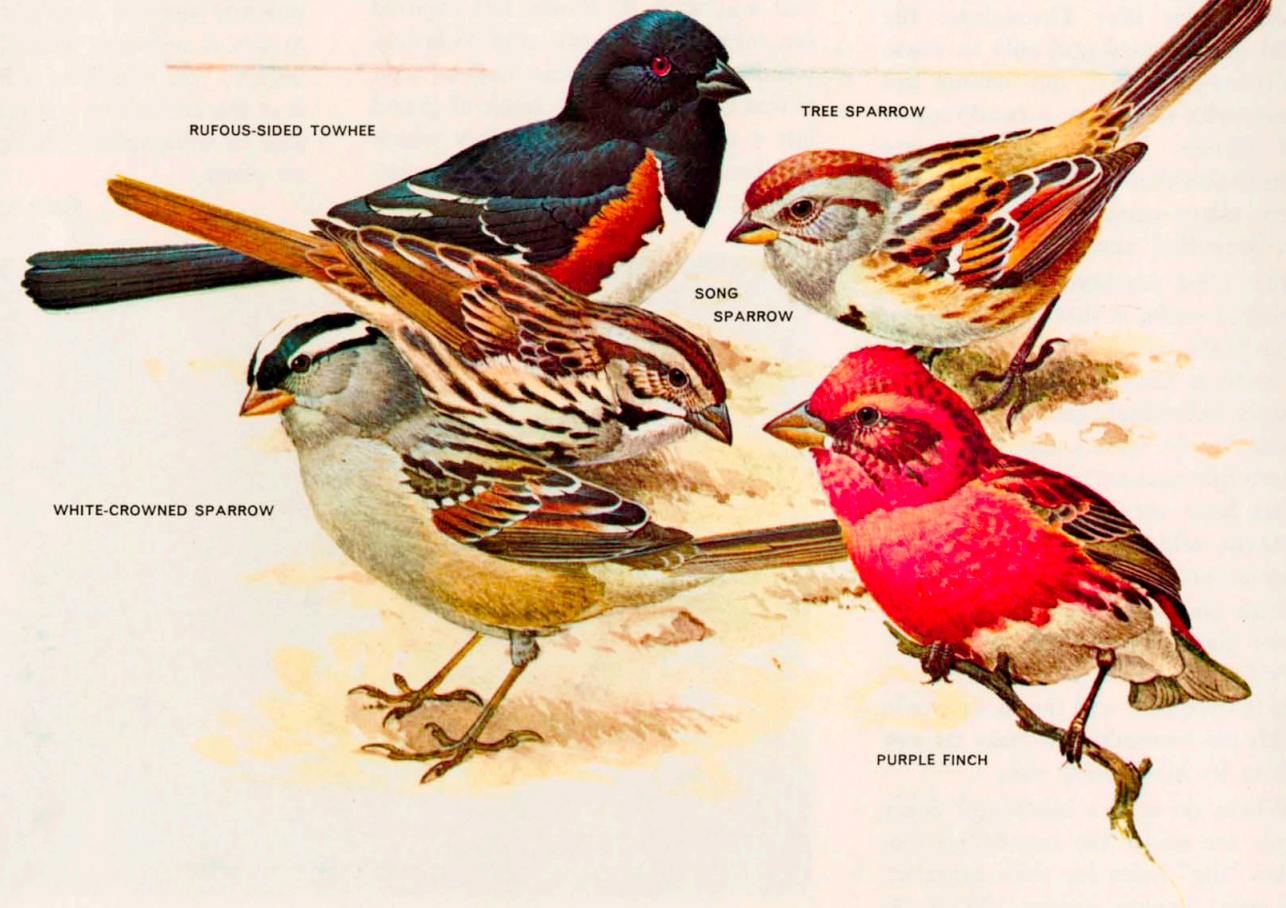
PINE SISKIN

WHITE-WINGED CROSSBILL

The PINE SISKIN is a small finch of the northern forest and the western mountains. It moves south in winter, mingling in large flocks with goldfinches. The WHITE-WINGED CROSSBILL has a very special beak with which it can easily open tight, tough evergreen cones to get at the seeds inside.

The west coast version of the RUFOUS-SIDED TOWHEE has white spots on the wings. This is the eastern form. Though it nests in the "land of little trees," where forest and arctic barrens meet, the TREE SPARROW winters to the south as far as the northern United States. Best known of Canadian finches is probably the SONG SPARROW, one of the first birds

to sing in spring. Look for the dark markings on its chest. The male PURPLE FINCH really isn't purple; it's more a raspberry color. It has a sweet warbling song. The handsome WHITE-CROWNED SPARROW, with its wheezily whistled song, is found in a variety of forms throughout most of Canada.



RUFOUS-SIDED TOWHEE

TREE SPARROW

SONG SPARROW

WHITE-CROWNED SPARROW

PURPLE FINCH

Snakes In Hibernation

Most people realize that snakes must hibernate in order to escape the cold of winter. However, a skiing enthusiast recently asked this writer if there would be a chance of meeting a massasauga rattlesnake on the ski trails in the Georgian Bay area in the winter-time!

We seldom have the opportunity to observe a hibernating snake so we do not know as much about this aspect of its life as we know about its feeding habits, locomotion, and reproduction.

A snake, like other reptiles and also amphibians, is cold-blooded. This means that its body temperature is not maintained at an even level, but varies with that of its surroundings. Because a snake depends entirely on the temperature of its surroundings, it must hibernate in winter to escape being frozen to death. Hibernation is a deep sleep at a lowered temperature in which all the vital processes of the body are slowed down to the minimum necessary for life. Throughout the world snakes are found only in warm and temperate zones; they cannot live in countries that have a continuously cold climate. In Canada there are fewer snakes than in the United States, where many southern areas have almost perpetual summer.

The most northerly range of any Canadian snake is that of the eastern garter snake which has been found as far north as James Bay. This snake is a hardy individual, and is the first to appear in the spring and the last to go into hibernation in the fall. Garter snakes have occasionally been found about on mild days in November and there are records of them emerging to bask in the sun on extremely warm winter days. This, however, is very risky for the snake as the sun could quickly disappear and the snake would be left too benumbed to make its way back to its hibernating site.

Where do snakes hibernate? Some people are under the impression that snakes "dig" holes for their hibernating sites. Snakes cannot dig as do many mammals, but in desert areas where it is necessary to seek shelter from extreme heat, they burrow be-

neath the sand. In order to escape the cold, our Canadian snakes choose an animal burrow, a spot below a deep tree root, a rocky crevice, or other sheltered, well-drained, dry places. These must be deep enough to avoid a freezing temperature.

When it comes to hibernation, snakes believe in "togetherness". Many snakes even of different species den up together, thus it is not uncommon to find venomous and harmless snakes all sharing some abandoned animal burrow during the long winter. Snakes are not aggressive creatures and seldom show animosity toward one another.

"Togetherness" in hibernating snakes was noted by a Canadian newspaper reporter back in 1911. He described a "ball" of snakes being dug from a gravel pit alongside a railway track west of London, Ontario. The gravel was being loaded onto the train and this "ball" about the size of a football was with it. It was left exposed for some time to the cold February weather before someone noticed that it was not just a large hunk of gravel but a cluster of garter snakes which had been dug up from their hibernating site near the railroad tracks. Some

of the snakes on the outside had died of exposure, but one in the centre, which was over three feet in length, was saved. The local butcher took this one home and fed and cared for it until spring when the weather was warm enough for it to be released.

Captive garter snakes should not be allowed to hibernate. Putting them in the basement or a cool part of the house may lead only to their death. In most cases, even the coolest part of the house is not cold enough for true hibernation, and the snake would require food but would not feel like eating it. Snakes, like turtles, refuse food if they are not kept sufficiently warm. They usually feed well at temperatures from 75 to 85 degrees. As they depend on the temperature of their surroundings for their well-being, they cannot stand excessive heat any more than extreme cold.

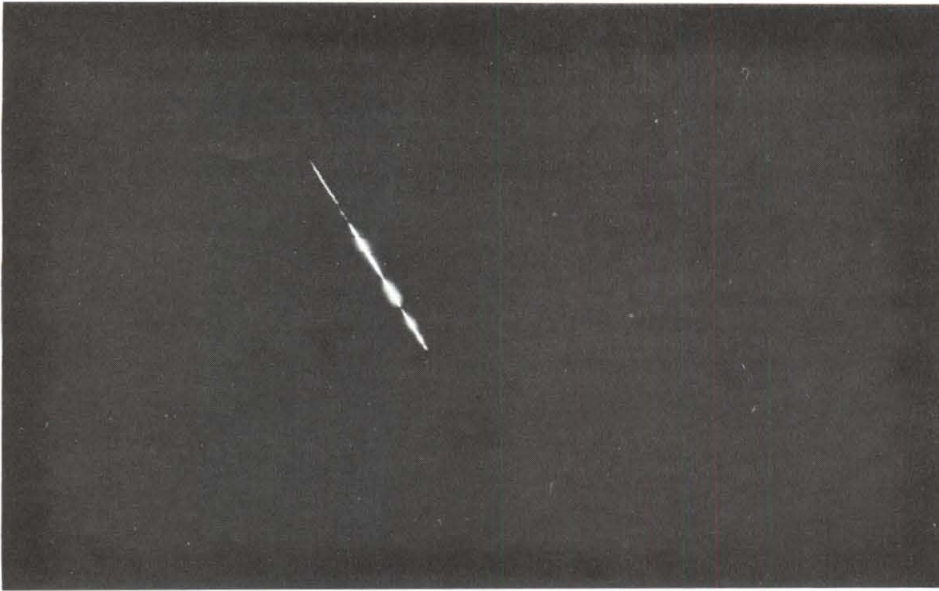
If you have acquired a pet snake during the summer months, but are not sure you can supply its food items or give it sufficient warmth during the winter, you would be wise to release it at the end of the summer in time to join its companions for the long, winter sleep.

BARBARA FROMM



Hugh M. Halliday

The Woodchuck, unlike the snake, is warm-blooded, but both animals hibernate. Hibernation is a condition in which body processes are slowed down.



Photos: Peter Geddes, Toronto Telegram News Service

This is perhaps the finest photograph obtained of the brilliant fireball of September 17th. It was obtained on a residential street in Guelph.

The Fireball — Large Meteorite

On the evening of September 17, 1966, residents of southern Ontario were startled by the appearance of a very bright fireball travelling from south to north and reported to have crashed to Earth in the Lake Huron-Georgian Bay area. It was at least the second bright fireball over Ontario in the past year.

At the time this is being written, no remains of the fireball have been found and none is expected. Reports of fragments having started brush fires can be dismissed almost immediately. It is true that as a meteoroid passes through the Earth's atmosphere it becomes extremely hot, but this applies only to a thin outer layer. By the time any fragment reached the Earth's surface it would have cooled and could, at most, feel warm to the touch. Claims that the fireball "landed behind the barn" or "landed less than a mile away" are the result of optical illusion. It is very difficult to judge accurately the height or distance of a light of unknown size moving in the sky because there is nothing against which to compare the height or distance.

The fireball of September 17 was tracked by radar. It was not the meteoroid itself that reflected the radar signals but the trail of ionized (elec-

trically charged) atoms created by the rapid passage through the atmosphere. The total weight of the fireball was probably only a few pounds and certainly less than one hundred pounds.

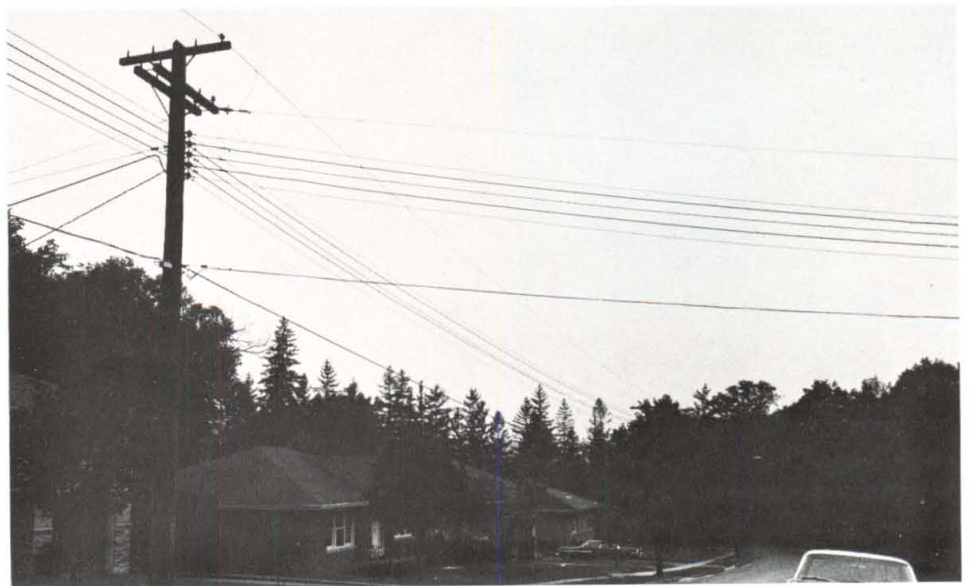
Although the appearance of fireballs is rare in any one location, there are several thousand each day over the Earth. However, since most of the Earth's surface is covered with water, or otherwise unpopulated, most of

these fireballs are not seen by human beings.

Records of fireballs have been found in man's earliest writings e.g. Joshua 10:11, and there have been some recent notable occurrences. On Christmas Eve of 1965 a bright fireball passed over southern England and landed, in several pieces, near the small town of Barwell, south of Leicester. Fragments of the fireball were heard and seen to fall. Several holes were made in the main street, windows in at least one home were broken, and a one-pound fragment crashed through the roof and one-inch-thick wood floor of a local factory. Obviously, large meteorites can reach the earth intact and cause considerable damage! The total weight of the Barwell meteorite was probably less than about 200 pounds of which 100 pounds have been recovered. The largest fragment weighed seventeen pounds and fortunately landed in an open field. We can be quite sure that the Barwell fireball was larger than the fireball of September 17, and, in fact, was probably the largest meteorite to have fallen in the British Isles in recorded history.

Meteorites represent the only material of distant interplanetary space which we are able to study directly. Therefore, it would be very nice if someone were to find a piece of the September 17 fireball.

DOUGLAS P. HUBE



The daytime street scene shown here, marks the approximate place from which the photograph of the fireball was taken on September 17th last.

WOODLORE FOR THE NATURALIST

JOHN MACFIE

Using The Compass

A compass is an essential part of the naturalist's kit. When travelling in the bush it is foolish to trust instinct or some visible reference point, such as the sun, to point the way. The sun may disappear behind clouds unexpectedly.

Basically, a compass is a magnetized needle balanced on a pivot so that the marked end, pointed or coloured, points to the magnetic North Pole when the compass is held perfectly level. Unfortunately, the Magnetic North Pole is several hundred miles from the True North Pole, the one to which map bearings always refer. Viewed from Southern Ontario, the Magnetic Pole lies six to twelve degrees west of the True North Pole. Thus, when a compass bearing is determined from a map, the measured angle must be corrected for compass use by *adding* this "declination" factor. For rough compassing on short trips, however, declination may be ignored.

Compasses vary greatly in their re-

finements. The naturalist's compass need not be expensive, but it should have a rotatable housing marked with a 360° graduation (North is 0°, East is 90°, South is 180°, etc.) and have provision for setting a course and sighting the direction of the course. I recommend the type that rotates on a transparent plastic platform that can be used as a protractor in measuring courses off a map. A satisfactory model of this compass can be purchased for as little as \$3.00. Be sure that any compass you buy has a page of instructions showing how to transfer a course from map to compass.

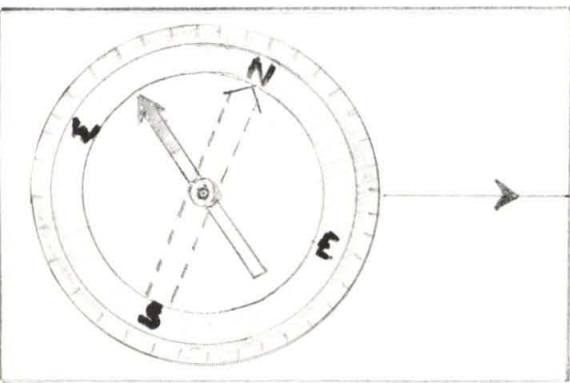
Some points to remember

1. When you use a compass, either in transferring a course from map to compass or in taking a compass "shot", keep it perfectly level so that the compass needle swings freely.
2. A metal object, such as an axe, held too close to a compass, may attract the needle away from

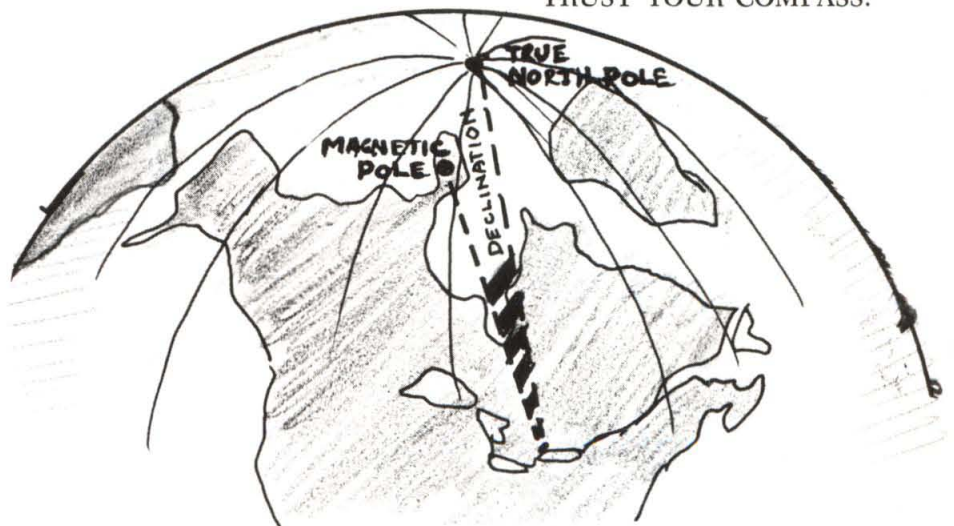


north, giving an incorrect reading. Stand clear of such possible sources of interference when taking a "shot".

3. Sooner or later a situation will arise when your instinct and your compass disagree widely on where north lies. Recheck your compass setting. Make sure it is level and beyond the influence of metal objects, then ignore instinct and **TRUST YOUR COMPASS.**



PROTRACTOR COMPASS



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