

The

Young Naturalist

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



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WILDLIFE IN 1867

Part 2 — conclusion



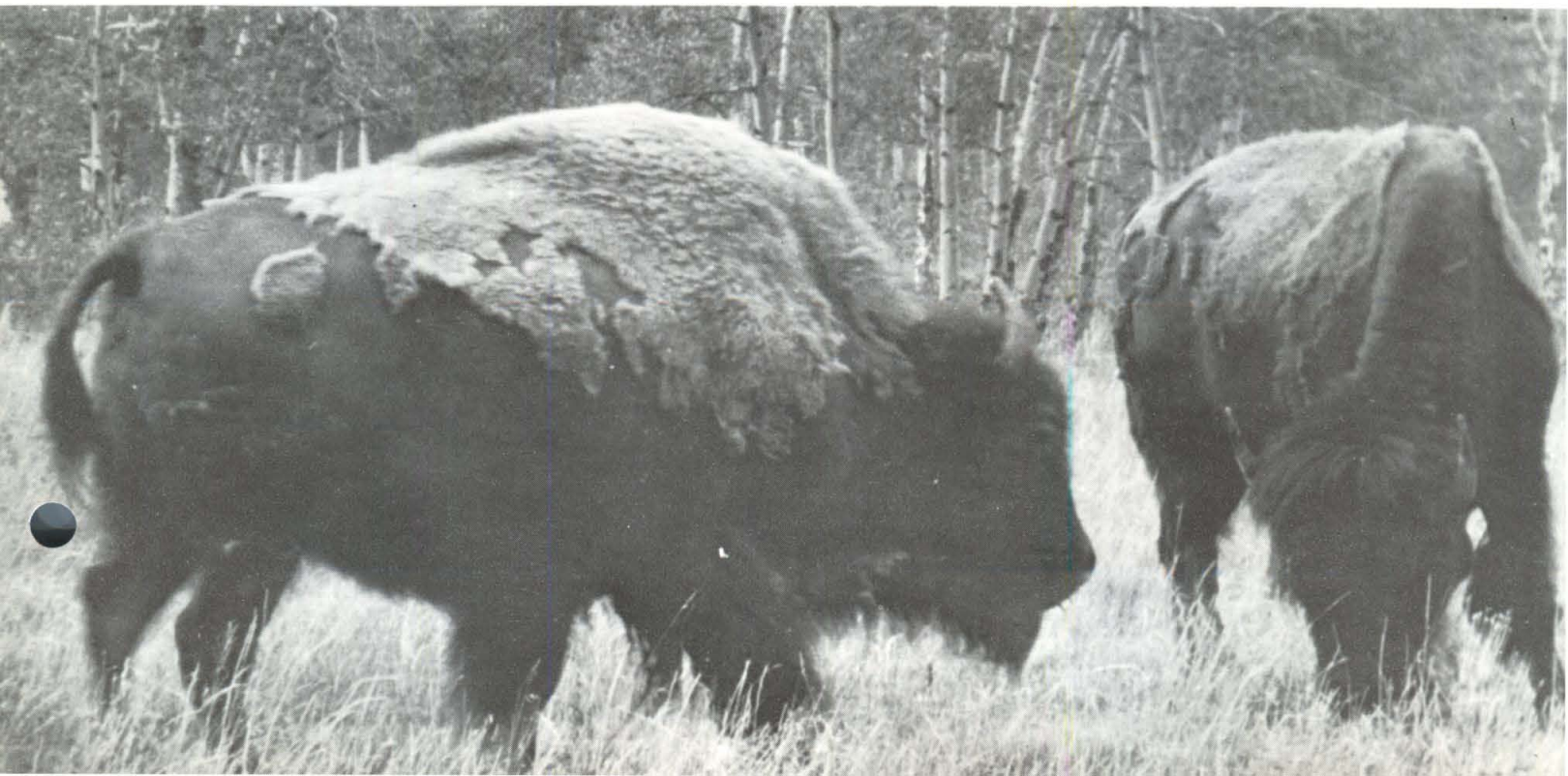
Buffalo were once chased all over the land by commercial hide hunters. Of course we know that you can't grow wheat on the prairies and have buffalo roaming them at the same time, and the woods where the pigeons nested were mostly cut down. All the same, we did save some buffalo, and maybe, if they had had any luck, we could have saved some passenger pigeons.

In southern Ontario, in 1867, there were a lot more farms and farmers

than there are now. They produced far less than the few farmers do today, and they had no such things as automobiles, televisions, hydro, or septic tanks. Just the same, don't let anybody tell you they were unhappy or even really uncomfortable. I am just old enough myself to remember the farm families in their pride coming to church on Christmas Sunday, their gay home-knit scarves flying, bundled up in blankets, shiny cutters drawn by high-stepping trotters, harness bells jingling merrily. Even I, in my time, could load up for rabbit-hunting the

minute I left the house. You didn't drive a hundred miles to go fishing because you didn't have to. Today, for our pleasure, we drive farther and faster on wider and smoother roads in search of something that always stays just out of grasp. In 1867 there was nothing fugitive or fleeing about the contact with nature. Milk came from cows, eggs from hens, and apples from trees. For Christmas dinner the nimblest boy in the family had to go out in the yard and corner and catch a

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WILDLIFE — from Page 1

turkey — the chosen turkey — and this was no mean feat. Once caught, he was promptly decapitated, head between two nails on the block so he couldn't dodge the axe. Then mother dipped him in scalding water and off came the feathers! Then, what a gorgeous sight! If you are squeamish and this bothers you, all I can say is that you ought to be a vegetarian. Somewhere along the line your Christmas turkey was alive and had feathers on it, and if you can't bear to think about it, it is because you are several jumps away from the facts of life — from nature — and getting farther every day.

Even the farmer today no longer treads the good earth as he ploughs, and is much more aware of gears and carburetors. Yet if he could stop to think, he would realize that the feel of the soil and the health of the microscopic plants and animals in it are more important than all his machines, both to him and to the rest of us. It is the earth that sustains life, not the machines.

In 1871 the first census of Canada was taken, repeated every ten years since. The first one was a bit of a makeshift, made up of information collected from township officials, but because of that there were details of produce that never got into any subsequent census, for example, tons and tons of maple sugar and honey, and, what caught my eye, a million yards of cloth made at home. Does your Mother weave on a loom? Lots of ladies do it for fun, after someone else has set up a warp for them. Some can even set up their own warp. A few can spin on a wheel yarn good enough for knitting. If your Mom can spin a warp thread, let alone woof, then she had better apply for a job in Pioneer Village!

A million yards must have been enough to give the people a homespun look, but it was not only people that had it. The whole countryside was 'homespun,' with log houses and barns all over the place, dirt roads, snake-rail fences, brush and woods. The census shows it. Deer skins were traded from every township, and so were furs like beaver, fisher, marten

and otter, as well as the skunk and muskrat that are still around.

It was quite the fashion in those days for educated people to be interested in nature, but the guide books had not been written, partly because the basic collections were still being made. Mrs. Catherine Parr Traill, a pioneer of Peterborough County, made collections of plants. There were many taxidermists, and house after house had its case of stuffed birds. The taxidermists were surprisingly good at naming them. There were books, but they were not field guides. To the old question, "Have you named all the birds without a gun?", the answer was, "It can't be done." That is true in places like Africa and South America today. However, the average farm boy in Ontario knew a lot of birds. One I tested a couple of generations later knew eighty species. How many do you know? John Burroughs, an American nature writer of 1867, used to say that you really didn't know a bird unless you could name it on sight, knew its song, and had found its nest! Have you ever found a robin's nest? a song sparrow's? a meadowlark's? a crow's? Have you ever heard a rooster crow? Do you know the trills of the spring peepers and the toad? Every farm boy of 1867 had, or did!

Enough people kept good notes that we can see that the disappearance of the passenger pigeon is not the only change in bird life. First there are the foreigners. In 1867 people were just making the acquaintance of the English sparrow. It became superabundant in the '70's. My Ontario grandparents remembered their first. In my turn, as a teen-aged bird watcher, I contributed firsts on the starling for what was then my home area. Today we have certainly more millions of birds than in 1867, but there are fewer of most species, so far as one can tell from actual counts, and a great many of what we have are starlings. They took over our country. So also did two native species, the red-winged blackbird and the grackle, or crow blackbird. Both are swarming, and increasing. Red-wings used to nest only in marshes. Now they are rapidly increasing their nestings in such places as alfalfa fields, and there seems to be

no end in sight to their population explosion. The commonest game bird now is the mourning dove, which has succeeded where the passenger pigeon failed. There were nearly fifty produced in my back yard in Metro Toronto in 1966, and an ornithologist whose mother-in-law died that year estimated the mourning dove production of the cemetery at one thousand.

I hope that you become curious about what used to be, not only as change is recorded in books and old records, but as it can be read on the ground in the field, by signs that you can learn. If you do, you will become concerned about the quality of our life and of our environment. In the Bible it is asked, 'What shall it profit a man if he gain the whole world and lose his own soul?' Do we have to turn in all the birds of field and fence row that the farm boy of 1867 knew, and settle for a billion starlings? Is Progress real?

C. H. D. CLARKE

Ottawa Researchers Find New Weapon Against Disease

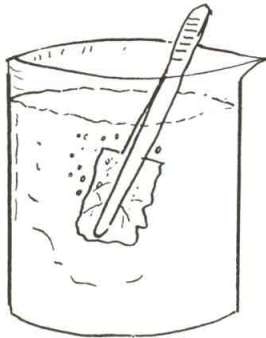
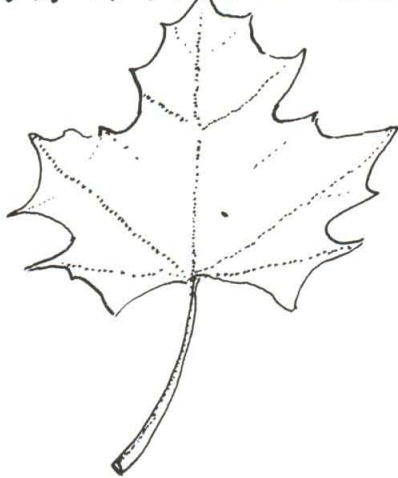
A team of research scientists who work at the Microbiology Institute, a part of the Department of Agriculture, Ottawa, have discovered a new antibiotic. An antibiotic is a substance that is produced by living cells that can be used to kill other living cells. The name of the new antibiotic is *myxin*. Myxin is one of the most efficient killers of cells that has been discovered to date in man's continuing fight against disease.

The Department of Agriculture researchers discovered myxin while they were analyzing the soil that plants grow in. In laboratory tests, myxin has proven successful in killing many disease-producing organisms. It can kill a wide variety of germs, and it does so very efficiently.

Myxin can kill bacteria, fungi, and yeasts. Despite its killing power, it has no effect on the cells of other plants and animals. Thus it is a very effective medicine for plants and animals suffering from disease. When myxin kills the disease organisms, the disease is "cured".

THE YOUNG EXPERIMENTER

EXPERIMENTS WITH A MAPLE LEAF

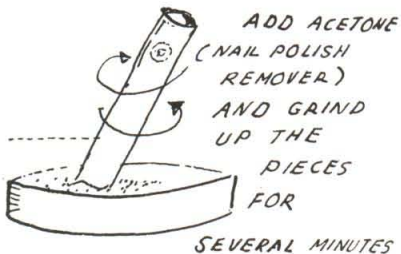


CUT A SQUARE FROM A MAPLE LEAF AND PLACE IT BELOW THE SURFACE OF HOT (NEAR BOILING) WATER. NOTE THE MANY GAS BUBBLES WHICH FORM ON THE LEAF.

DO THE BUBBLES FORM ON BOTH SURFACES OF THE LEAF? TRY LEAVES FROM OTHER PLANTS. WHAT ARE THE PORES IN LEAVES CALLED?

SEPARATION OF PIGMENTS IN A MAPLE LEAF

CUT A GREEN LEAF INTO AS MANY SMALL PIECES AS YOU CAN. PLACE THEM IN THE LID OF A JAR AND MIX WITH WHITE SAND.



TEST TUBE

SEVERAL MINUTES

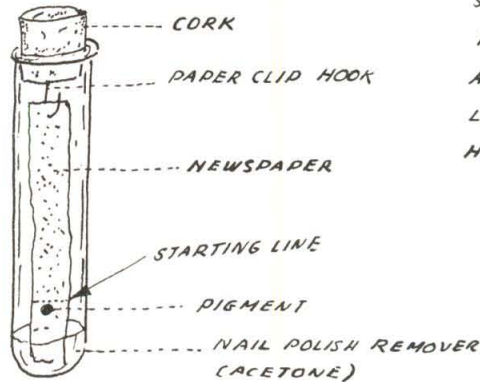


POUR OFF THE GREEN LIQUID FROM THE LEAF-SAND MIXTURE INTO A VIAL.

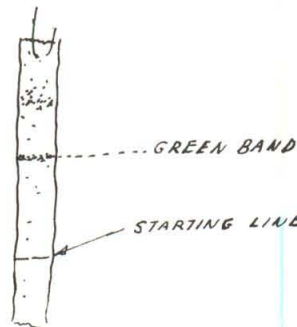
CUT A STRIP OF NEWSPAPER FROM THE EDGE OF THE SHEET WHERE THERE IS NO PRINTING AND TRIM IT SO THAT IT WILL FIT INTO A TEST TUBE



MARK A LINE WITH SOFT PENCIL ONE QUARTER FROM THE BOTTOM OF THE STRIP AND PLACE ONE DROP JUST BELOW IT. LET THE ACETONE EVAPORATE AND PLACE ANOTHER DROP IN THE SAME SPOT. REPEAT THIS UNTIL A DARK GREEN PATCH IS BUILT UP ON THE STRIP. SUSPEND THE



STRIP IN A TEST TUBE WITH ACETONE AS A SOLVENT AND LEAVE FOR SEVERAL HOURS.



FINISHED CHROMATOGRAM

HOW MANY BANDS OF COLOURS CAN YOU SEE ON THE STRIP?

WHAT HAPPENS TO THE CHLORO PHYLL PIGMENTS IN AUTUMN?

Club News



It's September, and a new school year is beginning. All across the province naturalists' clubs are commencing their fall programmes and planning for the year ahead. Now is the time to join a junior naturalists' club, if there is one in your town. If none exists at present, why not ask your science teacher to help you organize one in your school?

From Ottawa, Kathy Fairbarns tells us of the activities of her club during the past year. She writes: "The senior group of the Macoun Field Club has been very active. We have participated in field trips with the Ottawa Field Naturalists Club as well as having our own.

"In the early fall, we went on a field trip to the Gatineau area to observe lichens and fungi, trees, and birds. We were led by Dr. Ted Mosquin, but Dr. Brodo (the Club director) had many points to offer about lichens and fungi.

This was a whole day field trip and was enjoyed by all.

"On the morning of January 22nd, we went on a bird-watching expedition in the Ottawa area. A Great-horned Owl, Snow Buntings, sparrows and many other types of birds were sighted.

"The 26th of February was the date of our first spring field trip, which was to the Thompson's cottage and the area surrounding it. Most of us were on snowshoes, except for a few who skied. We saw the tracks of a lynx as well as of birds and foxes.

"On May 14th, there was a field trip to Mer Bleu to see what was happening there; what plants were growing, and so on. A specialist showed us how pollen grains can tell how old a layer of soil is. After this field trip we finished off the year with a business meeting and a 'birthday party' for the Macoun Club".

BARBARA WILKINS

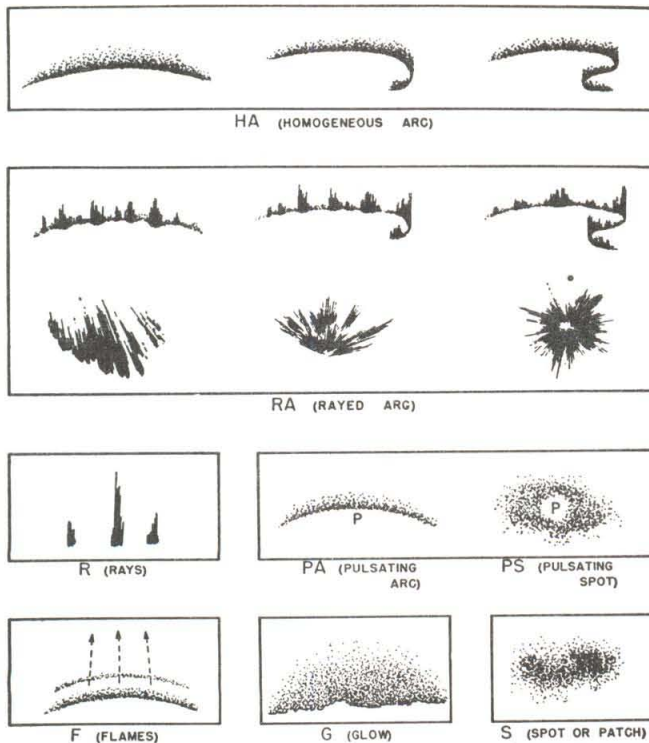


Figure 1. Illustrative sketches of standard auroral forms.

THE AURORA BOREALIS

Some time ago there appeared in this column an article about the sun and its eleven-year sunspot cycle. This

month we look at some of the indirect results of the solar activity, the *aurora borealis* or northern lights.

The activity of the sun is measured by the number of sunspots that can be seen on the sun's surface. After the start of a sunspot cycle, increasing numbers of sunspots are seen at any one time until a maximum is reached. Then the number of sunspots declines until the cycle ends. It is noticed that at times of maximum solar activity there are large displays of *aurora borealis*. Why?

Astronomers are just now getting at the answer to this question. The regions containing sunspots are giant storms capable of erupting from the sun's surface as flares. Some of these flares may be ejected from the sun, and after travelling through space for one or two days may reach the earth. The hot gases in the flare, upon striking the earth's atmosphere cause it to glow in a manner similar to the mechanism in the television set.

Thus as the solar activity increases, so does the aurora activity. Figure 1 shows how the aurora activity may appear to you, the observer. Note the well-defined lower edge of the arcs; this appears about sixty miles above the earth. Frequently a homogeneous arc (HA) changes to a rayed arc (RA). The time when this occurs is significant to the study of auroras and should be recorded. Pulsations are alternate brightening and fading of light without rapid motion, while flames are rapid upward motions of light. Spots and patches resemble clouds, while the glow is rather faint and much less well-defined spots or patches. Glows frequently appear at the beginning or end of auroral displays.

The colour of most auroras is pale green, but at times of intense displays red-orange colours may be seen. If an aurora appears so high in the sky that it may be in sunlight even though you, the observer, may be in the dark, the colour may be a violet gray or blue.

For more information consult your school or public library. If you are interested in making regular observations of aurora you may write for further details to:

Auroral Centre, I. G. Y.,
National Research Council,
Ottawa, Canada.

W. A. SHERWOOD

WOODLORE FOR THE NATURALIST

— John Macfie —

The Meaning of the "Browse Line"

Deer range freely across the countryside in spring, summer, and fall. In winter, on the other hand, they congregate in stands of evergreen trees to escape chilling winds and deep snow. These places are called "deer yards".

Evidence of feeding deer is hard to find in the snowless months. In a deer yard, however, many deer must subsist on the food that is available in a confined space. The effect of their feeding on the forest in winter is very noticeable.

The winter food of deer consists of the succulent shoots of hardwood trees and shrubs. These are the shoots that were grown during the previous summer. In addition, the deer eat the leaves of evergreen trees, chiefly cedar. Only twigs and leaves within six feet of the ground are available to them. That is about as high as the largest deer can reach, even when standing on hind legs.

If a deer yard is overstocked with deer, then the previous summer's growth is all consumed before spring releases the herd. This usually happens when the snow is too deep to permit feeding forays into surrounding hardwood bush. Successive years of overbrowsing remove all living stems from the browse zone. An empty space or void, free of underbrush and living branches, is left.

The upper limit of the void will be a neatly-trimmed and perfectly horizontal "browse line". The browse line is clearly visible, particularly in the case of a cedar swamp. One often sees a browse line, as well, along a cedar-covered lake shore.

To a human eye, the ground zone inside the deer yard has an orderly, uncluttered appearance. But to a hungry deer entering it to spend another winter, the yard will present a very gloomy picture indeed.



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