

The

Young Naturalist

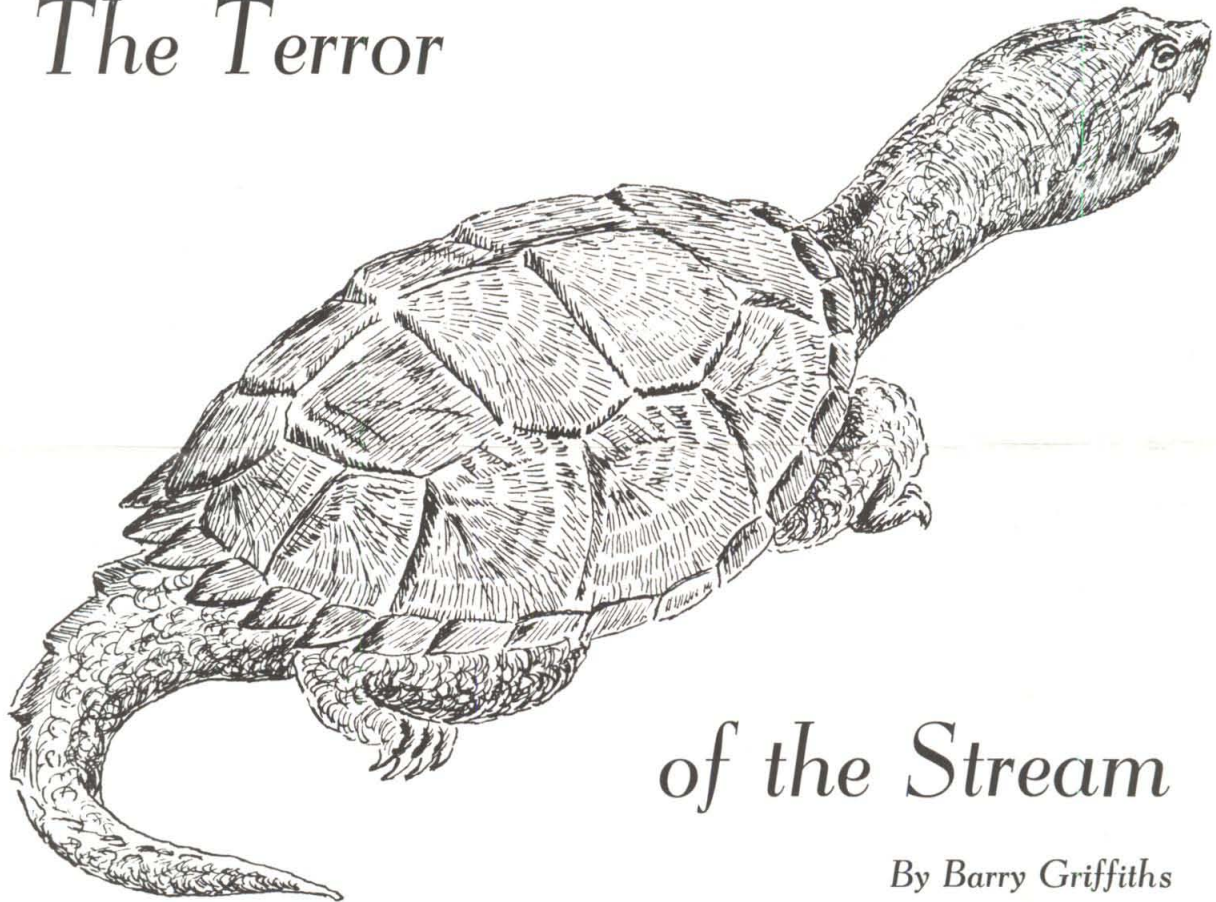
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The Terror



of the Stream

By Barry Griffiths

The common snapping turtle is never likely to be described as the prettiest of our native turtles, or for that matter, the gentlest of animals. However, it is a common turtle in Eastern Canada and does rate highly as one of the more interesting creatures of the streams and lakes.

A FIERCE CREATURE

The snapper is said by many people to be one of the meanest-tempered creatures alive. In fact, as you can see from the picture, this turtle looks

as fierce as it really is. People who have approached the snapper to pick it up, as if it were one of the docile painted turtles, have been injured by the vicious thrust of its beak-like jaw.

SPECIAL FEATURES

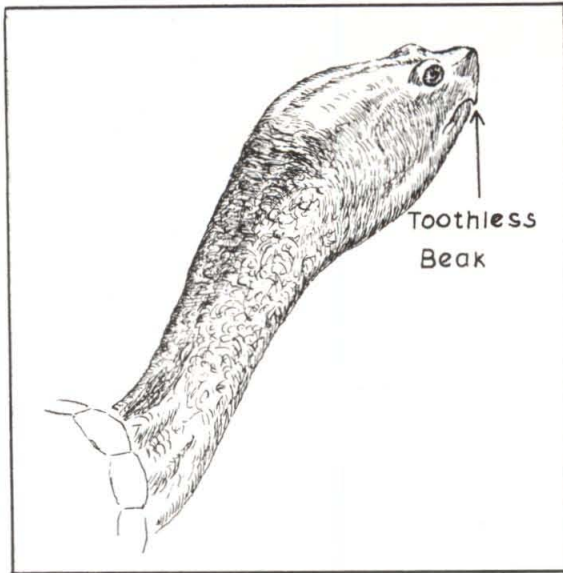
For such a large creature (a full grown snapper weighs up to forty pounds) to keep its ever hungry stomach filled, it has been necessary for nature to provide it with some special features.

The snapping turtle has a massive

head set on a long neck which is covered with a tough, warty skin. Its toothless beak enables the snapper to grasp its prey tightly, and to tear it to pieces.

In addition to its strong neck and head, the snapper has another feature which makes it a formidable hunter. It has a lightning-fast reflex that enables its head to strike out with the speed of a snake. Its prey does not escape too easily.

Continued next page



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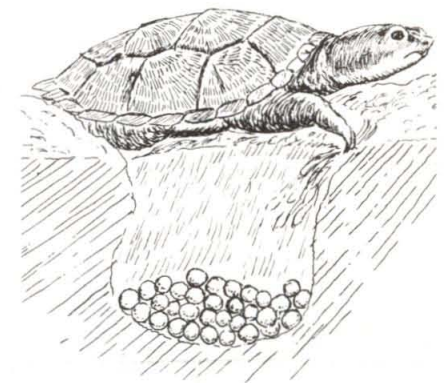
THE WAITING GAME

The snapping turtle has to use different and sometimes unusual methods to catch the large amount of food it needs to survive. One trick is to half cover itself in the mud at the bottom of the stream near a lane travelled by schools of fish. It then plays a waiting game, its dark brown shell making it appear like a shadow, moss covered rock, until an unwary fish swims by and is caught in its vice-like jaws.

Although the snapper usually eats plants and small fish, it has been known to occasionally attack small ducks by swimming underneath them and dragging them beneath the surface of the water until they drown.

THE WANDERING TURTLE

Every spring the female snapping turtle wanders a mile or so away from her water home in search of a place to deposit her eggs. Although the snapper has been found laying her



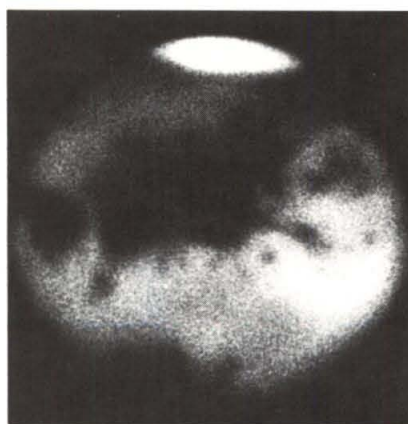
The female digs a jug shaped hole and deposits 20 to 40 eggs.

IS THERE LIFE ON MARS?

By Terence Dickinson

Imagine yourself on a world where the stars shine even in the daytime and two moons appear in the sky. The landscape is endless desert and the temperature at night falls to 160°F below zero.

An uncomfortable world you say? You are right, and this is the present picture of Mars according to our latest data. It is a dying world with only a trace of water and oxygen in its thin atmosphere. The sandy surface is pocked with craters like those on the moon — probably caused by meteorites and small asteroids that have crashed down on the surface for millions of years. The so-called "canals" could not possibly be waterways as was once thought. Even if



Lowell Observatory

there were enough water on Mars to fill one long canal, it could not exist as a liquid because of the low air pressure.

As for life on Mars? Try to find some form of vegetation that could exist under strong doses of ultra violet light every day. One that could stand -160°F every night and no rainfall and only a tiny supply of water.

Perhaps some low form of lichen or moss could survive but even that is questionable. The dark areas of Mars once thought to be vegetation are now considered to be dark rocks by most astronomers.

Try drawing a picture of what you think the surface of Mars is like. You will see how close you are to reality when men land on Mars and bring back photos and samples of the soil. It will happen within your lifetime, probably around 1990.

"A STRANGE CATCH"

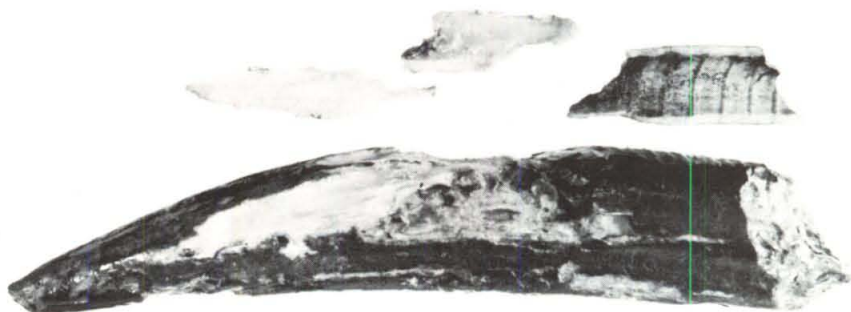
By J. C. Medcof & Esther I. Lord
Fisheries Research Board of Canada
St. Andrews, New Brunswick

Our east coast scallop fishermen are cool customers and the strange things they come across at times would surprise you. Sometimes they're surprised themselves. They're liable to drag up any *old* thing, and most of their surprises come from their favourite fishing ground — Georges Bank, where they drag up about 11 million pounds of tasty scallops every year.

This walrus tusk (see photograph), 15 inches long and 8 inches wide, was a big surprise to the crew of M.V. *Lady Monica*. Donnie Comeau, one of the crew, rescued it from the catch on May 17, 1966, nearly 500 miles southwest of Yarmouth, Nova Scotia. Local people who had an opportunity to look at it believed it to be part of a mastodon tusk. However, when it was sent to the U.S. National Museum in Washington, D.C. for identification it was found to be a walrus tusk all right, and without doubt from the same species that lives in the Arctic today. By its size, we estimate this tusk fitted a beast weighing 2,000 to 3,000 pounds.

The tusk is not fossilized but it is a bit on the ancient side, as you may judge from the way the enamel-like covering of this great tooth has flaked away from the dentine.

Except for the 1937 freak occurrence of a walrus in the Bay of Fundy, near Digby, Nova Scotia, the last known appearance of a walrus south of Labrador was in 1763 near Pictou, N.S. It is believed that walrus disappeared from these shores soon after 1767, following the influx of settlers. So it's not so surprising that a skull with two tusks was dragged up from the Northumberland Strait in 1965. It was brought to us and then sent to the Fisheries Research Board's Arctic Biological Station for study.



WALRUS TUSK

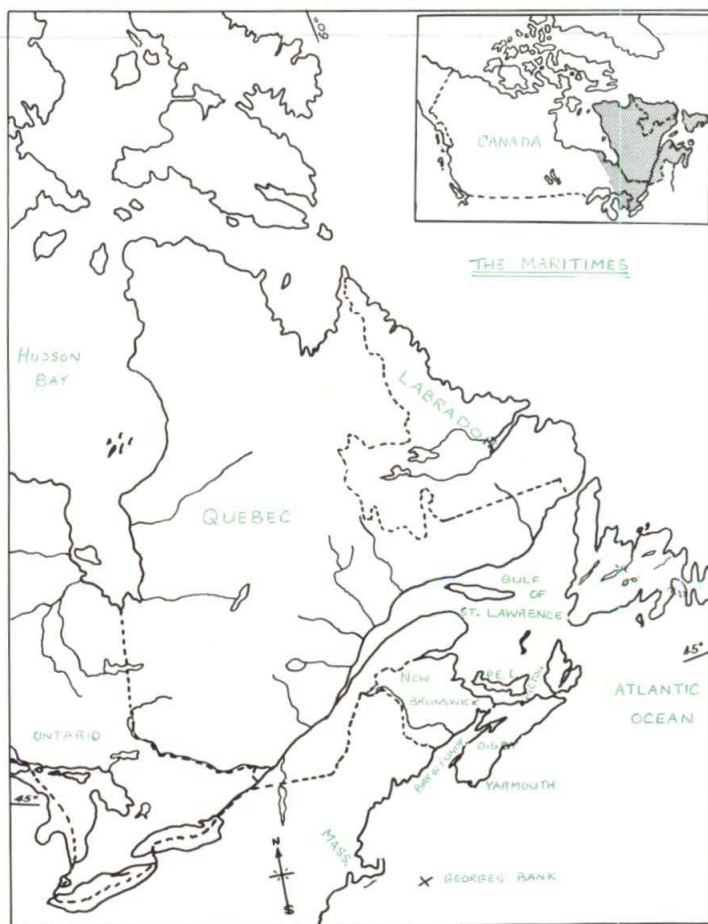
Fisheries Research Board

The owner of our Georges Bank tusk probably lived many hundreds of years ago — possibly as far back as 10,000 to 20,000 years, when sea levels were lower than they are now and when (according to geologists) Georges Bank was dry land and a part of what is now Massachusetts. At that time, Georges may have been a favourite spot for walrus to haul out and bask in the sun.

Apparently our walrus had friends because United States fishermen have found their skulls and tusks on Georges Bank, too. In 1928 they

found a skull with 2 tusks attached and in 1941, a skull with a single tusk. In 1965 a dragger working about 50 miles south of Long Island, New York, also hauled up part of a skull with a single tusk.

The tusk photographed here is now in the National Museum of Canada, Ottawa, where it will receive more thorough study than we can give it. Scientifically, it is a most valuable and interesting specimen that will help to shed light on the fascinating history of our fishing banks.



Predators of Canada — Wolves

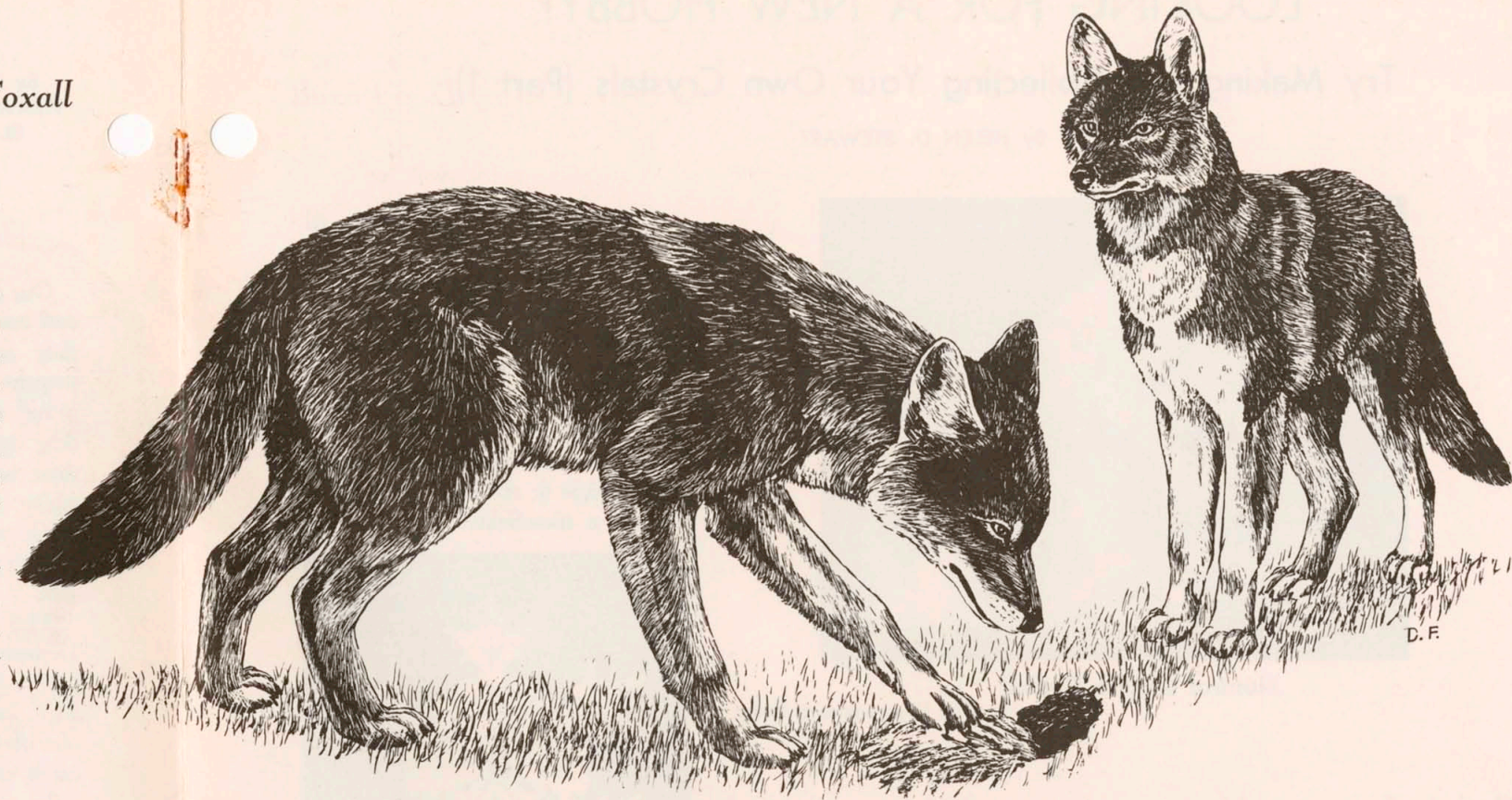
Written and illustrated by Don Foxall

COYOTE

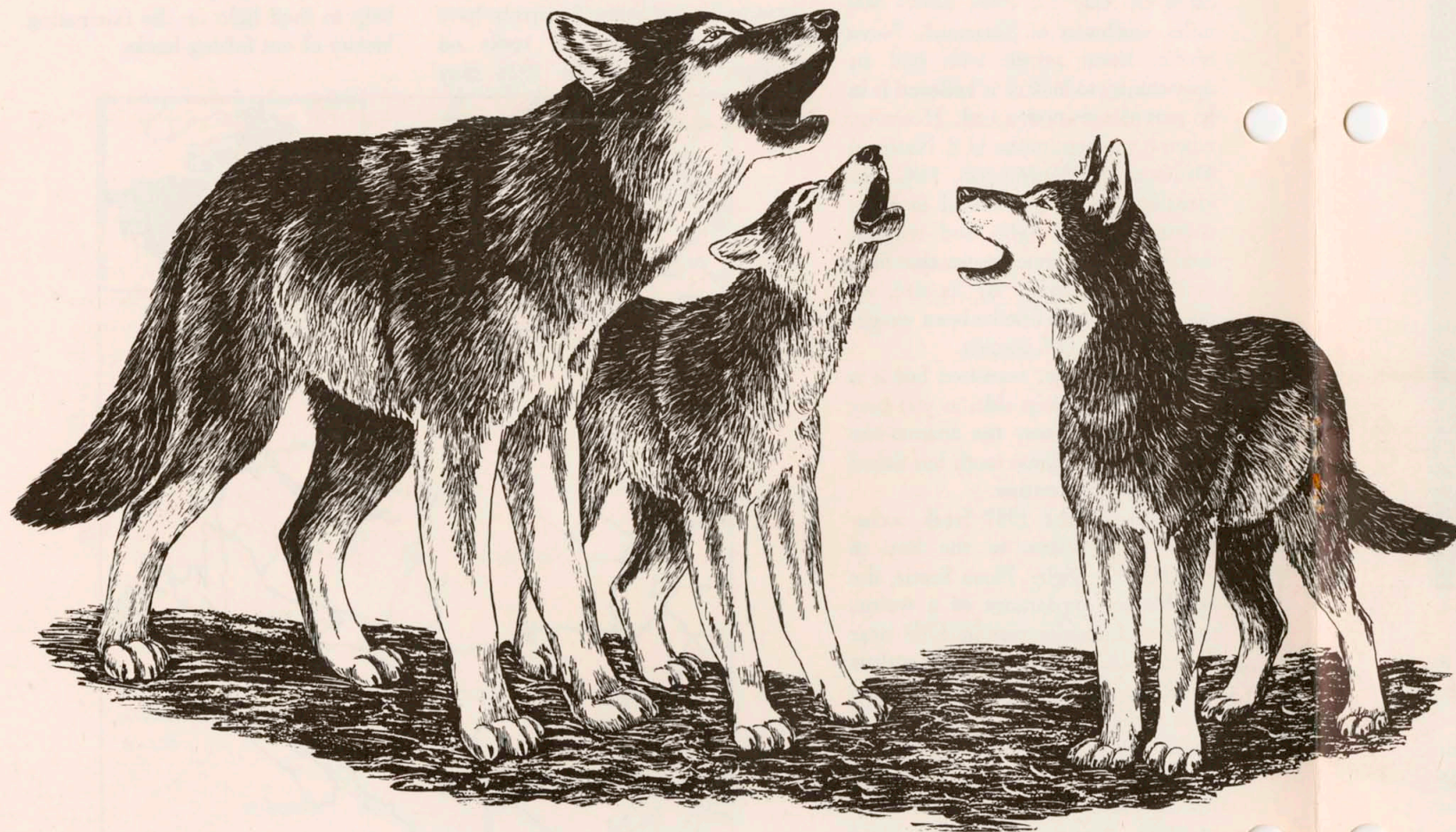
In many areas where the gray wolf has been eliminated his smaller relative the brush wolf or coyote has moved in to fill the vacant ecological niche. Despite heavy and, in most instances, unwarranted persecution, this sly, intelligent animal has thrived and increased his range over most of the country. They have even found suitable places to live in the ravines and valleys close to large cities.

With the exception of a few individuals that prey on livestock, the coyote assists the farmer by destroying many mice and crop-damaging rodents, which along with rabbits and birds form the bulk of its diet. They will eat almost anything, including insects, some plant species, and carrion, a fact which probably accounts for its largely unearned reputation as a livestock killer. Having seen evidence of a coyote feeding on the remains of deer or livestock, many people mistakenly blame the coyote for the animal's death. While this may sometimes be true, in the majority of cases, the animal died from other causes such as disease, highway traffic, etc. The coyote does not hunt in large packs but a family group will co-operate to outwit a quarry that is hard to catch. They do not commonly prey on animals as large as deer, preferring instead smaller, more easily caught, animals.

A grayish-buff animal, about one-third to one-half the size of the gray wolf, the coyote looks something like a German Shepherd dog. However, it is more slender and longer legged than most dogs. Adult coyotes may weigh from twenty to fifty pounds, the average being twenty two to twenty six pounds. Its high intelligence and ability to adapt to man-made changes in the environment will probably enable the coyote to remain an important part of the wildlife community in the future.



The coyotes assist the farmer by destroying many mice and crop-damaging rodents.



The male wolf shares the responsibility of raising, caring for, and training the young.

GRAY WOLF

When the first settlers came to this country they brought with them the superstitions and folklore surrounding the European wolves. These predators had the reputation of attacking lone travellers and wreaking havoc among domestic farm animals. These beliefs may have been based on the action of rabid wolves or wolf-dog hybrids, but we have no way of knowing for certain. The pioneers, believing the North American wolf was a threat to their existence, waged a war of extermination that in some areas has carried on to the present day. Considerable research has proven that there has never been an authentic case of a normal wolf ever seriously harming a human in North America. One or two attacks on humans by rabid wolves have been reported, but the incidence of rabies among wolves is extremely rare and presents no real danger to man. Much of the damage to livestock blamed on wolves has proven to be the work of wild dogs or coyote-dog hybrids.

There are no more devoted parents in nature than the wolf. The male shares the responsibility of raising, caring for, and training the young. Wolves will adopt and raise orphaned wolf pups. Wolves serve an important ecological purpose. In fact the moose, deer, and caribou are dependent on them to maintain the proper balance, and by weeding out the unfit, improve the character of the herd. Wolves kill the easily-caught old, sick, and injured animals thereby leaving a breeding stock of younger, virile animals that are alert and aware of danger. Any part of a prey animal not eaten by the wolf is quickly devoured by such species as the fox, fisher, marten and raven. Without these leftovers some of these species might not survive during extreme winter conditions when they are unable to obtain their own food.

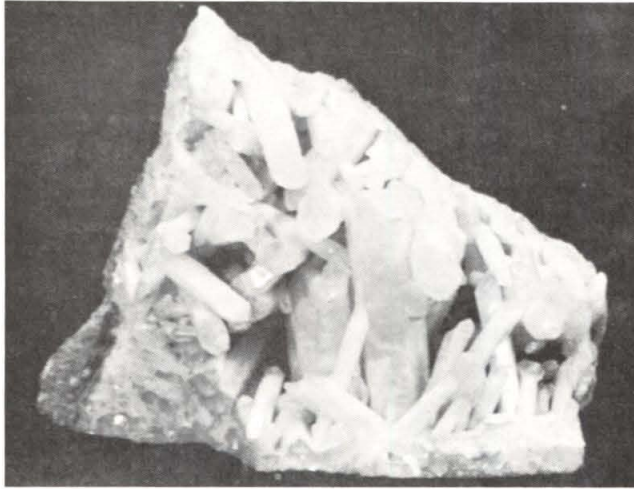
There are twenty-four subspecies of the gray wolf, the largest being those of the tundra which weigh well over 100 pounds. The wolves of Southern Ontario usually weigh from sixty to eighty pounds. With the exception of the white wolves of the arctic islands, gray is the common colour. Tundra wolves have the most colours ranging from white, through gray to black.

Recently, attitudes have begun to change as people realize that wolves are not a threat to their personal safety and that they serve an important role in the wilderness ecology. We can only hope that this enlightened view has not come too late to save the wolf from extinction.

LOOKING FOR A NEW HOBBY?

Try Making and Collecting Your Own Crystals (Part 1)

By HELEN D. STEWART



Natural Quartz Crystal

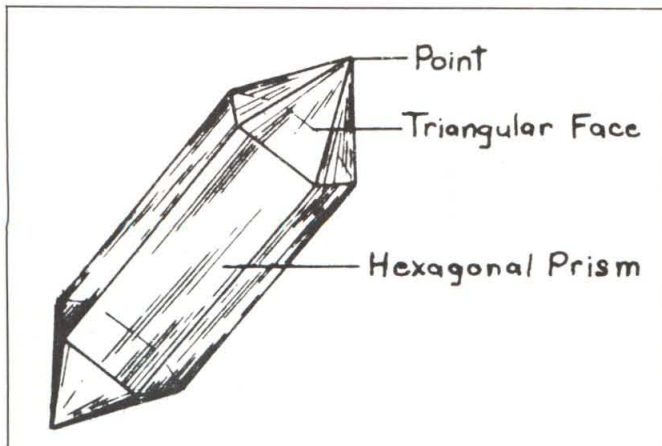
Ont. Department of Mines

The study of various crystal formations has fascinated man for many centuries. In ancient times, natural crystals such as emeralds, rubies, diamonds and sapphires were looked upon with wonder for their dazzling beauty, colour and symmetry.

As time went by, men of science found many uses for crystals. One of the more common crystalline substances found in rocks such as granite and sandstone is quartz. Quartz has long been used in various optical instruments. Now it is possible to produce quartz artificially.

Large crystals of quartz are used to stabilize wave lengths of radio transmitters. Transistors were developed from a simple device using a small crystal of silicon plus a few wires called "cat whiskers". Variations of the transistor are used in the electronic brains of orbiting space satellites that are sending messages to earth.

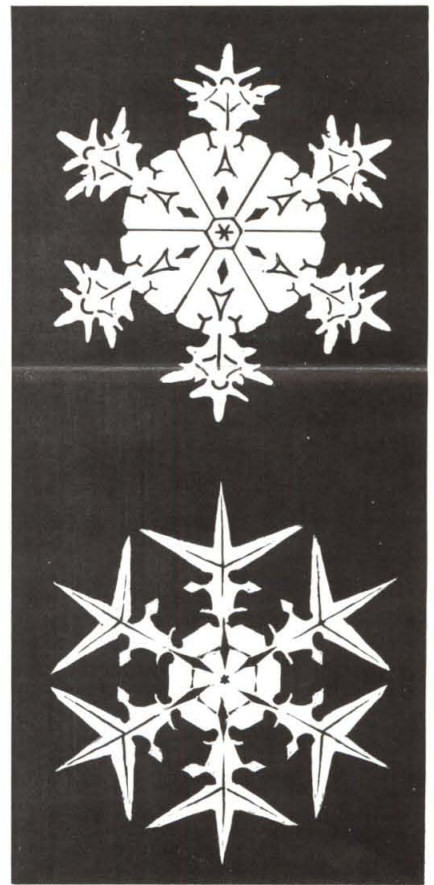
Crystals have various geometric shapes consisting of a number of faces, edges and corners. These crystals have a very stable arrangement of molecules, atoms or ions, resulting in a very perfect and regular structure.



Quartz crystal

A crystal formation which we all see every winter in Canada is the SNOWFLAKE. If we examine it under a microscope we can see nature's artistry in the beautiful needle-like projections.

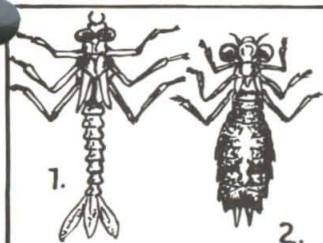
Under certain atmospheric conditions and low temperatures the needle-like projections form around a dust particle or an ion. This is what we call a snowflake.



Snowflakes

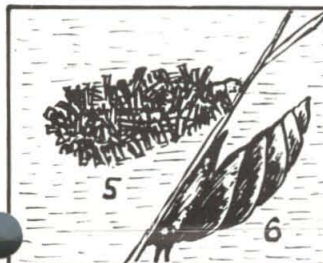
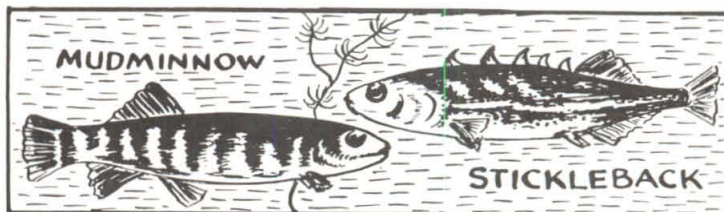
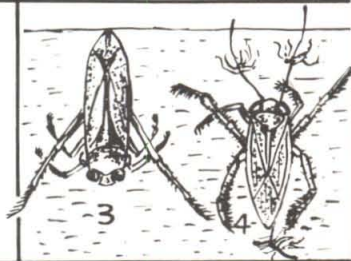
Next month you too will be able to enter this wonderland of crystals by carrying out your own research, and discover for yourself their interesting characteristics. Before your very eyes you will be able to create and grow your own glass-like needles, glittering octahedrons, cubes and perfectly shaped pyramids. A great start for your own collection!

THIS MONTH: focus on POND LIFE



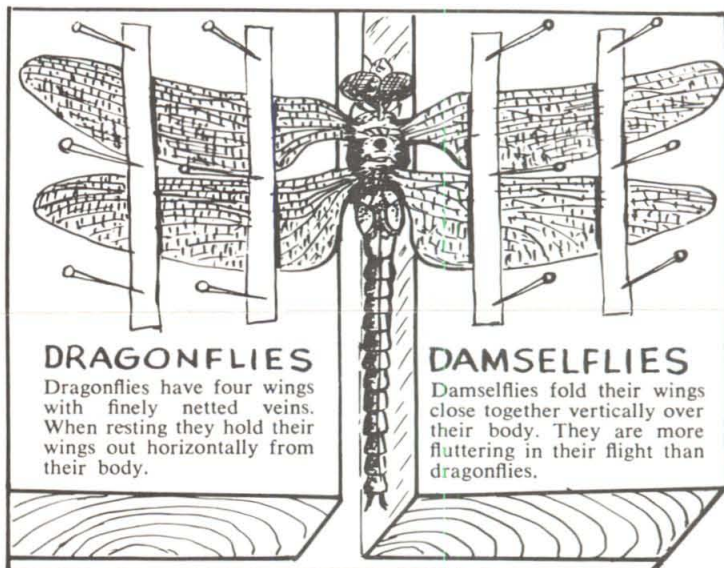
1. Damselfly nymphs are slender bodied. Their tapering bodies have three leaf-like gills at the posterior end. There are many species.
 2. Dragonfly nymphs require a long time to mature. Both dragonfly and damselfly nymphs usually pass the winter in the mud as nymphs.

3. Backswimmer — several species swim on their back, hang head downward from the surface to take in air — their long hind legs are used as oars. Active all winter.
 4. Water Boatman — Hind legs are flattened for swimming — always swim with backs up. Dive down from surface after wrapping their bodies in a blanket of air.



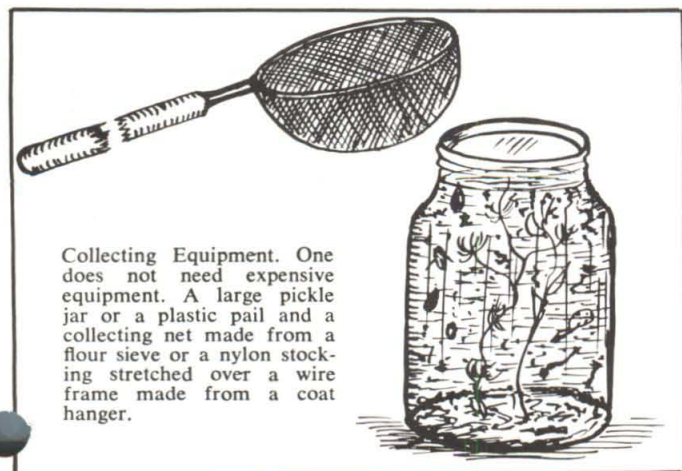
5. Caddis fly larvae live in cases of leaves or twigs which they cement together with their own saliva. Spend winter in ponds — many species.
 6. Pond Snail — snails abound in shallow water. A snail's shell is a spiral cone. Beneath its apex is the back or dorsal side of the animal. Eyes at end of tubes.

7 Tadpole of green frog — eggs hatch in June but tadpoles do not transform to frogs until the following spring or early summer — bullfrogs are same, or even longer in development.



DRAGONFLIES
 Dragonflies have four wings with finely netted veins. When resting they hold their wings out horizontally from their body.

DAMSELFLIES
 Damselflies fold their wings close together vertically over their body. They are more fluttering in their flight than dragonflies.



Collecting Equipment. One does not need expensive equipment. A large pickle jar or a plastic pail and a collecting net made from a flour sieve or a nylon stocking stretched over a wire frame made from a coat hanger.

ACTIVITY PROJECTS

ACTIVITY PROJECT #1 DRAGONFLIES

How many different dragonflies can you discover? Take a close look at one.

1. What is its colour?
2. Does it have spots on the wings?
3. What is its size?

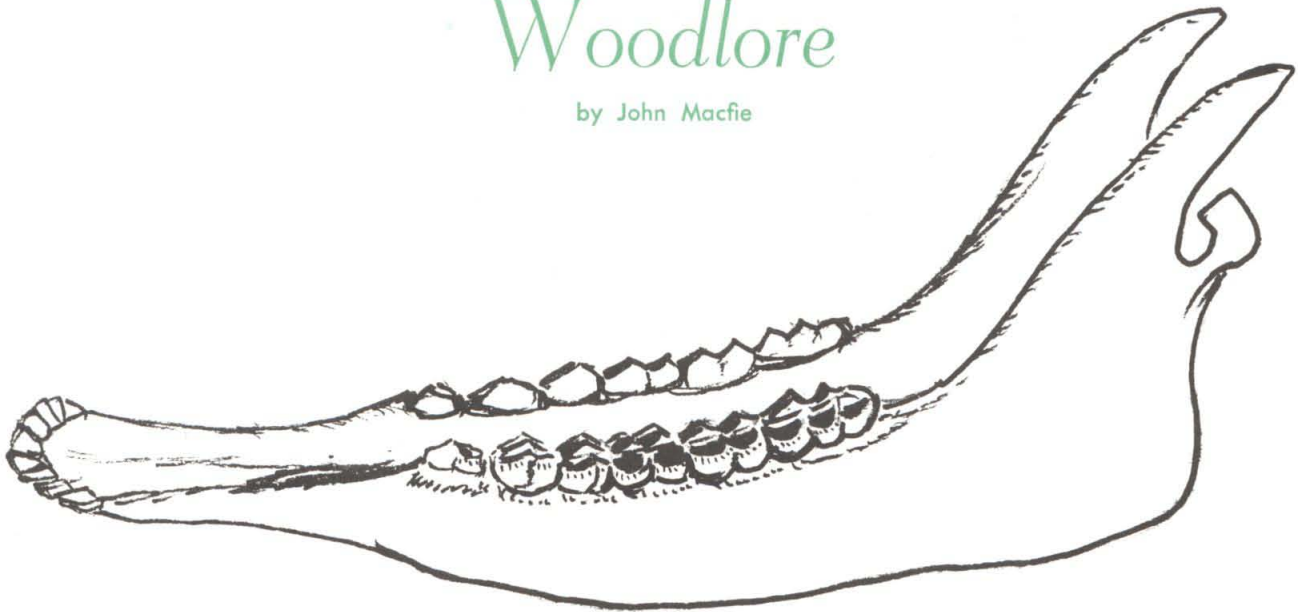
ACTIVITY PROJECT #2

Visit a pond or stream and look under rocks for the various nymphs and larvae. Look at them carefully, draw diagrams if possible, then return them to the pond.

EDITOR'S NOTE: This continuing series is designed to provide information and activity ideas for teachers who want to encourage their pupils to become actively involved in nature study as an exciting feature of their outdoor education program. Text and sketches by William Girling.

Woodlore

by John Macfie



The jaw bone of a deer.

A DEER IS AS OLD AS ITS TEETH

A white-tailed deer's molar and pre-molar teeth are specially adapted for reducing woody vegetation to a digestible pulp. A deer's winter food consists of woody browse, and each winter of grinding four or five pounds of twigs daily wears away a measurable amount of enamel and dentine from each tooth. After seven winters the first molar, the tooth that bears the brunt of the grinding chore, is worn down almost to the gum line and the rest are severely worn away, making it difficult for the animal to eat. When this happens, the deer has reached old age and is not likely to survive another winter.

Biologists have measured and described the annual loss of tooth surface in deer (which varies regionally according to soil type, species of tree browsed and length of winter) deriving a simple, reliable aging technique.

In each deer hunting season several thousand Ontario deer are aged by

conservation officers patrolling in deer hunting regions. When this information is compiled it gives deer managers a yearly picture of the age structure of the deer herd. This is very useful in working out population trends and deciding on what management measures are going to be taken. This is how the deer's winter range is improved.

For example, if a particular winter has been hard on a certain group of animals it will be seen the following autumn in fewer very young and very old animals, the age groups that are hardest hit when winter food is in short supply or hard to reach because of deep snow.



CROSS SECTION OF MOLAR AND JAWBONE OF A 2 1/2 YEAR OLD DEER



FIRST MOLAR OF A 1 1/2 YEAR OLD DEER
HIGH SHARP GRINDING EDGES



FIRST MOLAR OF A 6 1/2 YEAR OLD DEER
GRINDING EDGES WORN AWAY

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