The Young Naturalist

YOUNG NATURALISTS CLUB F. O. N.

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Captive Reptiles Present Problems

During the past few years, various kinds of southern reptiles have been sold in increasing numbers in pet shops, department stores and even dime stores. The Canadian Amphibian and Reptile Conservation Society, as well as other conservation and humane organizations, deplore this situation as few of these reptiles, when bought by the casual pet fancier, have any chance for survival. However, there is no objection to truly informed persons or those making an intensive study of this kind of wildlife having these creatures. Also for individuals who are allergic to fur and feathers, or those living in apartments, a reptile may be the solution if they want a pet. Reptiles are highly specialized in their feeding and other requirements, thus the majority of people cannot cope with captivity problems.

All reptiles require a great deal of warmth, and, depending on the species, the ideal temperature is from 75 to 85 degrees. Of course, lamps and aquarium heaters can provide some of this warmth, but these items are seldom purchased with the reptiles.

We are particularly concerned about the small, insectivorous lizards such as the horned lizards (often called horned "toads") and the American chameleons or anoles. Unfortunately, most of these refuse earthworms, and if meal worms, which are usually sold for them, form their sole diet, they de-

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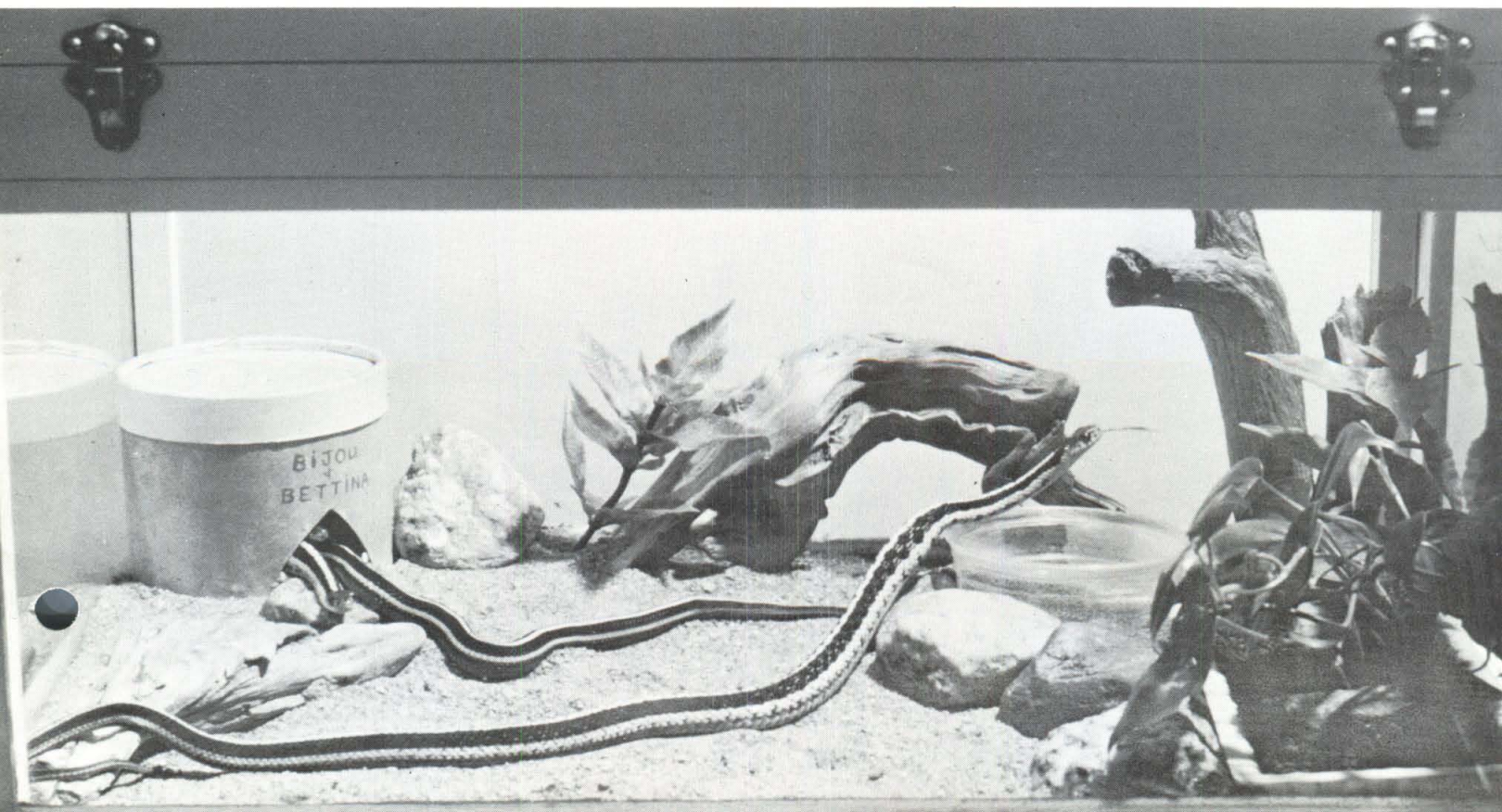
Shown are garter snakes Bijou, in foreground, and Bettina. Bijou who died in the autumn of 1966 at 10 years of age, holds the longevity record for a captive garter snake. Barely visible in the hut is Buttons, a ribbon snake.

Photograph by Roly Harman



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velop an intestinal inflammation that will cause their death. Few people can successfully breed their natural food items which are crickets, flies, beetles, grubs, roaches, spiders, etc., or with patience, attempt to change their food habits. Thus during the winter months, no way of life would be open to them.

The beautiful, green iguana lizards present little difficulty as far as feeding is concerned as they eat many kinds of fruits and vegetables. They also require raw, lean meat and some will eat earthworms. However, they grow anywhere from four to six feet in length, and a spacious cage to allow for their much needed exercise is necessary. The cage should contain large branches for this species of iguana, and should have a thermostatically controlled heater or light bulb which would keep the cage around 80 or 85 degrees. The light bulb should of course be protected by wire, so the iguana won't burn itself. Iguanas have sharp teeth, well developed claws and irritable individuals don't hesitate to lash out with their strong tail.

Caimans are South American alligators and are the kind sold as pets. When they are small, they will feed well on minnows, earthworms, frogs and strips of raw fish and meat; but as they grow, rodents and chicken heads would also have to be added to their diet to supply the necessary bone matter. Caimans grow rapidly to a minimum length of six feet, at which size they would obviously require some type of swimming pool rather than an aquarium! They need a platform for sunbathing and like the iguanas, temperatures in the eighties. A caiman can bite severely even when small and at six feet would hardly be a suitable pet for a child or anyone else in a private home! To attempt to stunt growth by lack of sufficient food, would not only be cruel but would lead to an unhealthy pet that would but live a short time.

Occasionally, even snakes are sold as pets. They can indeed be fascinating and will become quite tame, but are amongst the most highly specialized feeders of the reptile family. Unlike many other animals which will eat just about anything if they are very hungry, snakes prefer starvation and death rather than eat what they do not relish. Many refuse all but live food, and in the case of the commonly sold boa constrictors and other large snakes, rats, mice and rabbits would have to form their chief food items. Some snakes may accept these dead, but the feeding of mammals to snakes usually seems repulsive and cruel to most people. But would it not be cruel to keep a captive snake and let it slowly starve to death for lack of the only food that it will accept? It would likewise be cruel if the rodents, just because they are to be used for food, weren't properly fed and housed in the meantime. Constrictor-type snakes kill their prey rapidly by constricting only sufficiently to render the animal lifeless, not by "crushing" it to death. However, if the snake isn't hungry at the time and the rodent is allowed to remain in the cage, frequently the snake is found to be the victim of a gnawing mouse or rat! Many of these problems can be avoided if one chooses the common garter snake for a pet. They will accept earthworms, minnows, frogs and often bits of raw beef and chicken hearts if they are mixed with strips of fish. They should be kept in a well-latched screen top terrarium and their surroundings kept dry and clean as dampness causes skin fungus in snakes. Fresh water should always be present as well as a few rocks and driftwood and a little hut or hollow log which is appreciated by captive snakes.

Of all the reptiles, turtles are the most simple to care for, but over the years, few creatures have been the victims of more ignorance. The little greenish turtles known as Sliders, are the kind most commonly sold. They come from the Southern United States and the popular Red-eared Slider may attain a shell length of 10 or 12 inches — a fact that might come as quite a surprise to those who have not even managed to keep one alive let alone have it grow! One of the killers of pet turtles is a sole diet of commercial turtle food. This leads to slow starvation, soft shell, blindness and eventual death. Young turtles have enormous appetites and should be fed daily on a varied diet of raw fish, raw lean meats and chicken, earthworms, aquatic snails, aquatic weeds, raw spinach, other greens, raw tomatoes and any other fruits and vegetables that the turtle will accept. Food should be in pieces small enough to be easily swallowed but the greens or aquatic weeds may be left floating in the water. Aquatic turtles must swallow with head submerged. An elaborate container is not necessary but a fairly large one to allow for growth is best. A plastic dishpan or vegetable crisper would do. The water must be deep enough to allow the turtle to swim freely but there must always be a landing place where it can leave the water completely to sun itself. Natural sunlight is good but it presents greater danger of overheating than a lamp. There should always be a shady area. A goose-neck lamp with the bulb about eight inches from the sunning area should keep the turtle happy for a few hours each day. Turn the light out at night but make sure the turtle is in a warm room and not in a draught. Turtles, like other reptiles, will refuse food if not kept sufficiently warm.

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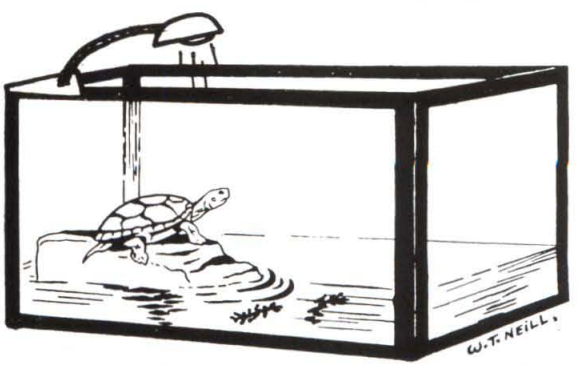


Turtles can be carriers of Salmonellae (an intestinal disease). Their water should be kept clean and never emptied in the sink where vegetables are prepared. Hands should be thoroughly washed after handling turtles.

SIMPLE SPACE SCIENCE

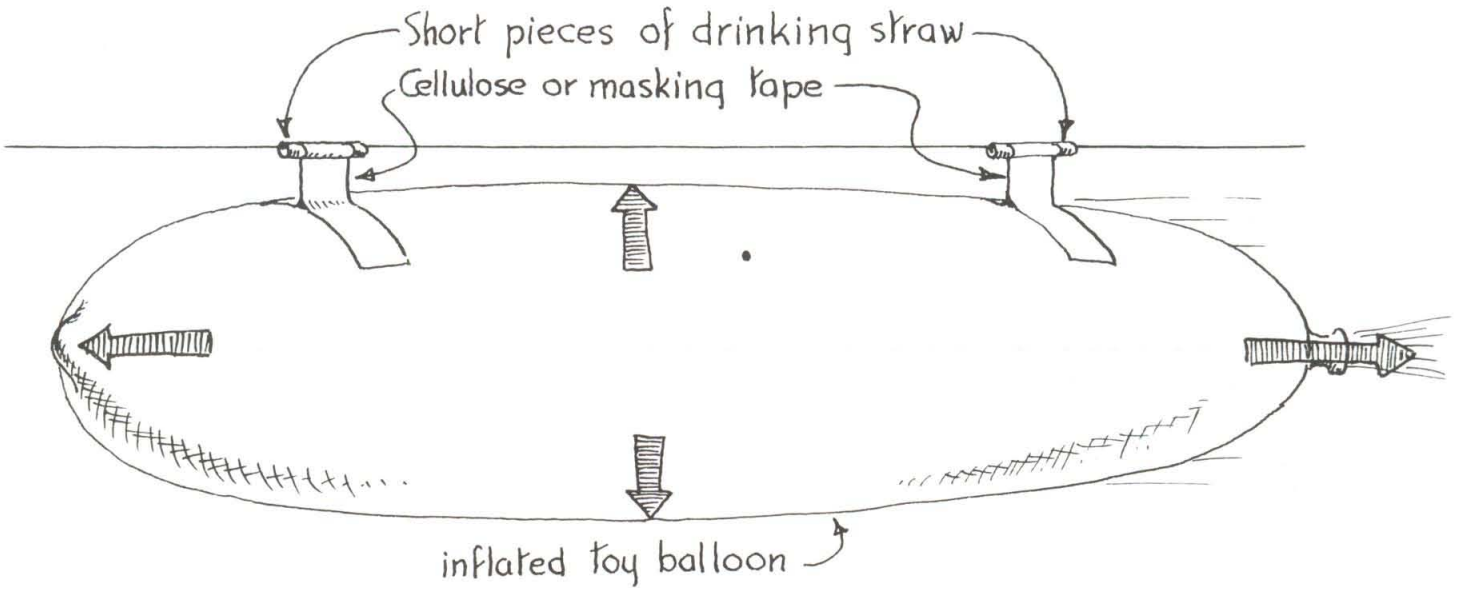
You can illustrate rocket propulsion with a model made from these simple materials:

Drinking straw

Cellulose or masking tape

Toy balloon – long, sausage-shape.

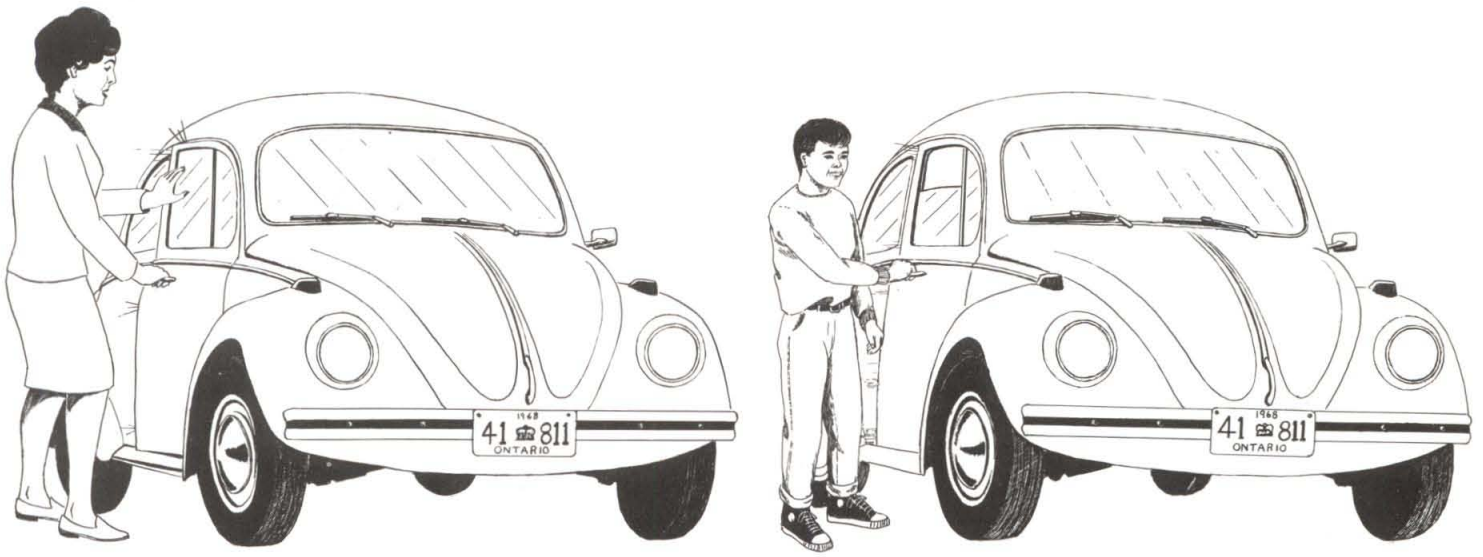
Thread or nylon fishing line



Stretch the thread across a large room. Arrange the pieces of straw and tape on this line. Inflate the balloon and stick it in place with the tapes. Release the balloon and watch your tiny rocket ship streak across the room. In a real space-ship the fuel is burned to produce huge amounts of hot gas that must escape. The gas pushes in all directions to escape. The downward push is exactly balanced by an equal upward push, so the "ship" does not move up or down. But the gas pushing forward at the front is not balanced by an equal force at the back pushing backwards, because the gas can escape there through the "motor". This results in forward motion.

O.G.R.

Teaser - of - the - Month



Sketches by Don Foxall

George's mother always seemed to have difficulty in closing the door of the family car. One day George said to her, "Look, Mother, here's the easy way to do it!" How did George make it easier to close the door? Why?

No Honey Bees!

Not long ago when I moved to Ontario from western Canada, I found many things different here. There are more people, the noise of machines is almost everywhere, and the Ontario countryside has been more changed by men. These things do not surprise me, for I expected them. But some other differences did have me surprised — and worried too.

When I go into my Ontario garden I do not see robins. When I was a boy in Ontario, three or four robins near my house often awakened me with their singing at dawn. Why have they gone?

Bluebirds were once part of many old fences that had holes in the posts. Now bluebirds are scarce, and people who like birds consider a bluebird's nest a rare thing, to be kept secret except from closest friends. Why have bluebirds gone?

Streams and rivers and lakes were once places to find clear water to swim in, and to play in, and to watch fish in from bridges or fallen trees. Now most of these waters in southern Ontario are soupy and smelly and dangerous to people's health. Why did the streams turn into sewers?

Once only Toronto and Sudbury had dirty air. Now many cities and towns have air that smells, looks dirty, and even hurts the eyes. Why is the air we breathe no longer clean?

Poisons kill. We are killing more of Ontario every year. I hope we kill no more of our countryside, for Ontario should be a living place.

YORKE EDWARDS

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The care of land turtles and tortoises is much the same but of course they require terrestrial surroundings and only a large water dish. They are chiefly vegetarians, relishing fruits, berries and plenty of greens but should also be offered earthworms, raw meat and snails.

Frogs, toads and salamanders are sometimes kept as pets. They are not reptiles but are amphibians with a moist skin and thus require moist, terarium settings. Unlike reptiles, they can't tolerate much warmth. They are also difficult to feed as many of them are strictly insectivorous. The mudpuppy is a completely aquatic salamander with gills and must be kept in clean, fresh water at all times. It will eat worms, minnows and occasionally bits of raw meat and fish.

Don't acquire a reptile or amphibian for a pet unless you are sure you can give it proper care not only when it is young but also when it reaches its full size. As conservationists, we are concerned about the future extinction of this fascinating form of life. Reptiles and amphibians are having a difficult enough time to survive in their rapidly diminishing habitat without having to face, in many cases, the miseries of captivity.

BARBARA FROOM

Club News

The Toronto Junior Field Naturalists' Club began its 1968-69 session with a meeting on October 5 at the Royal Ontario Museum. About 240 members registered in advance of the meeting and were able to join their groups immediately. The new astronomy group proved very popular and already has a waiting list. It will meet in the Planetarium, that opens to the public in November, and will have members of the Planetarium staff as leaders. All the groups hope to organize more field trips this year, on weekends when general meetings are not taking place. The May 25 Club Field Day was a great success, with two busloads of members visiting the Claremont and Greenwood Conservation Areas.

Members of the Executive of the T.J.F.N.C. this year are: Ross Harris, President; Mark Singer, Vice-president; Cathy Carpenko, Secretary; and Larry Miller, Treasurer. Mr. Robert McLellan continues as Director and Mrs. George Brigden is taking over as Assistant Director from Mr. Don Burton.

Now is the time to organize a natural science club in your school or among your friends. Write and tell us the name of your club, the members of your executive and what activities you are planning. Speakers, films, projects and field trips are all possibilities you might consider.

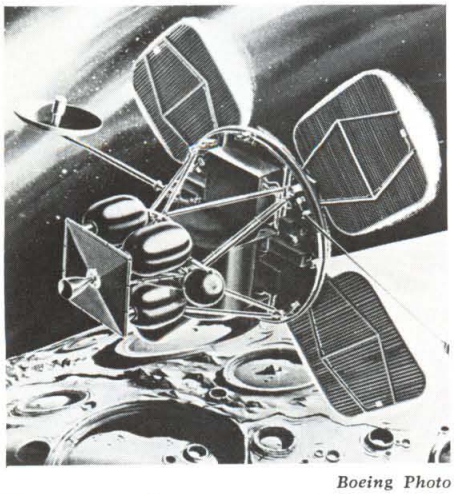
BARBARA WILKINS

What's New on the Moon

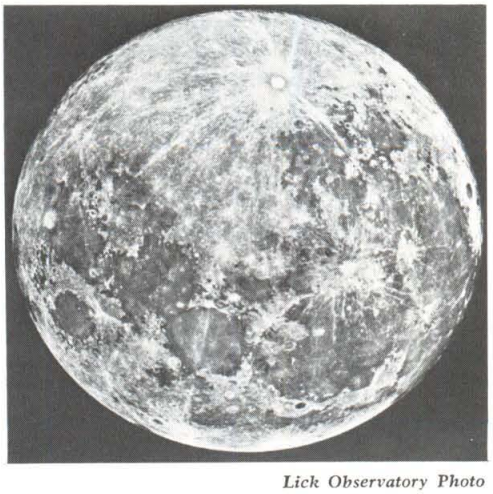
Although Man may soon be landing on the Moon, the unmanned spacecraft that have already been sent there are giving us much new information about our nearest neighbour in space. The Lunar Orbiter V mission is a good example of this.

As some may know, Lunar Orbiter V was designed to take very sharp close-up pictures of all parts of the lunar surface. It completed this part of its mission very successfully and the photographs have given scientists a great deal of new material to work with. However, one group of scientists at the Jet Propulsion Laboratory (JPL in the slang of the space age) were more interested in the radio tracking data sent by the space craft, for these signals indicate its speed very accurately. They soon found that the speed of Lunar Orbiter V had small unexpected changes of about ¼-inch per second when it passed over certain areas of the Moon. This meant that the orbit was changing!! Since gravity was the only force acting on the Orbiter, the space craft was responding to differences in the force of gravity from different parts of the Moon.

See next column



Boeing Photo



Lick Observatory Photo

Here is the Lunar Orbiter V. The dark areas are the maria.

Now these changes in the force of gravity depend only on the way the material near the surface is distributed. If there is a lot of heavy material near the surface the force is increased; if there is only light material the force is less. The same principle applies to gravitometer measurements made for studying the structure of the Earth. Since the Moon rotated beneath the polar orbit of Lunar Orbiter V, a gravity map of the whole visible surface was produced.

The main feature of this map was that heavy material seems to be present beneath five ringed or circular maria or seas: Mare Imbrium, Mare Serenitatis, Mare Crisium, Mare Nectaris, Mare Humorum. These areas called "mascons" for mass concentrations, are about 30 to 125 miles in extent and possibly 30 miles below the surface.

While these numbers are just estimates, the presence of mascons seems to support the idea that the maria formed from the impact of large asteroids on the Moon. The energy of impact would cause large scale melting of the surface producing the relatively smooth surface. The surviving part of the meteorite is buried beneath.

This discovery also provides information concerning the question of whether the Moon was ever molten. Some theories would have the Moon and Earth forming at the same time from the build-up of cold material in space. However, the Moon would never get hot enough to melt throughout as the Earth did. Others would suggest that the Moon was once in a liquid state in its early history and still has a molten interior. In some theories the lunar craters are caused by meteorites; in others, they result from volcanoes. The presence of mascons is very difficult to explain if the Moon is now molten inside. Because the maria have relatively few meteorite craters they must be recently-formed features. The presence of mascons seems to support the idea that they are the result of the last large impacts in the building up of the Moon.

Whatever the final explanations for "mascons", their discovery is one more indication of how exploration of space raises questions about the nature of the solar system. We can only wonder what questions and answers manned exploration of the Moon may bring.

THOMAS CLARKE

WOODLORE
FOR THE NATURALIST

John Macfie

Forest Fire Evidence

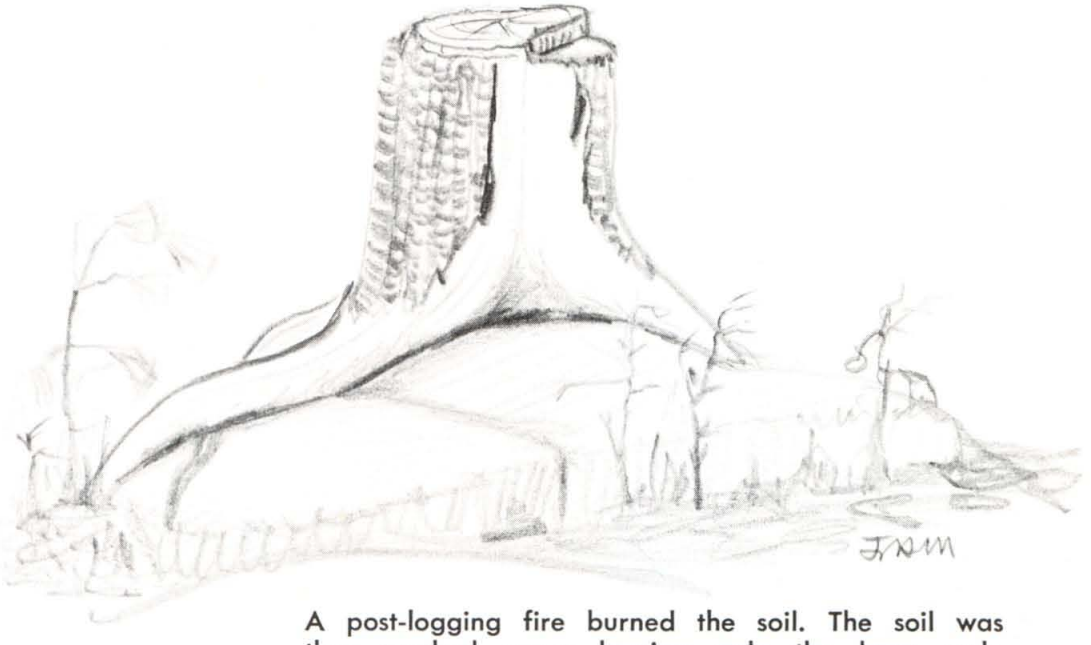
A good deal of Ontario's forest has been shaped by fire. While you are travelling in the bush, watch for direct and indirect clues to fires that sometimes occurred as far back as a century ago.

When you see a number of trees of the same age and size in such pioneer species as poplar, white birch, and jackpine, it usually means that a very hot fire eradicated an earlier forest. An annual ring count on one of the trees will date the fire accurately. Some of the hottest fires occurred in slash left on the ground following the pine logging operations of 50 to 100 years ago. Such fires burned not only the remaining trees but the soil as well, which then washed off the rocky slopes leaving charred, flat-topped stumps standing on bare rock. Burned stumps endure much longer than unburned stumps, for removal of the bark permits the wood to dry out, rendering it immune to wood-destroying fungi.

Sometimes stands of trees of the same age may be found in largely denuded areas on heavily logged sites or on abandoned agricultural land. However the absence of charcoal in the soil, and the presence of unburned stumps or plow furrow marks and stone piles, will rule out fire as the denuding agent.

Ground fires running in forest litter — these usually occur in dry weather in spring or fall — also leave their mark on the forest. In this case, there will be an inverted V of bare and possibly charred wood extending a foot or two up the trunks of living trees. These "fire scars" eventually grow over, leaving a vertical seam where the two folds of healing wood meet. By chopping into the seam until one edge of the original scar is exposed, you can count the annual rings of wood that have been laid down since the fire and so determine the year it burned. A ground fire scars all the trees it encounters on the same side, the side from which the fire approached them. Thus you can tell the direction of the wind on the day the fire burned so many years ago!

Trunk cross-section showing healed fire scar



A post-logging fire burned the soil. The soil was then washed away leaving only the bare rock.

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