Gordon MacKenzie

The Young Naturalist

YOUNG NATURALISTS CLUB F. O. N.

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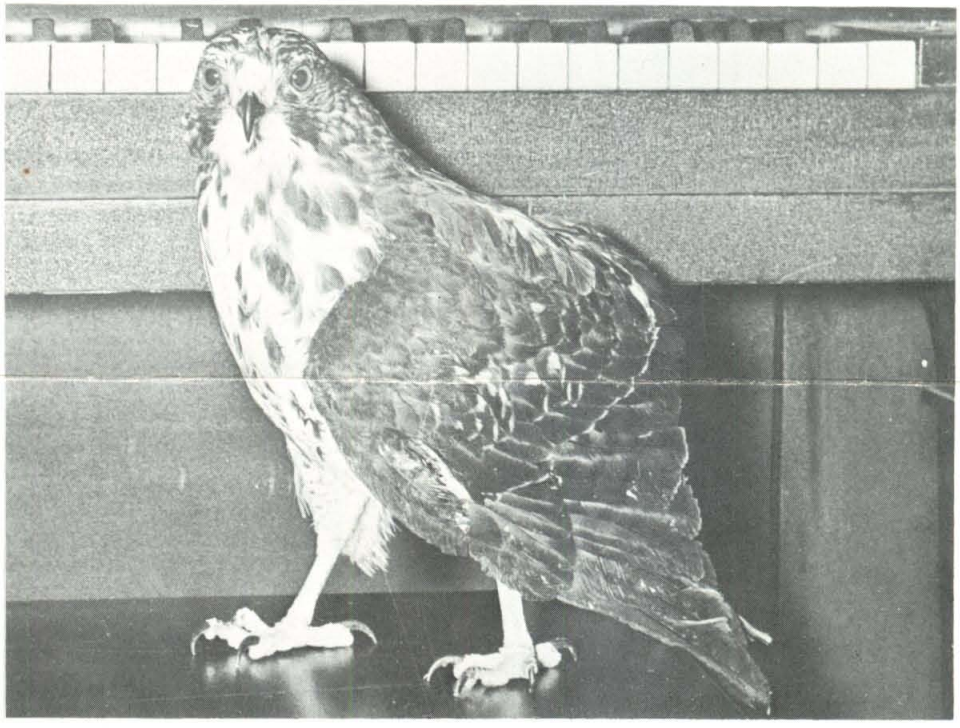
Playing Nurse to an Injured Hawk

Late in the fall a friend of mine found a hawk on the ground in one of his fields. It was hopping about catching grasshoppers, but it was not able to fly. My friend caught it and left it with me to see if anything could be done to get it flying again.

It was a Broad-winged Hawk, the most common hawk in the District of Muskoka where I live. There are three kinds of hawk with broad wings that are often seen soaring in great circles high overhead. These are the Red-tailed Hawk, the Red-shouldered Hawk and the Broad-winged Hawk. The Broad-winged Hawk is the smallest of the three. It is about the size of crow and can be identified from below by the wide black and white bands across its tail. Some Red-tailed and some Red-shouldered Hawks stay in Ontario all winter, but the Broad-winged spends the winter away down in the southern United States and Central America. Before this story is finished we may know one reason why this is so.

I found that my injured hawk did not have any broken bones, but its left wing had been badly bruised at the wrist, the part where some of the main flight feather are attached. When the bird perched it usually let this wing hang down by its side, as you can see in the picture. When the bones are not broken there is always a good chance that such an injury will heal itself, so I decided to keep the hawk and see whether it would get better. I fixed up an outside pen with space large enough for the bird to practise flying, and for use as shelter when it was raining or cold.



R. J. Rutter

The Broad-winged Hawk has no known musical tendencies, but the piano bench served as a handy perch. Note how the bruised wing hangs down.

I had no trouble feeding my hawk, because it liked raw hamburger very much. But I know that when it ate its natural food such as mice, frogs, and snakes, it ate them bones, hair and all. In order to digest its food properly it needed this rough material in its diet. So I snipped up an old rope and mixed the short, stiff fibres with the hamburger. After a meal, when the hawk had digested the meat, it brought up the cuttings from the rope in the form of a "pellet".

The injured wing healed slowly, and it was December before the hawk was able to fly the length of its cage, which was eight feet. It was always ready for a meal and if dinner was late it would give its long, high-pitched whistle, which sounds like "Chic-e-e-e." (This call is often heard in summer

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How to Form a Junior Nature Club – Part II

(Try to form a junior nature club in your area, if you do not already belong to such a club. The October issue of *The Young Naturalist* gave some suggestions on how to get started. This second and concluding article tells where to hold meetings and how to arrange special projects. Ed. Note: Illustrations, except photo, are by Eric Nasmith).

Arranging Meetings

Where to meet? Undoubtedly, the ideal place is a natural history museum where study material is on hand at all times. However, this sort of place is rarely available. Other possibilities are the public library, school, or YMCA, where meeting rooms may usually be rented at nominal cost.

When to meet? Meetings can be held as often as you wish, but once a month is recommended. Saturday morning is a good time as it does not usually conflict with other activities of the adult leaders. The meetings should last approximately two hours, perhaps 10.00 am to 12.00 noon.

Dept. of Lands & Forests

Forester E. F. Johnson points out seedling maple tree to science club.

Careful planning will result in interesting and entertaining programs. At each meeting, a different aspect of nature may be dealt with. During the first hour, short talks by several members can be presented, dealing with the special topic selected for that month. The program may be supplemented with colour motion pictures, a large number of which are available without charge from the National Museum in Ottawa. Invite adult naturalists to show their films and slides on occasion.

If the club membership is large enough, perhaps fifty or more, it is best to divide the club into general and special interest groups. Boys and girls from eight to ten years of age should be placed in general interest groups, as it is not wise to specialize at an early age. The older members, eleven years of age and over, may join the special interest group of their choice. These groups could include the following: birds, botany, fish, reptiles and amphibians, fossils, geology and mineralogy, insects, and mammals.

The second hour of each indoor meeting may be spent in discussion, guided by experienced adult leaders. The leader might bring material for study, and the group should be small enough to allow each member to take an active part in the proceedings.

Organizing Field Trips

Direct contact with nature by means of organized outings will likely be the most popular activity on the club's program. It is recommended, therefore, that there be as many outdoor excursions as possible. During the three winter months, weather can be a problem, and there is little to be found in the way of insects, fish, reptiles, and amphibians. On the other hand, there will be lots of interesting observations to be made by the bird, mammal, and botany enthusiasts. Members should be encouraged to collect material for their own use, as well as for topics of discussion at future indoor meetings. They should also be urged to keep written records of their observations, and to report the more interesting ones.

At least once a year, arrange a chartered bus trip to visit an area of special interest for naturalists such as Algonquin Park, Point Pelee, Presqu'ile, or the Bruce Peninsula.

Publishing a Club Magazine

The club might like to publish an annual magazine. This serves as a record for the year's activities, and enables the members to share their experiences and discoveries with others. Prizes can be given for the best material submitted. With the use of the mimeograph process, the costs of publication are reasonable.

An attractive club crest stimulates interest and serves to identify the members.

Designing Special Projects

An opportunity to contribute personally to the conservation movement, and attract attention to the usefulness of the club is provided by special projects such as tree planting, building nest boxes, or designing exhibits to promote the conservation of natural resources.

It is hoped that these comments and suggestions will encourage you to form or to join a junior nature club in your area. You'll be glad you did!

D. E. Burton

HAWK — *from page* 1

when a Broad-winged Hawk is soaring overhead.) By this time the ground was covered with snow and I knew the weather would sometimes get very cold. But I thought that, like other hawks, this one would be all right as long as it had plenty to eat.

I didn't worry about it even when the temperature went down to eighteen degrees below zero in the middle of December. Then, about a week later, several of the hawk's toes turned black and I realized they had been frozen. I brought the bird into my house and gave it a small room to itself but it was too late. The frozen feet developed gangrene, which means that parts of them were completely dead and would have to be cut off. I took the hawk in my car to the best animal doctor in Toronto, who removed all the dead parts and said he thought the rest might heal.

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How Oil Occurs in Southwestern Ontario

Part III of Four Parts

Geologists know that oil and gas occur almost exclusively in sedimentary rocks, that is, in rocks formed by consolidation of the sediments which accumulated on the floors of ancient seas. Oil and gas are fluids, and for them to occur in sedimentary rocks there must be space in which they can be stored. It is often fallaciously thought that these fluids are stored in very large reservoirs, that is, in great underground caves. Such is not the case, however; in fact the opposite is true. The fluids are stored in the small, sometimes microscopic spaces—Called *pores* — which occur between the grains that make up a sedimentary rock such as sandstone. Sandstones are the common reservoir rocks for oil and gas. Since limestones are partly soluble, the pores they contain are formed in a different manner, and are created when the calcium carbonate that makes up the limestone dissolves out.

Here is an experiment you can do. Take a glass, any glass that you have, and fill it with marbles. Next take a pitcher of water and pour some over the marbles, just covering them. You will see that you can pour quite a bit of water into the glass, although the marbles are there. Now take the same size glass and fill it with sand; pour enough water over the sand to cover it, and you will see that in this case also you can pour in a lot of water in spite of the sand.

Obviously the water has gone into the spaces between the marbles, in the first instance, and between the grains of sand in the second. This property of rocks having open spaces is termed *porosity*. Now the fact that the water could flow around the grains shows that there is an additional property to these rocks — the property of *permeability;* this word simply means that something can flow through them. They are *permeable*.

So now you have two of the main factors in the occurrence of oil: first, an area of sedimentary rocks, and second, the fact that the sedimentary rocks must have some layers which are porous and permeable so that the fluids can be stored and move within them. But there is still a third factor involved: that is what geologists refer to as the *structure,* or the lay of the rocks. Let us look at it this way.

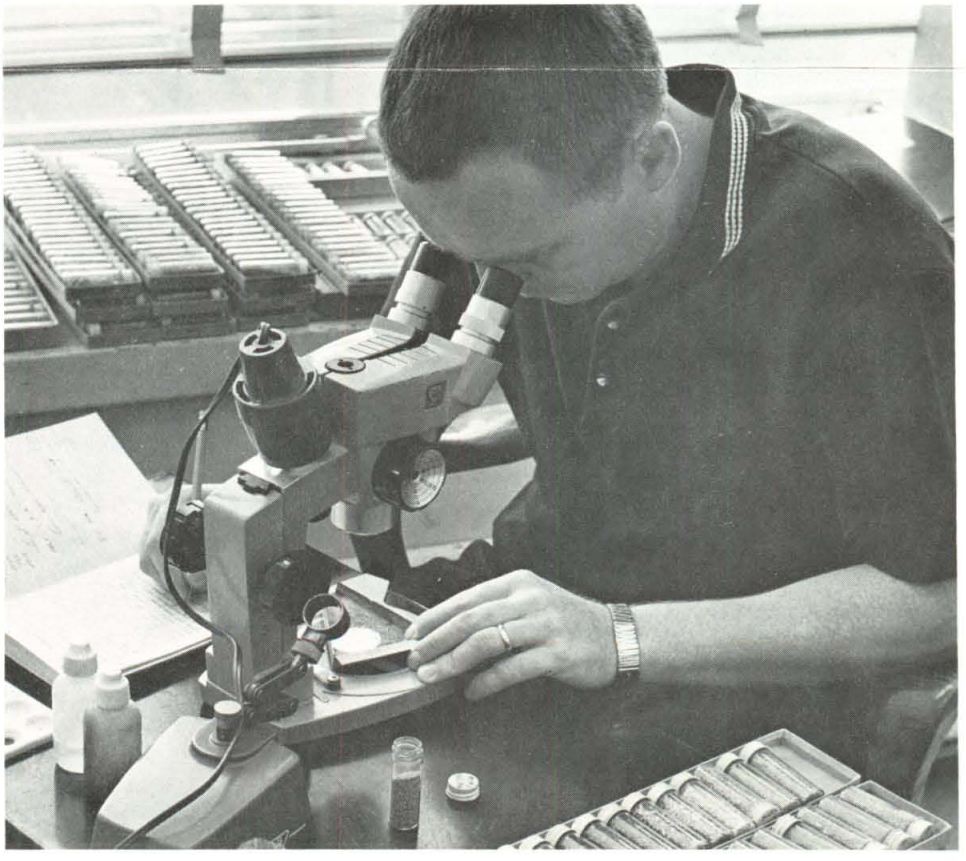
Experience tells us that oil does not occur everywhere, but is localized in what are called *fields*. Oil fields and gas fields are actual *traps* that is, the oil has moved, because of the property of permeability, to an area into which it can move no longer; in other words, the fluids have been trapped. Traps make a field.

The reasons for the traps are numerous, but fundamentally there is one main cause: the slope of the rocks. Oil and gas move up the slopes as far as they can. In the fields the fluids are trapped, but they are trapped in a special way. If gas and oil are present together the gas will be on top of the oil, and if water is present it will be below the oil. In other words, there is a segregation of the fluids on the basis of their specific gravities, gas being the lightest and water the heaviest.

The shape of the fields is determined by the lay of the rocks. Sometimes it resembles an inverted saucer, which is then called a *dome,* or it might be a stretched-out bend in the rocks looking something like an inverted canoe, in which case it is called a *closed anticline*. In still other cases there is not much of this bending or folding of the rocks at all. Indeed, in southwestern Ontario such is the case. Here, many of the fields are due to special structures within the rocks, called *reefs*.

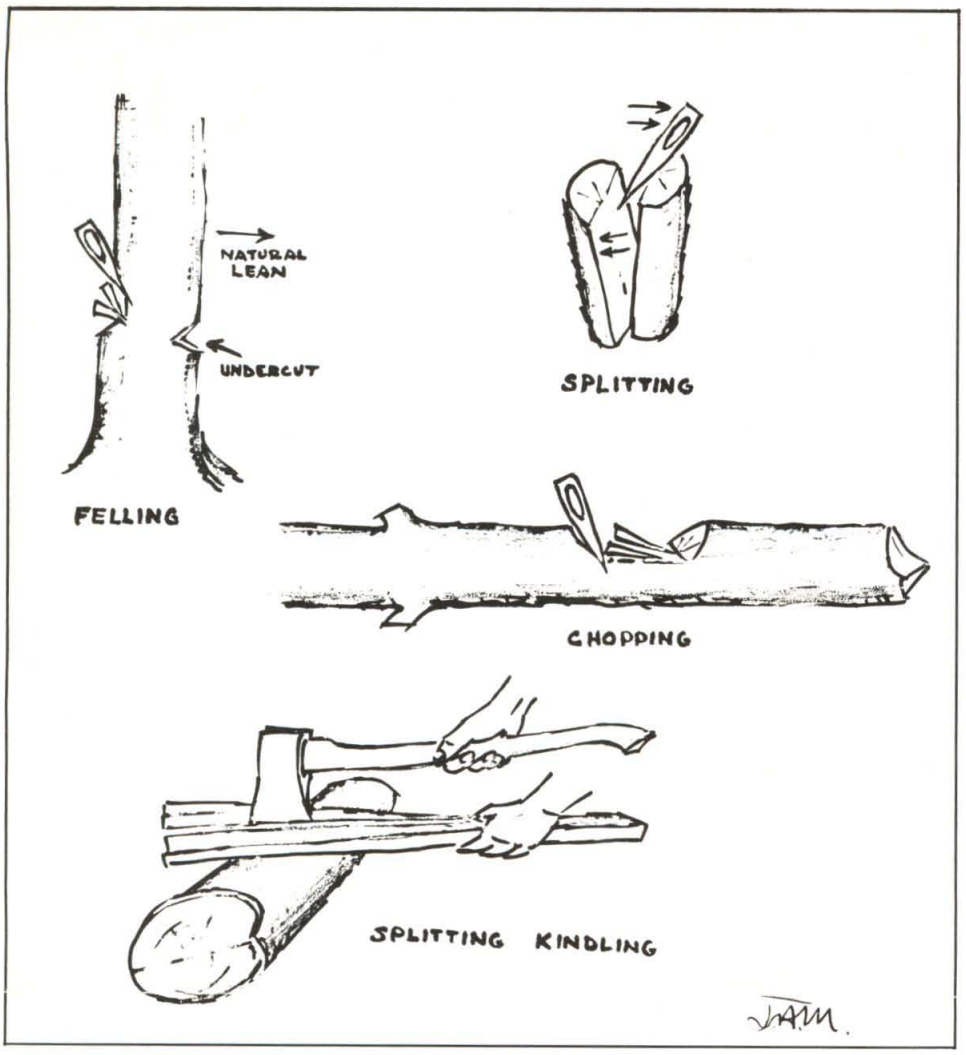
Reefs are mounds of shells, corals, algae, and many other marine organisms. When these structures are buried in sediments and become "rock" they form ideal traps for oil because they are porous, permeable, and dome-shaped.

WALTER M. TOVELL



Imperial Oil Limited

Rock cuttings from an exploratory well reveal the nature of underground rock formations, and provide useful data for future reference and study.



Axemanship

A 2½-pound axe with a 28-inch handle is a good camper's axe. The blade must be kept sharp if it is to be useful; therefore, you should have a carrying guard for the blade. Buy a guard, or wrap the axe head in a small square of heavy canvas. Use a file or, better still, a carborundum stone to sharpen an axe.

Novice woodsmen will find the following hints helpful:

In *chopping*, the blade sinks farthest into the trunk when it enters at a 45° angle. Before felling a tree, clear away any branches or brush that your axe might strike in your swing, and thus avoid the risk of a dangerous deflection. Stand well back from the base of the tree with your feet planted firmly apart, and make an undercut about a third of the way through the trunk on the underside (if the tree has a visible lean). Then sink a notch in the opposite side of the trunk, slightly above the undercut, until the tree falls or can be pushed over. Do not sever it completely while it is standing. To limb a felled tree, do one side at a time, while standing on the opposite side.

Splitting wood chopped with an axe is hazardous for the inexperienced person, since the pointed blocks cannot easily be stood on end. The secret in splitting wood is not to wedge the halves apart by driving the blade through the block, but to *pry* them apart by flipping the axe to one side just after the blade enters the wood.

For the inexperienced, the use of firewood that requires a minimum of chopping and splitting is easier on both the axe and the axeman. Brittle, dry limbs or saplings (the best kind of campfire wood) can be broken into short pieces by striking them on a rock or by inserting them between two trees and snapping them. Of course, you may also use your fire to burn long pieces of wood into shorter lengths.

To carry an unguarded axe, grasp it just behind the head, with the blade pointing away from you. And remember, if you are far from medical help, the less you use your axe, the better.

JOHN MACFIE

HAWK — *from page 2*

After we came home everything seemed all right for a while. The hawk still had three toes on one foot and two and a half on the other. It seemed as healthy as ever, and I though if it could just get through until spring it might be able to fly away and make its own living. But the gangrene started up again and spread quickly, and I had to give up. A hawk without toes and claws could never manage to catch food and it would have been cruel to turn it loose, no matter how well it could fly. So I put the poor bird quickly and painlessly to sleep.

I thought you might like to hear about this little adventure, because any of us are likely to find ourselves with a sick or injured wild animal, and we have to make up our mind whether or not to try to help it. If we decide to try, there is always the danger of coming up against something that we did not expect or understand, as I did in this case. Often it does make us feel better to try, but most of us know so little about nursing wild animals that it is, more often than not, better to let nature take its course.

R. J. RUTTER

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