

The

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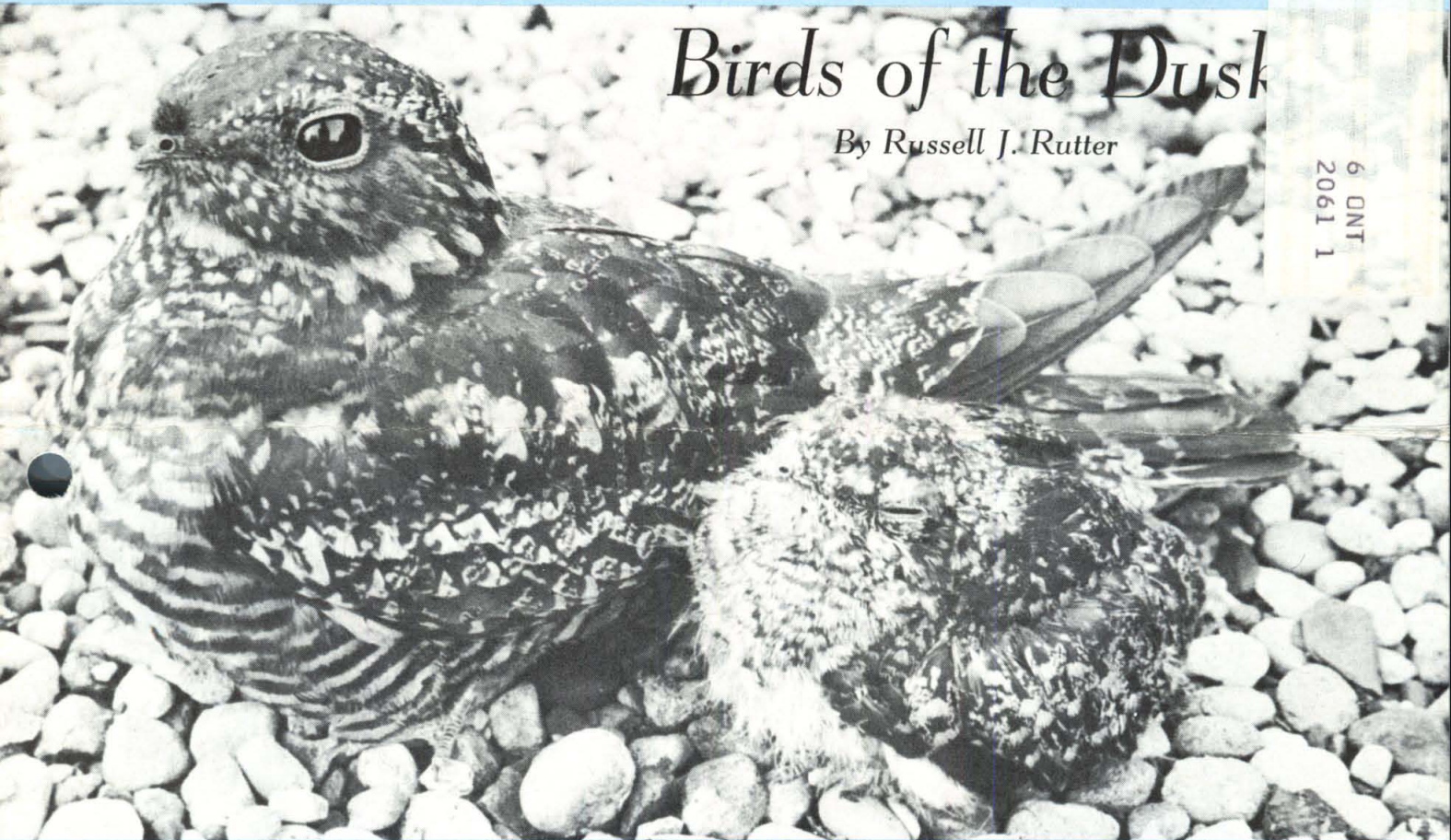
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Birds of the Dusk

By Russell J. Rutter

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Common Nighthawk and Chick.

Everybody should have some knowledge of how different bird families are suited to a particular way of life. When we find a new bird, a quick look at its bill, feet, wings, and tail should tell us where to look for it in a bird book. For example, ducks have webbed-feet and broad, flat bills; woodpeckers have pointed, chisel-like bills, stiff, sharp-ended tail feathers, and two toes forward and two back. Birds of prey have long, sharp claws and hooked bills; seed-eaters have strong, conical bills, and so on.

Few birds are better adapted for getting food in a special way than the *Caprimulgidae*, or Goatsuckers, which include our Nighthawk and Whip-poor-will. If the long scientific name is turned into English it means that these birds milk goats, and it is a fact that such a belief did exist at one time. Of course it wasn't true, but a notable character of the Goatsucker family is a very large mouth, quite wide enough to milk a goat, and for birds that catch all their food on the wing it is an efficient insect trap.

Hugh M. Halliday

Besides their big mouths, Goatsuckers have long, muscular wings, light, stream-lined bodies, and large eyes that enable them to see in all but total darkness. The Whip-poor-will lives close to the ground in forested areas and much of its food comes from the large night-flying moths. The Nighthawk is at home in the upper air, where it scoops up any high flying insects that come its way.

Few people ever see a Whip-poor-will, and the Nighthawk only as a

Continued next page



A tiny Nighthawk chick.

Hugh M. Halliday

flickering silhouette against the evening sky, but everybody hears them. The Whip-poor-will shouts its name loudly over and over, and the Nighthawk is noted for its aerial acrobatics, which include a dive straight down

from a great height with a quick turn and a loud "boom" at the bottom. It was "dive-bombing" for thousands of years before man ever thought of building an airplane. Both of these birds have crepuscular habits, that is,

they prefer the dim light of late evening or early morning or moonlight, and rest in the daytime and the darker parts of the night.

The Whip-poor-will lays its eggs among dead leaves on the ground without building a nest, and the eggs of the Nighthawk are placed directly on flat rock, sand, gravel, or the roof of a building. It has adapted so well to a man-made environment that there are nests on the flat roofs of buildings in most cities and towns. The young are able to stand a good deal of direct heat from the sun, but they take advantage of any available shade, and often move from one side of a roof to the other during the day, following the shadows as the sun moves across the sky. The name "Nighthawk" is misleading, as this bird is not related to the true hawks. But it does a lot of "hawking" after insects, and in this way is one of our most useful friends. Five hundred mosquitos were found in the stomach of one Nighthawk, and 1800 flying ants in another.



The Whip-poor-will lays its eggs among dead leaves on the ground.

Hugh M. Halliday

AN ASSORTMENT OF BEETLES

By H. B. WRESSELL

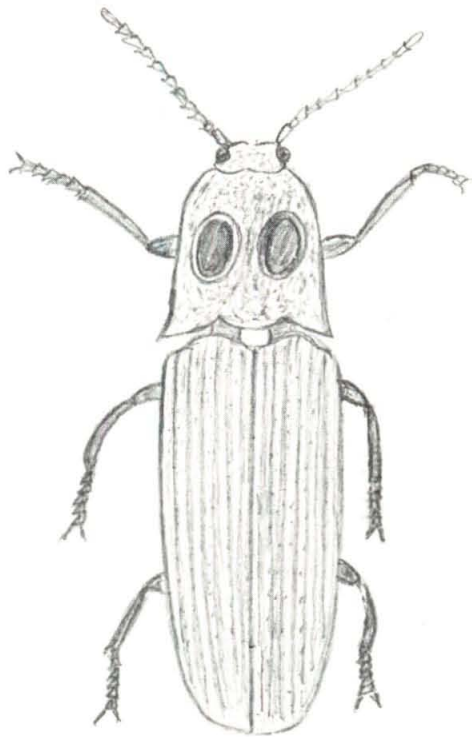
Beetles are among the most fascinating of all insects, and are found in almost every kind of habitat. They range in size from less than a millimeter to huge, tropical species nearly six inches long. We usually think of butterflies as the most gaily-coloured of insects, but there are some tropical beetles that are almost as attractive.

TIGER BEETLES

Some of our own tiger beetles, often found in sandy areas near the Great Lakes, resemble living jewels. By the way, they are called tiger beetles because of their pugnacity. These bright blue or green iridescent, swift-moving creatures are predators. That is, they live on other insects which they seize in their sharp-pointed, sickle-shaped mandibles. Even the young larvae are predaceous. These are queer-looking creatures with large, flat heads and huge jaws or mandibles. They live in verticle burrows, sometimes a foot long, in sandy soil. Here they watch for some unwary prey to come along. The larva's huge head often serves as a stopper or plug for the hole. The prop by which it holds itself in place is a hump on the fifth segment of the abdomen. On the hump are strong forward-pointing hooks that help the larva to hold back if the prey tries to get away after being caught. The tiger beetle larva is a sort of living trap. After capture the victim is dragged to the bottom of the hole and devoured at leisure.

CLICK BEETLES

Most naturalists know about click beetles, which are also called skip-jacks or snapping bugs. They are the acrobats of the beetle world, and many a boy has watched enthralled as they turned flip-flops through the air. I wish I could get as enthusiastic over them as about ladybirds. You



Eyed-Elater
(Dorsal view)

see, the larvae of click beetles are wireworms, and they are among the worst pests known to farmers and gardeners.

THE LADYBIRD

A friendly group of beetles, from man's standpoint, at least, belong to the Ladybird of Coccinellid Family. Everybody knows them.

These beetles feed on aphids, those soft-bodied plant destroyers that suck juices from living plant tissues. In England, aphids and ladybirds were found together on the hop vines which were burnt after harvest. Little Nan, of course, is the yellow pupa or resting stage.

Today Coccinellids are widely used in Biological Control of noxious pests. Probably the first outstanding example of this was the introduction of the vedalia ladybird from Australia, to control the cottony-cushion scale which was attacking orange trees in California; this occurred about eighty years ago. Because of this beetle the citrus industry of

California was saved, and has developed into the thriving business we know today. Since that time the vedalia ladybird has become established in 32 different countries, and it has never failed to control the cottony-cushion scale.

THE EYED ELATER

The Eyed Elater lives in rotten tree stumps. Formerly it was thought to feed only on the wood, but now it is known that the larvae are carnivorous. So, in a way, this species may be considered beneficial. The adult is slightly over an inch long, and it is a pepper and salt colour. On the thorax (the region just back of the head) are two large, black spots, surrounded by white rings. They strongly resemble eyes, and many people are completely deceived into thinking they are eyes. That is why this beetle is called the Eyed Elater. Elater, by the way, means "driver" or "hurler" and refers to the elastic power of motion possessed by click beetles.

If you capture an Eyed Elater it will feign death. But if you place it on its back the beetle will suddenly give a click, spring into the air several inches, turn over and alight on its feet and run rapidly away. No matter how many times you repeat this procedure the elater will go through its acrobatic motions. Small wonder that anybody seeing this phenomenon for the first time is completely fascinated by it.

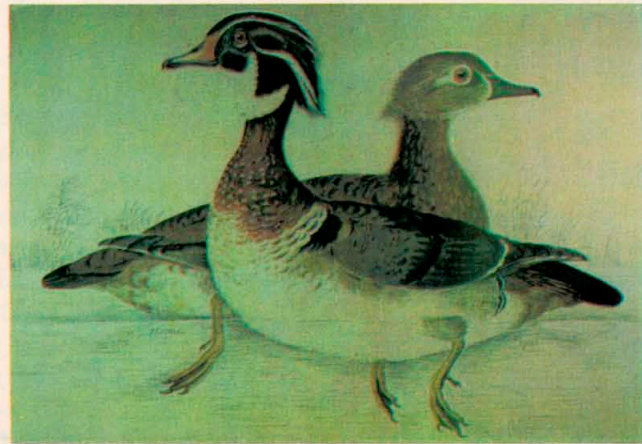
These are three examples of that diverse order of insects known as Coleoptera or the beetles. There are many more. Perhaps at some future date we can discuss other queer characters of the remarkable world of insects.

The end

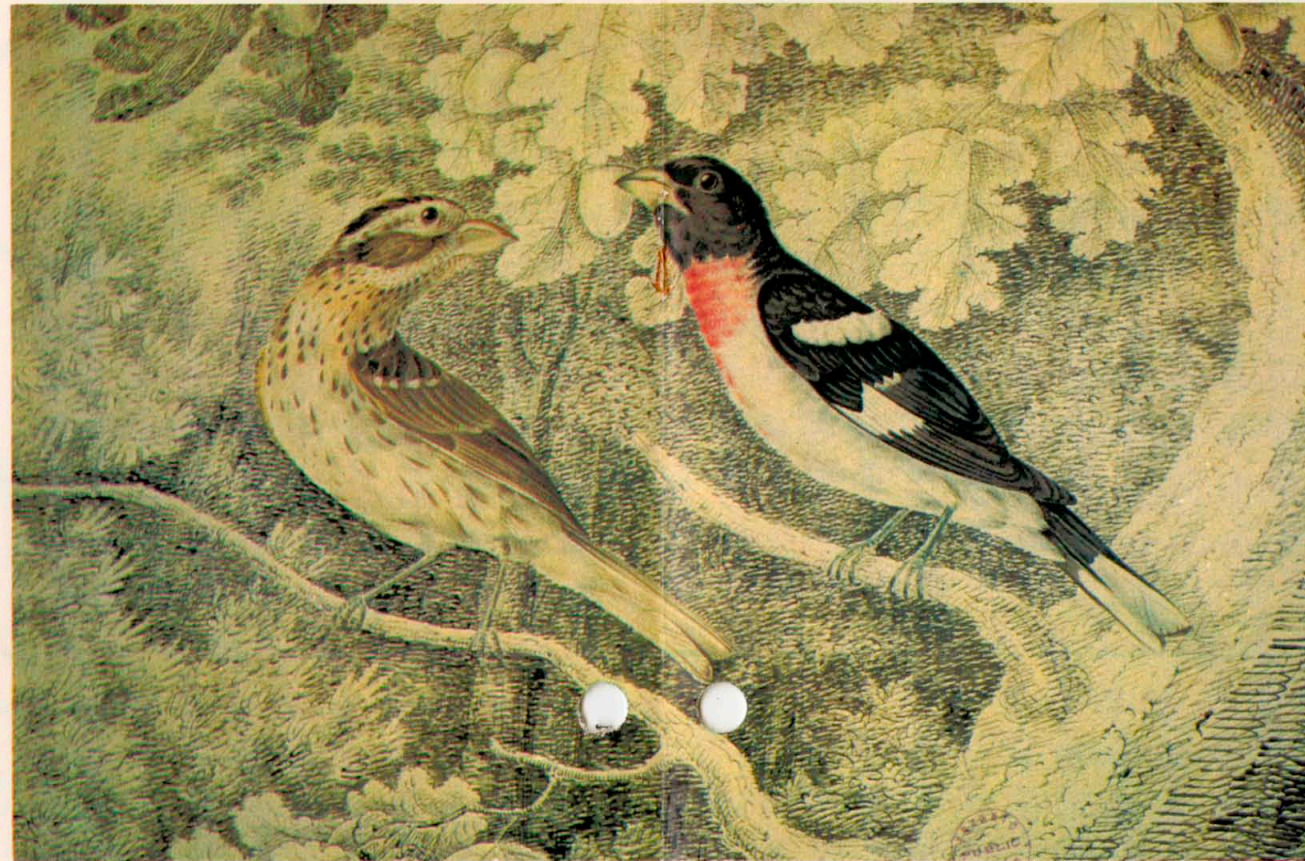
The Audubon of Canada

William Pope (1811-1902)

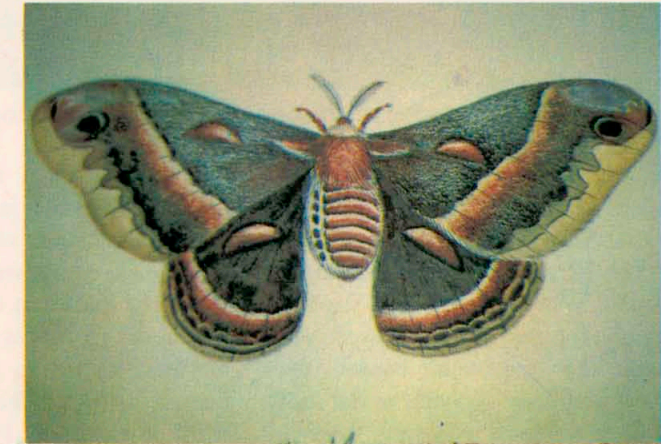
By H. B. Barrett



Wood Duck



Rose-breasted Grosbeak.



Cecropia Moth

(PART 3)

By 1843 William Pope had married an English girl, Martha Mills, and was living on a farm near the famous old Backhouse Mill which still stands north of Port Rowan. He still had plenty of time to hunt in the forest or over the marshes of Long Point. He reported that in the Fall thousands of geese and ducks, so plentiful they blacken the water, appeared to feed on the huge beds of wild rice. "The noise they make when they rise may be heard at a distance of one mile", Pope reports, "though the clouds of ducks is really astonishing, I am told by old settlers that they are not so numerous as

they were formerly". Even by 1834 they were being heavily hunted.

He also reports on the abundance of Plover, Woodcock, Bittern, Yellow-leg Snipe, and real Snipe. "In Snipe shooting I should think there can be no better sport to be had in the world than there may be had at Long Point. They simply swarm here and a good shot should have little difficulty bagging twenty to thirty couples (60 birds) in a day's shooting". This is certainly not the case to-day.

On July 29th, 1845, Pope buried Pinto his faithful old retriever, who by this time had twice made return

trips across the Atlantic.

It was during the next twenty-five years that most of his paintings were done, and the best of his work was done after 1860. He worked meticulously with pen and ink to produce his subjects and their typical habitat in the background. Then the bird or animal was carefully coloured with paints he mixed himself, often from native plant materials found near his home.

William Pope died in Vittoria at the age of ninety-one in 1902. Few people outside his immediate family knew of his marvellous collection of paintings. Fortunately for you and

for me they were preserved, and most of them are now housed in the John Ross Robertson collection in Toronto.

I am sure it would be your wish, as it is mine, that the writings and work of this talented early settler in the Long Point country might bring pleasure for many years to come to you, your children, and many more generations after that, and to remind us of what we once had, and but for man's greed and ignorance should still have. With your help it is still not too late to hold what we still have, and in time bring some of our vanishing plants and animals back.

(Editor's note: This concludes the series on William Pope).

THE TANTRAMAR SALT MARSHES



BY YORKE EDWARDS

These dunlins are among the migrating shorebirds passing through the Tantramar Marsh. *Hugh M. Halliday*

If you have travelled the Trans Canada Highway from New Brunswick to Nova Scotia you will remember the surprise of the Tantramar Marshes. After miles of driving through forested hills, as you approach the provincial border the scenery suddenly becomes as flat and as full of sky, and as empty of trees, as a piece of Saskatchewan prairie. These are the Tantramar salt marshes, miles and miles of them at the end of the Bay of Fundy, where the tides have created one of the largest marshlands in Canada.

These marshes have been farmed for 300 years by first the French, then New Englanders and Yorkshiremen. The main crop now is beef, but 30 to 60 years ago the main harvest was hay to be sent to cities that then had many horses. The most prominent features of the marshes today are the scores of old and weathered barns standing everywhere on this flat landscape. Small wonder that barn swallows are abundant.

Farming was made possible by using dikes to hold out the sea, but not all of the marshes are drained. So important are the remaining natural wetlands for wildlife that the Canadian Wildlife Service has purchased 6,000 acres to prevent these lands from being drained, and to preserve them for the use of wildlife.

Marshes are special places. Most of the world is either dry land or water,

but marshes are a mixture of both. They are land that is usually wet, but many have periods when they are not wet at all. Fresh water marshes are the kinds that most of us know. The sea, however, makes another kind of marsh. Flat shores at sea level are flooded by high tides but are drained daily by low tides. If the drainage is slow and incomplete, marshes may result.

Birds are the conspicuous wildlife in the Tantramar Marshes. Black ducks nest there. Less numerous residents are blue-winged teal, ring-necked duck, and the graceful pintail. Canada geese stop in hundreds during migration. Brant and common eiders pass by in large numbers in the spring but seldom stop.

In summer the most common bird is the savannah sparrow. They are everywhere, singing their reedy songs from both marsh and pasture. Tidal marshes have sharp-tailed sparrows, yellow-faced singers of wheezy songs, that nest in Canada only along the Atlantic Coast, by James Bay, and on the prairies. The marshes also have bitterns, marsh hawks, snipe, woodcock, swamp sparrows, red-winged blackbirds, and the muddy places that are common at low tide can be alive with migrating shorebirds.

Birdwatchers from "Upper Canada" travelling on Canada's main highway through these marshes will be especially interested in the shore-

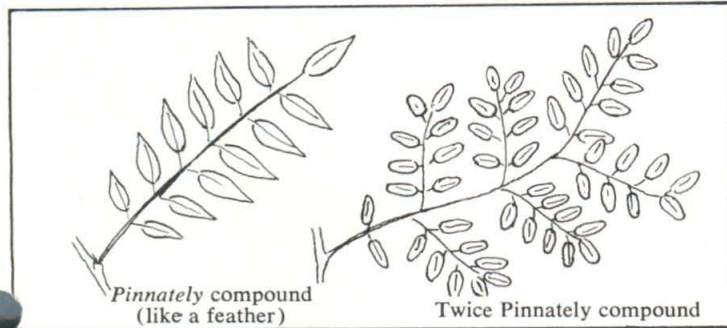
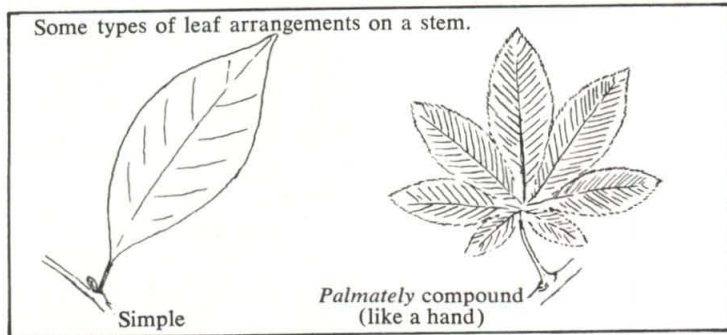
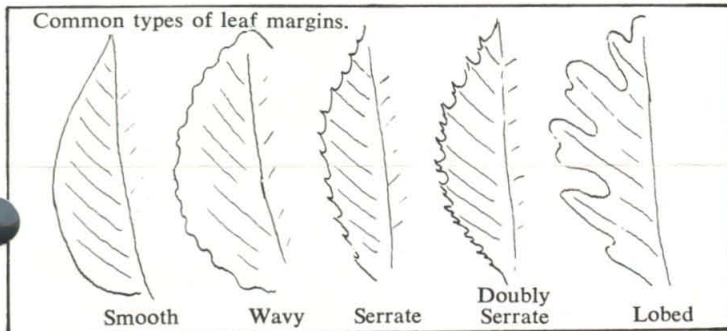
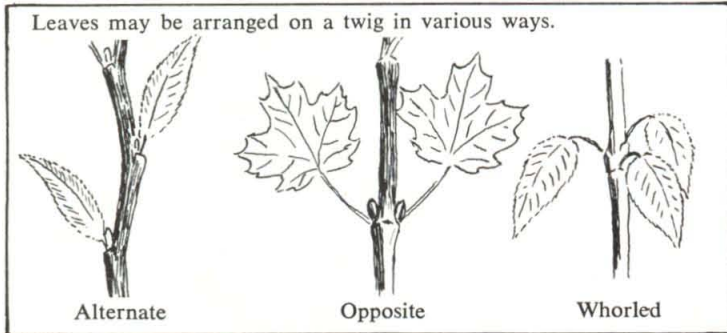
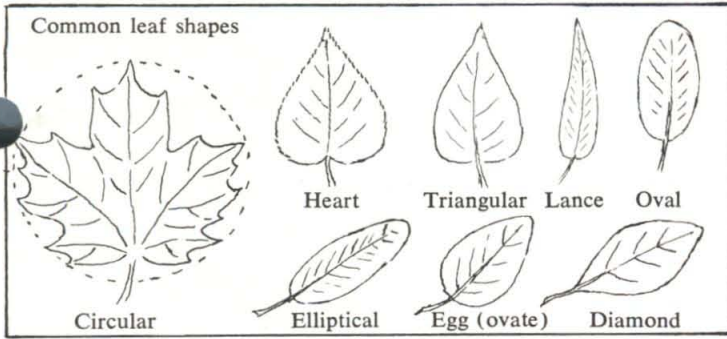
birds, the sharp-tailed sparrows, great black-backed gulls, and in the nearby woods a bird rare to most naturalists, the boreal chickadee. These marshes are worth days of exploration, whether for salt marsh plants, the bogs above the tides, the unusual birds, or the history that goes with 300 years of settlement.



Hugh M. Halliday

This male red-winged blackbird is a very common bird in the Tantramar Marshes.

JUNE: focus on LEAVES



A topic that most teachers face at one time or another is that of leaves. I hope that this will prove helpful in designing some worthwhile experiences for your children.

Have the pupils take a short field trip around the school neighbourhood. Each pupil could pick up, within reason, samples of every leaf which they can see. Upon returning to the classroom, groups or individual pupils could attempt to sort out their own leaves into piles. Selection for placing a leaf in a particular pile might be on the basis of:

- (a) margins
- (b) shape
- (c) texture
- (d) length of stem
- (e) arrangement of veins
- (f) grouping on a common stem
- (g) grouping on a twig and other possibilities

Generally speaking, leaf colour and size are not too helpful in classifying trees. One particular leaf might be placed in several different piles depending upon the method of classification being used by the pupil at the time. One of the better ways to record a particular classification system is through the making of a key. The pupils could do this by using their own terminology. Once some organized way has been developed to describe the leaves, then research could be done as to the scientific terminology employed. However, it is the method of organizing and not the names which are important. The pupils could then use the key to identify the leaf from the tree selected for case study.

ACTIVITY PROJECTS

ACTIVITY PROJECT #1

Calculate the Area of a Leaf

- Trace the leaf on graph paper which has quarter inch squares.
1. Count the whole squares which are found entirely within the tracing.
 2. Determine the squares which the tracing line cuts in half or of which only a quarter is cut off. (These estimations need only be approximate).
 3. Add up these parts of squares and then find the grand total.
 4. To obtain the area in square inches divide the grand total by sixteen.

ACTIVITY PROJECT #2

Calculate the Number of Leaves on a Tree

Practise on a small tree first.

1. Select a branch which would be of average size for that tree.
2. Count the number of leaves on that branch.
3. Count the number of branches of approximately the same size as the branch selected.
4. Multiply the number of branches by the number of leaves.

ACTIVITY PROJECT #3

Calculate the Surface Area that a Tree Exposes to the Air, Sunlight, etc.

Select a leaf of average size from any branch of the tree under study.

1. Use the method described in Project #1 of this activity sheet to calculate the area.
2. Use the method outlined in Project #2 to calculate the number of boughs on the tree.
3. Multiply these answers together.

ACTIVITY PROJECT #4

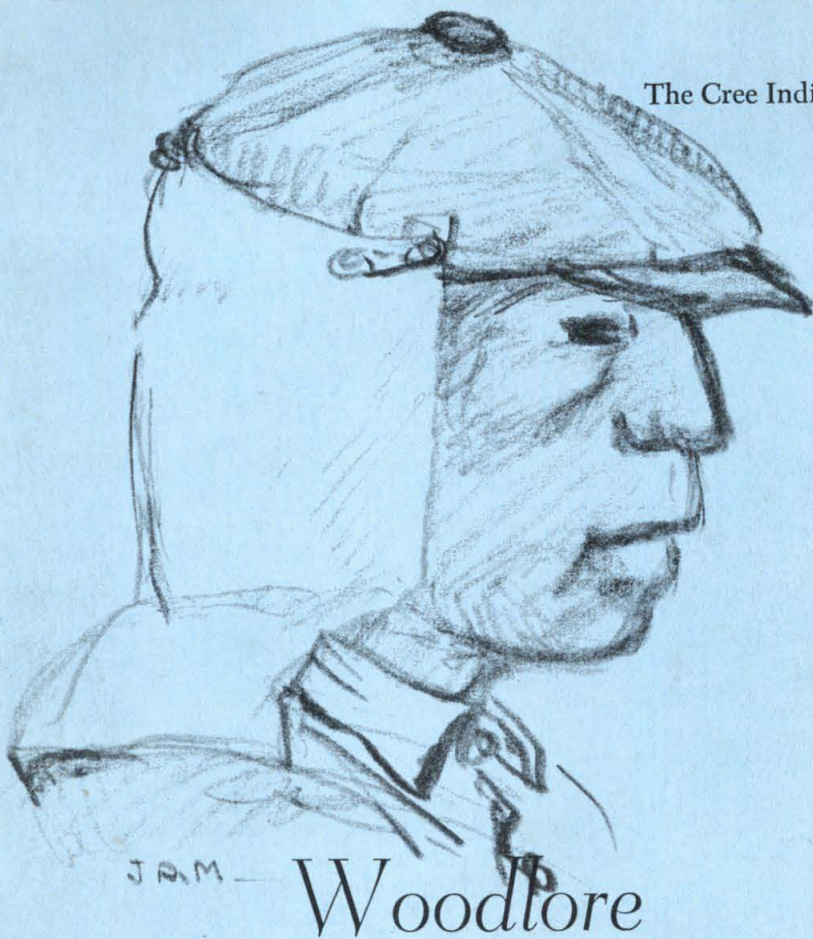
Calculate the Weight of the Leaves on a Tree

Use the methods explained in the previous activity to calculate the number of leaves on the tree to be studied.

1. Carefully select ten leaves of average size and remove these from the tree.
2. Weigh the ten leaves in the pan of an equal arm balance or impaled on the hook of a sensitive spring balance.
3. Divide by 10 to get the weight of one leaf.
4. Multiply by the total number of leaves to calculate the weight of all the leaves.

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 by Barry Griffiths, sketches by Don Foxall.

The Cree Indians use neck clothes to keep mosquitos off their skin.



Woodlore

by John Macfie

The woodsman of fifty years ago got relief of a sort from biting insects by smearing on a fierce concoction of oil of tar and sweet oil. To make life on a campsite bearable they, and undoubtedly the voyageurs and Indians before them, lit smudges, pots of smouldering chips to which green grass was added periodically to make smoke. At bed time they set a smudge inside the tent for a few minutes to rid it of mosquitos.

Modern fly killers and repellents make life in the bush much pleasanter nowadays. Last month I talked about black flies and horse flies. Here are some facts about three more biting insects the Ontario outdoorsman may encounter.

Mosquito A close rival of the black fly as the chief torment of the woods. A stinger, not a biter, it inserts a sort of pop straw into a vienlet and sucks

blood. Unlike the sneaky black fly, you hear it flying, and feel it walking and stinging. And unlike the black fly it doesn't leave an infection-inviting open wound, or inject a chemical that might react on sensitive persons, or crawl beneath clothing. It is, however, active both day and night, inside and outside the tent, and in a wide range of temperatures. Mosquitos appear in the spring and remain abundant into mid- or late-summer in most of forested Ontario.

Defence against mosquitos include loose clothing (they jab through the seat of a tight pair of trousers with ease), fly killer sprayed on cap and clothing, and liberal applications of fly repellent to bare skin. To ensure a good night's rest, make your tent mosquito proof and bomb it out with fly killer a half hour or so before entering it for the night.

Deer fly A brownish, house fly-sized fellow with a deep drone. Appears on warm late summer days (especially on portages) to fly in circles around your head and occasionally get in your hair. Bites vigorously if given the chance, but it is easily swatted and never extremely numerous. Repellents don't deter it.

Sand fly So small and inconspicuous, you may take an attack of "no-see-ums" for a case of the itch. Particularly annoying on a still summer evening near a sand beach, a common breeding place. A few of these little fellows can break up a weiner roast, or at least interrupt it while people trade bathing suits and shorts for long sleeves and trousers. Repellent helps. Mosquito netting doesn't stop them, but I can't recall sand flies persisting through the night the way mosquitos do.



Use for skin only.

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