



Volume 3, No. 4

December, 1976

EVENING PROGRAMME - WINTER-SPRING 1977

Location: Audio-visual room, Wolfville High School

February 22 8 PM (Tuesday)

Dr. Dan Toews of Acadia's Biology Dept. will describe the Brazilian Amazon as he saw it during an expedition their in the fall of 1976. This will be a slide illustrated travel-log.

March 21 8 PM (Monday)

John Timpa and Larry Bogan, two members who are believers in wood power for Nova Scotia, will discuss the resources, best use, practicalities, and economics of wood heat. Annual Meeting time also.

April 18 7:30 PM (Monday)

Bob Lambertson, one of the founders of our Society, and surveyor of the birds of Newfoundland will talk about the several summers he has spent in this province studying the bird populations. Also on this date the Society will be three years old and we will have a short birthday party after Bob's talk.

May 16 8:00 PM (Monday)

Dr. Alan Campbell, Biology Dept., Acadia University, will give an illustrated talk on "The American Dog Tick in Nova Scotia." His talk will cover such topics as the tick's life history, distribution, ecology and living examples will be shown. This will be our last evening lecture until September.

Everyone is welcome to attend these meetings.

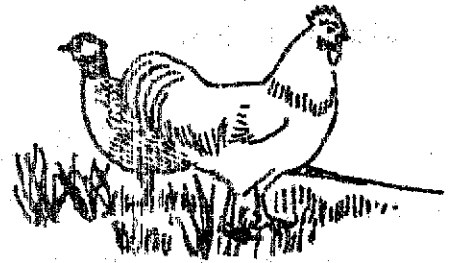
A programme of outings will be scheduled for the spring and summer and will appear in the next newsletter. Ideas and suggestions are needed by the Programme Committee. Please give your requests to Roy Bishop, Rachel Erskine or Larry Bogan.

Acknowledgements

Our thanks to Pauline Crouch and Rachael Erskine for our December programmes on the flora and fauna associated with the Yuletide Season; to Gertrude, Grant, Katrina, and Grinda Bishop for their lovely renditions of the Christmas music, "The Holly and the Ivy," "Mighty Gitchei Manitou," and "The Boar's Head Carole;" (those of you who didn't come really missed a special treat!) and to all those who have contributed articles or otherwise helped to put together the latest edition of this BNS Newsletter.

BNS Newsletter Deadline - March 21, 1977

Please send contributions as soon as possible to: Dr. Roy Bishop, Avonport, N.S. or to Mrs. John W. Timpa, Box 1382, Wolfville, N.S. We may change the grammar or punctuation a bit, but we've never been known to reject an article! Don't be bashful, Write It Now! Our file is pretty well depleted; if you want to continue to read the BNS Newsletter, you'll have to write for it, too!



A New Bird for Kings County

Robie W. Tufts
December 20, 1976

In the realm of Nature her children customarily follow definite rules and regulations which she has wisely provided for their every-day behavioural welfare. But sometimes, for reasons which are difficult for us to understand, they do things that cause us to do a bit of 'eye-brow raising.'

The incident about which I am writing happens to be one such. It happened sometime last May or June but was not revealed until December 18.

It has to do with cross-breeding among birds. It is well known that individual birds of different species which are closely related - Black Ducks and Mallards, for instance - quite frequently cross-breed and their offspring are known to be fertile. But birds belonging to different Genera have very seldom been known to cross. An outstanding example of the latter is a specimen in the Acadia University collection of mounted birds, of a cross between a Spruce Grouse and a Ruffed Grouse.

But the latest example of 'misbehaviour,' according to the dictates of Nature, is that of a feral hen pheasant which apparently could not resist the amorous advances of a domestic rooster.

On the day above cited one of our local pheasant hunters flushed a hen pheasant together with two "queer looking birds," one of which queers gave the customary 'cackle' of a wild cock pheasant when it took off. He shot it and promptly brought it to me for comment and identification, if possible. The bird is definitely a cross as above described. It has a square tail with no suggestion of elongation, nor has it any trace of spurs on its tarsi. But its plumage, in general, resembles that of a very much 'washed-out' cock pheasant. The fact that it was in the company of a typical wild hen pheasant suggests that she was its mother and that it was a remnant of a brood that had not yet become completely disseminated.

The specimen in question is to be labelled Gallus domesticus X Phasianus colchicus. It is presently resting in my deep-freeze in Wolfville but is destined shortly to be shipped to the National Museum of Natural History in Ottawa.

Planetary Patterns

Roy L. Bishop

Most people have seen the bright object in the southwestern sky during the early evenings this winter (when the sky has been clear!). This is Venus, the second planet from the Sun and the object most frequently reported as a UFO (an accurate report since for most people it is indeed "unidentified".) Because Venus is closer to the Sun than Earth, it moves faster in its orbit. During the winter Venus has been catching up to us. Early in April it will vanish from the evening sky as it passes between us and the Sun. By late April Venus will decorate the pre-dawn sky as it moves onward away from us.

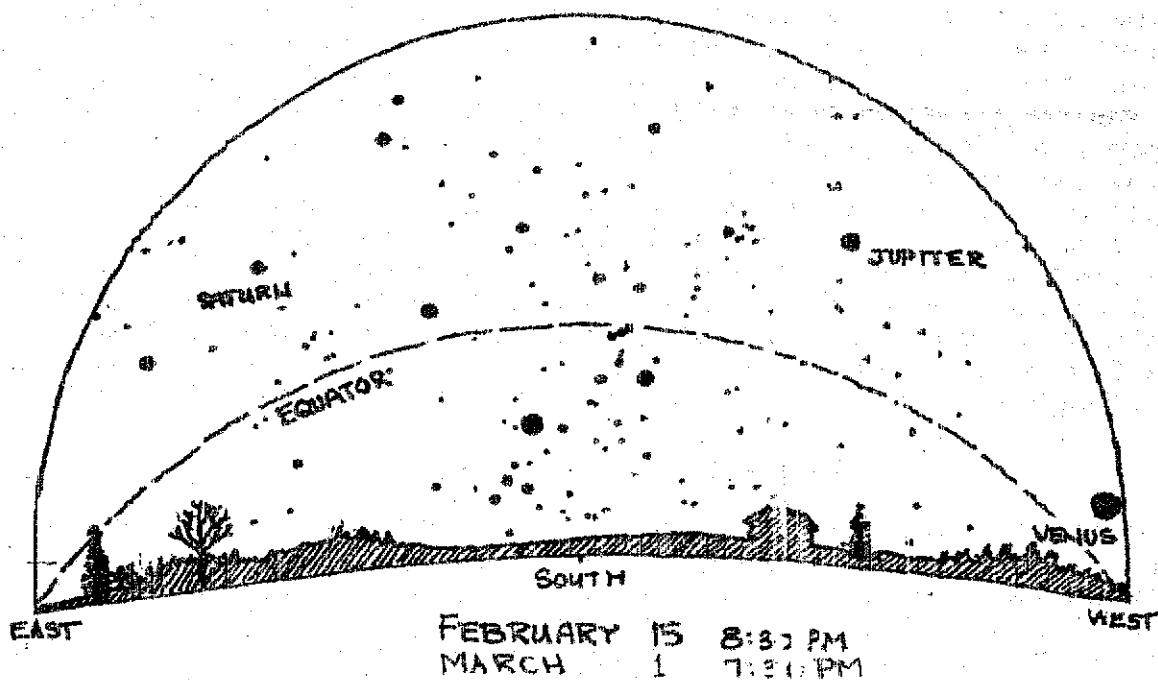
Once Venus leaves the evening sky this spring, the innermost planet, Mercury, will repeat this pattern but more rapidly. During the first three weeks of April Mercury can be seen sparkling low in the fading twilight as it races toward us. It will be easiest to see around the 10th or 12th, and on the evening of the 19th will be located to the right of the crescent Moon. This will be the most favorable chance to see Mercury this year.

The third planet can be seen by looking out your window.

The fourth planet, Mars, is lost low in the dawn twilight this winter and spring.

Planet number five, the giant Jupiter, is the bright, un-twinkling, slightly yellowish object high in the sky after sunset. It sets in the west around midnight. With a steadily-held pair of binoculars three or four of its moons can be seen close to it. The relative positions of these moons change noticeably in a few hours, while from one night to the next their locations change completely.

Saturn, the sixth planet from the Sun, rises in the east near sunset. To the eye Saturn is difficult to distinguish from a star, despite its un-twinkling, pale yellow appearance. Once one knows the stars however, Saturn is as obvious an intruder as a stranger at a family dinner. In a good pair of binoculars or spotting telescope Saturn appears egg-shaped in contrast to the point-like twinkle of a star. This oblong shape is due to its circular ring system which is always inclined to our line of sight. In an astronomical telescope the symmetric perfection of this encircled orb is revealed. When a person first sees this unique sight, perhaps the most common remark is "Well I'll be, it's really there!"



The next two planets, Uranus and Neptune are best seen in the evening sky next summer, although binoculars and star charts are needed to locate these cold, remote worlds.

Pluto, the ninth planet, is invisible, lost amongst millions of faint stars. To see Pluto four requirements must be met: a dark sky; a telescope of at least 200 mm aperture; a detailed finder chart; and experience in probing the night sky.

Of all the Sun's planets, Earth with its bright blue atmosphere and single, large, white Moon would present the prettiest naked view of all. If ever man himself ventures to Venus or Mars, his home will be the loveliest sight of all in the surrounding blackness.

ON THE HISTORY OF NOVA SCOTIA PLANTS

Part II. Through Indian Times

John S. Erskine
Nova Scotia Journal of Education
Winter 1972-73

The Boreal Forest

The Tundra Period, of which only small patches remain, is thought to have lasted a thousand years, but even in this time there must have been seeds of conifers drifting from the north and the coastal islands, but the establishment of a truly Boreal forest of spruce and birch must have needed many centuries of development before the tundra plants were shaded out of existence. Our knowledge of the arrival of mankind might give a hint if it were more thorough, since men would have needed fuel as well as food. Our records of earliest men are always beside the rivers of the Southwest and suggest fishing rather than hunting and seem to date from the great thaw which ended the ice-sheet. In that time, conifers must have arrived, if only in the river valleys. Some millennia later, the Clovis caribou-hunters found wood for their summer fires at Debert.

In his enthusiasm about the Coastal-Plain islands, Fernald encouraged his students to study the plants of existing islands, St. John to Sable Island, Miss Perry and Miss Roscoe to Saint Paul Island. Neither produced a single southern plant. Thirty years later I studied the plants of Seal and Mud Islands, and 14 Tusket Islands, and I found not a single Coastal-Plain plant in any.

St. Paul Island is a large rock which has withstood the three ice-ages and was probably capped with ice until the end of the great thaw. Sable Island was originally a moraine of one of the earlier ice-ages, now covered with sand gathered by the circling current that surrounds it, but when the sea-level was lower by 550 feet as in the last ice-age, the sandy dome would have scattered, leaving a surface wholly different from the present one. The Tusket islands are also of glacial origin, drumlins of clay and boulders over which the ice slid instead of pushing them aside. The only reason that explains why they had not been favored by seeds from the Coastal Plain is that they remained capped with ice until the rising sea had covered the Coastal Plain.

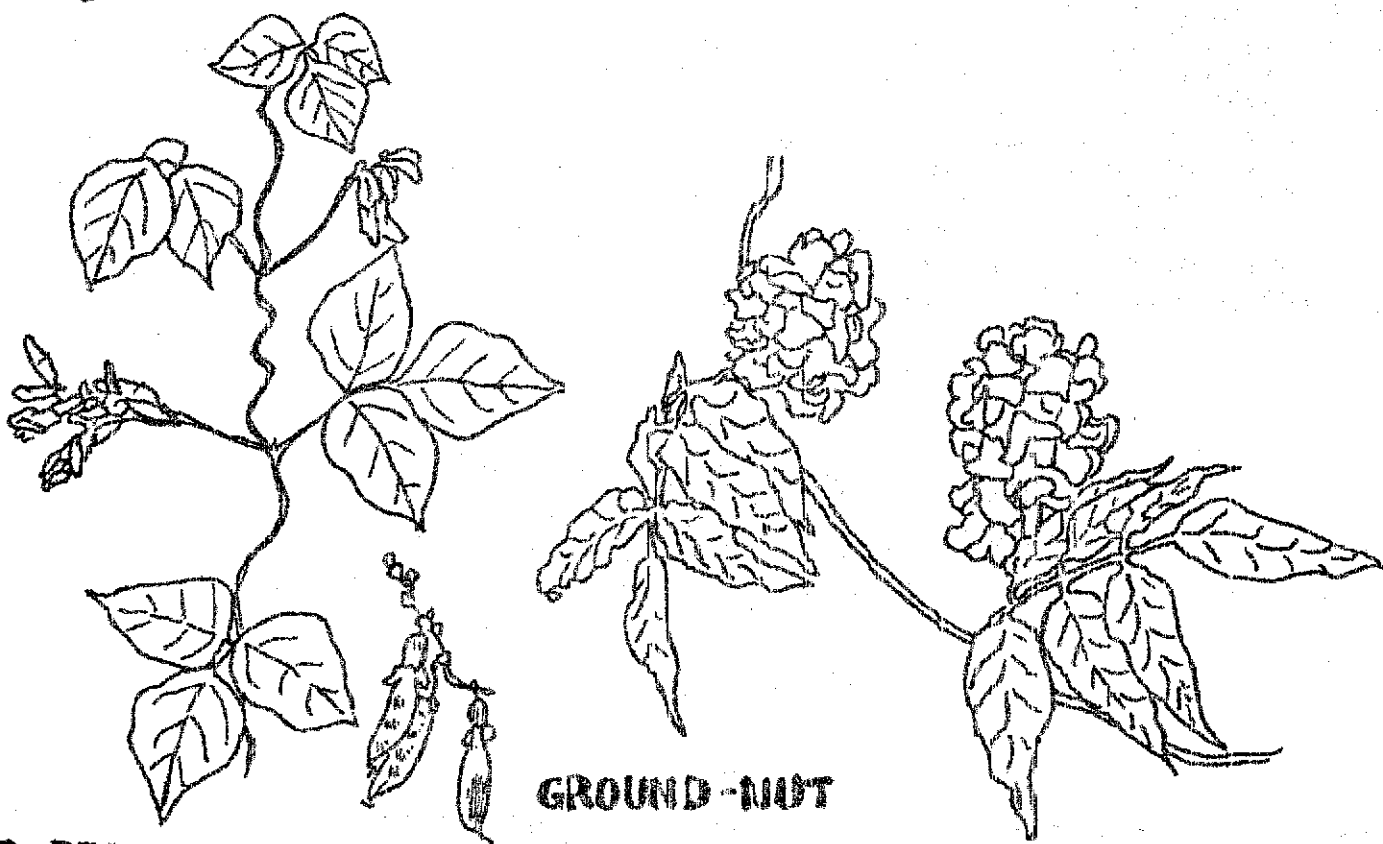
White and black spruce were frequent on the Tusket islands. Birch used to be abundant but is now reduced by the fishermen's need of fuel. It seems that Boreal Forest reached these islands only after the melting of the glaciers, about 10,000 B.C. During the next thousand years, spruce and birch must have overrun most of the province, but today only the Cape Breton plateau and a few offshore islands retain a mixed Boreal Forest, though a scattering of spruce and birch is found throughout.

The Coming of the Deciduous Forest

It might be expected that the familiar southwestern gales and the westerly winds would have brought seeds rapidly, but the ice-caps of the Appalachians remained a barrier until nearly 8000 B.C. After that they came in fast and became the forest which covered all the province. Many botanists have the habit of accepting one method of plant distribution and rejecting all others, but usually plants tell their methods by their seeds. The most effective method seems to be that of the wind, and dandelions and maples need no other explanation of their travels. A

great number of plants seem to depend entirely upon a multitude of seeds, but even these may be assisted by other technique. The innocent Cuckoo-flower drops its seeds which are carried for miles along brooks or ditches. Ragweed, groundsel and Stinking Willie are swept through the country by the current of cars. Berry (sic) trees and plants tell their distributors by their size and color. Gay colors are intended for birds which have a sense of color and spread the pipe abroad. Several trees reached New Brunswick but failed to reach Nova Scotia. Hickory and walnut explain their failure. Their seeds are designed for squirrels and not for birds or winds, and the squirrels, although they must have crossed the Bay of Fundy, probably did not carry rations on their driftwood boats. Cedars seem to have crossed but must have found the acid soils of this province unsuitable, so they linger on coastal lakes and go no farther. Strawberries, raspberries, blackberries, blueberries and crowberries travelled in birds and have been spread over the province by birds ever since.

Only two species of berry-plants have left a definite trail. Skunk-cabbage and High-bush Blueberry are found only on Digby Neck, from there along the Yarmouth shore and out upon some Tusket islands, Skunk-cabbage reaching as far as Seal Island, twenty miles from shore. Victorin considers that the seeds of Skunk-cabbage are distributed by squirrels, but our distribution is that of birds and probably ducks. Even this is doubtful as the fruit are available only late in summer when the movement of birds is southward. Many of our shorebirds fatten themselves with blueberries and crowberries before their long journey, but not when coming north.



HOG-PEANUT

GROUND-NUT

The Indian Contribution

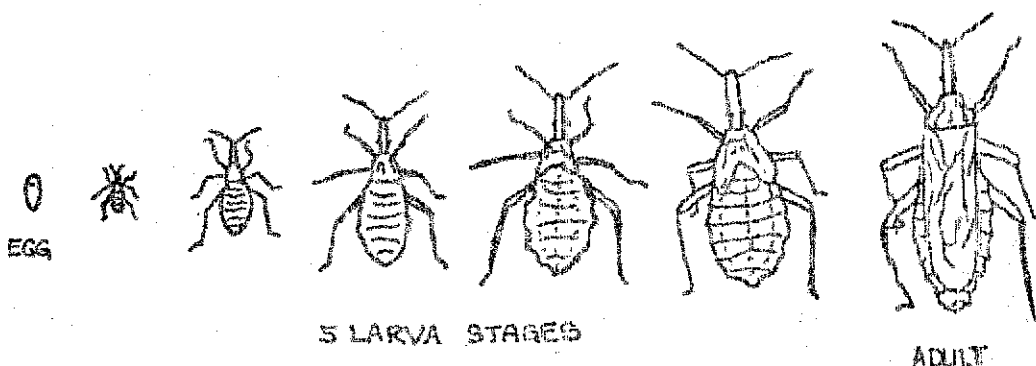
We have reason to believe that the first Indians in Nova Scotia reached here by way of the Coastal Plain at much the same time as the first plants, and from that period there were inflows of western Indians of many slightly different cultures and increasing numbers until the arrival of Europeans and their diseases and alcohol about 1500 A.D. The Mic-macs and earlier Bear-River cultures had been in contact with agriculture but had not adopted it, preferring the semi-nomadic shifting from campsite to campsite to make the most of the seasonal food available. Lescarbot reported not very clearly that 'Our savages plant quantities of tobacco.' He may have been thinking of the agricultural Indians of Maine, but the occasional hoes of stone that have turned up on the Medway River and Shubenacadie Great Lake suggest some small cultivation. Indian tobacco was cultivated by Acadians in Yarmouth County and in Gaspe in this century but need not have come from the Micmacs. Although it seems possible that the Micmacs knew that seeds grew into plants, we find no intentional plantings.

It is well known that the Indians gathered berries and roots and kept some of them for winter food. Those berries which had pips to be scattered around the camp often grew up and are still to be seen.

Only one plant seems likely to have been introduced by the Indians. Apios americana, Ground-nut or Indian potato, belongs to the pea family but is peculiar in the fact that it rarely or never sets fruit. For its distribution it relies upon the tubers on its roots. The plant grows beside rivers and is often carried away in spring floods and is left to grow on the shore farther down. Here we meet a problem. As the flood always runs seaward, how did plants ever come to the higher levels? We have a parallel in the freshwater mussel. It cannot climb upstream and its eggs travel downward. It would have perished but that the spawn hatch and attach themselves to the gills of fish which carry them upstream where they release themselves and begin the cycle again. The carrier of the ground-nut would be the Indians who valued the tubers, gathered them and probably discarded the tubers too small to be worth cooking. But who introduced it? This plant has a definite range from Yarmouth eastward to a line between Merigomish and Musquodoboit. This was also the limit of the 'shell-heap' camps, a culture which brought also Owaseo pottery from Maine where Apios also grows.

Another related plant, Amphicarpa, is also a climbing plant with smaller blueish flowers, and lives similarly along the edges of brooks. It depends for its distribution on its seeds, commonly called 'Hog Peanut'. It is found scantily in the same area as Apios but extends a little more to the north. It was abundant in the Indian reserve of Pomquet, but has not been found associated with other Indian campsites.

Native hawthorn has been noticed before and has been thought to be a protection of wigwams, but it is worth noticing that the variety with short thorns and rather pleasant fruits is much more common than the long-spined varieties with smaller and harder fruit. Choke-cherry also is common as is Wild Black Cherry, and Amelanchier Shadbush and High Cranberry are occasional. These bushes can tell in what season the camps were in use, but unfortunately they cannot tell us which Indians planted them unconsciously.



Valuable Supplement

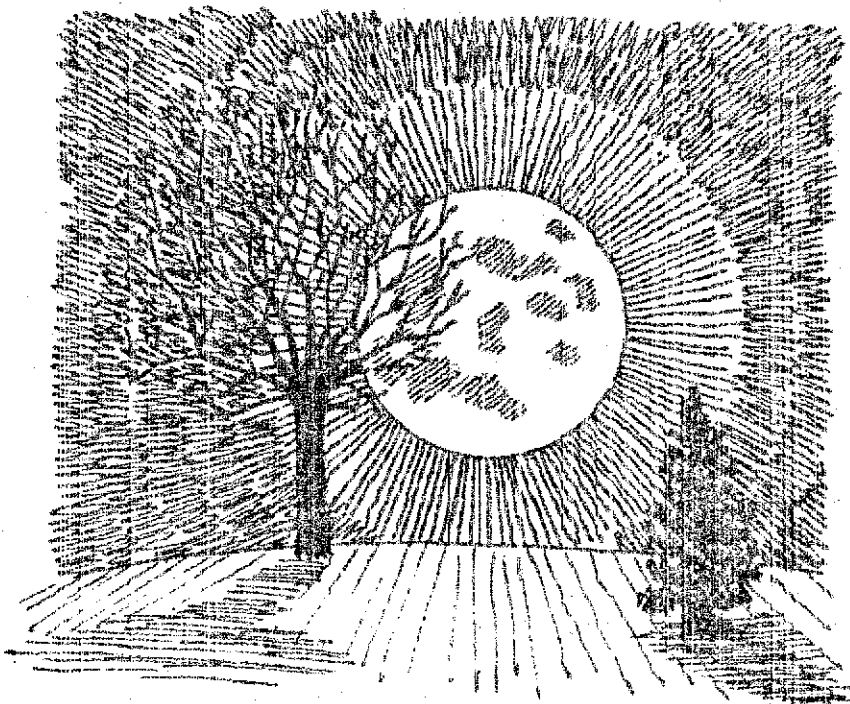
Clair G. Wood
 Instructor of Chemistry
 University of Maine, Orono, Maine
 from the Bangor Daily News, July 3, 1976

Insect pests are man's major competitors for food, fibres, and forest. In recent years we have witnessed the destruction of the elm stands in New England and Canada by Dutch Elm disease, a viral infection spread by an insect host. This year the Maine maple is being threatened by an exploding population of the rosy maple moth whose larvae cause extensive defoliation. Broad-spectrum chemical insecticides are now used almost exclusively for the control or eradication of insect pests. While effective, these poisons also cause many problems. Being broad-spectrum, such insecticides are not very selective; they kill helpful as well as harmful insects and frequently cause destruction of birds and other wildlife. DDT has been banned in many areas because it causes massive fishkills and the near extinction of some species of birds. Controversy has also erupted over the advisability of aerial spraying of insecticides in inhabited areas. A respiratory malfunction in children has been attributed to spruce budworm spraying in Canada.

Because of the problems associated with chemical poisons scientists are trying to find other means of control. One promising alternative is to turn the insect's own body chemistry against them. In order to grow and mature, insect larvae must molt, that is, they must shed their rigid outer skins and replace them. Molting is caused by two hormones, juvenile hormone (JH) and molting hormone (MH), which are the major types of insect secretions regulating growth and maturation. Although these two hormones are necessary for growth their secretion must stop for the larvae to develop into sexually mature adults. Thus, if these hormones are artificially supplied to the larvae at the final stage of its development into adulthood, the maturation process will be arrested. Insects with both adult and larval characteristics will result and soon die. This has proven successful in mosquito control and with other insects whose adult stage is the pest. In many insects the larval stage is the destructive form with the larvae going through many molts before reaching adulthood. Application of hormones is effective at only the final stage and this is very often difficult to achieve.

In 1973 Dr. William Robbins of the Maryland Agricultural Research Service discovered a class of compounds called ecdysones which would interfere with the first stage of molting by blocking the action of the molting hormone. This has proved successful in controlling the yellow fever mosquito among other insects.

Control of insects through use of their growth hormones offers a number of advantages over chemical insecticides. They are specific to one or two insects and do not kill all insect life indiscriminately. Being organic in nature they are biodegradable and do not accumulate in the soil like DDT. In time insects may adapt to the use of their own body chemistry as a control; however development of resistance will probably be slower than to chemical insecticides. In the meantime use of growth hormones should prove a valuable supplement to the chemical insecticides in controlling insect pests.



By the Light of the Silvery Moon

Larry Hogan

The full moon travels a path high in the winter evening sky and makes the landscape under those skies special. Recently, I had an experience in that environment that caused me to write this.

It was cosy and warm inside, and all was quiet because it was vacation time in Wolfville; these were perfect conditions to sit and enjoy a good book. However, it was also an evening on which the Moon was nearly full, the skies were clear, and there was a thick layer of fresh, cold snow on the ground. I recalled earlier occurrences of similar character and forced myself to put on my skis and venture outside. I recalled the black and white landscape, the quietness and the tranquillity that is part of this type of environment.

Unfortunately, the ubiquitous artificial lights and close network of plowed and sanded sidewalks and roads, destroyed my attempt to find what I wanted. I returned home mumbling about unnecessary bright outside lights and thinking of better circumstances.

I recalled an earlier situation; full moon just before supper time, late in Autumn with the leaves gone from the trees, a familiar, lonely, back road, cool, crisp air and me sailing quietly along on the two slim wheels of my bicycle. The jet black shadows flashed by, while sections of the road showed bright with the rising full moon; the sky was no longer ink black and only the very brightest stars were clearly visible. I also remembered another winter night with fresh snow, cool still air, solitude, a full moon, and another leafless wood; this time with snow shoes so that only when I stopped and held my breath could I feel the tranquility and hear strange sounds in my ears. Silence! So seldom do I, like most people escape completely the dominating hums, buzzes, and ticks that accompany civilization. The important factors in both situations, were the quietness, the solitude, and the bright moonlight. That was what I was looking for this winter when I went out on my skis, but what I found were thoughts on the last factor, moonlight.

The full moon is approximately a half a millionth as bright as the sun. Our eyes are versatile enough to be able to see scenes illuminated by both of these sources. However, the two appearances are not the same even if the landscape is the same. The moonlit landscape is only in black and white and has some details missing. Our colour vision ability disappears at illumination levels 10-100 times above the levels under the moonlight, and our acuity decreases with the light levels. As a result of the later, more contrast is needed to see features, and light and dark areas appear to have more contrast. All these effects add up to produce a unique character to the scene.

M. Minnaert in his delightful book Light and Colour in the Open Air describes the landscape in his terms. "You should observe a landscape in the moonlight and note especially the differences compared to the illumination in the daytime. The main characteristic is that all the parts not fully illuminated by the light of the moon (shadows), are almost uniformly dark, whereas, in the daytime, various degrees of brightness are noticeable in these parts. This explains why if an underexposed photographic negative of a

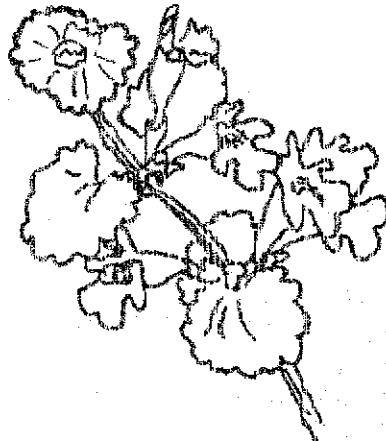
landscape in sunlight is printed too dark, the print looks like a landscape by moonlight. In a similar manner, painters suggest a nocturnal landscape by painting almost everything equally dark, which owing to the weakening of the contrasts give us unconsciously the impression that the lighting must indeed be very feeble."

I couldn't stop with the consideration of moonlight. What of star and planet light? On a dark moonless night one can still see the scenery, and some persons claim that when Venus is in the sky (as it is during the evenings at present) shadows can be seen. If ones eyes are dark adapted, i.e., in a dark environment for about 30 minutes after being in a lighted place, then the eye is sensitive enough to detect light at about 1/10,000 the level of illumination of snow under noonlight. The stars provide illumination at a level 100 times that lowest level and in fact a clear night away from artificial lights is not "pitch black". Venus is approximately 2000 times dimmer than a full moon, and produces an illumination only 5-10 times the threshold of seeing and 10-20 times dimmer than the star light. Hence snow-covered ground would be only about 5% brighter than a tree shadow in Venus light. It would be very difficult to observe. This February is an opportune time to try to test the reports. Venus will be at its brightest in February and reasonably high in the Western sky. New moon will occur on February 17, hence, if we get a clear night near then and you are at a site far from cities and artificial lights and there is still snow on the ground, why not try to see the shadows of trees (or yourself). I would be interested in any observations; I'll try myself.

But if you are not favored with the special circumstances for observing Venus shadows, at least enjoy the brighter moon shadows. They are not all that common because how often do we get a clear night at or near full moon, with snow on the ground? The moon is quite gibbous for a week surrounding new moon but in the winter typical cloudiness is 70-80 percent. That means that only about one or two days a month on an average are available for this outdoor entertainment. And during the whole year we have four or five such days. Have fun.



COMFREY



GROUND-IVY

Old Herb Recipes

from The Family Weekend Book
by Beryl Irving
contributed by Adeline Bayne

For the Ague Infallible:

Take leaves of Asarabacca, seven for a man, five for a woman, and three or four for a child; rub it in a pint of strong drink and leave it steeping all night and in the morning give it to the patient fasting without anything else. It will work them upwards and downwards. If it does not cure with one dose you must repeat it a second time and you must strain it before you give it to the patient to drink.

(An ague is "a fever of malarial character attended by paroxysms which occur at regular intervals." - Webster's New Collegiate Dictionary)

For a Blast:

Take ground ivy, bruise it and work it into butter without salt; boil them together until the herbs are crisp, strain the liquor from them, and put more bruised herbs, and boil it again, till they are crisp, so strain it and lay it up for use, the way to use it is to anoint the place that is blasted frequently with it. Mrs. Jones says that with this she has cured some whose faces have been so swelled that their eyes could scarcely be discerned.

(Thanks to the Acadia University Library reference desk I was finally able to sleuth out the meaning of "blast." It is an old term used by country folk to describe a sudden infection which they believed was caused by foul air or ill wind. More technically it is erysipelas, "an acute febrile disease associated with intense local inflammation of the skin and subcutaneous tissue, caused by a hemolytic streptococcus." - Webster's New Collegiate Dictionary)

Dr. Boorhave's Jelly for Persons low in Flesh or consumption (TB)

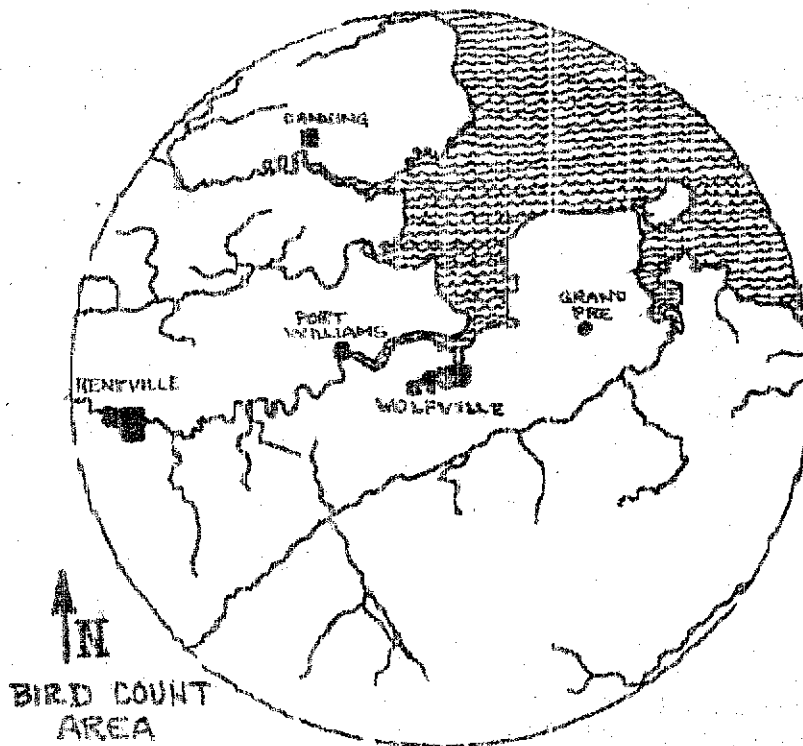
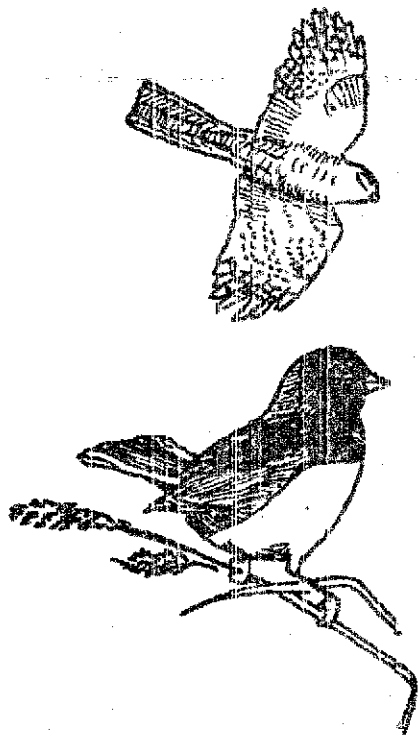
Take a quart of Bristol water, and a pint of new milk, put to it four sheep's trotters and two ounces of comfrey roots, and a quarter of a pound of raisins of the sun. Put these into a pipkin close painted down and put it into an oven with brown bread, when it comes out strain it for use. You may drink about a coffee-cupful at a time.

CHRISTMAS SEASON BIRD COUNT

Oscar Morhouse

The morning of December 19th brought sun glitting on freshly fallen snows and a Northwest breeze with -3° temperature nipping noses and chilling fingers while 37 bird enthusiasts tramped fields and hills, marshes and river flats, taking the annual Christmas Count. These venturesome individuals observing a 15 mile circle, and ably assisted by 6 others watching flocks at feeders, compiled the quite amazing number of 25,578 birds, comprising 65 species:

Canada Goose	.....	63	Horned Lark	.....	415
Mallard	.....	16	Gray Jay	.....	1
Black Duck	.....	801	Blue Jay	.....	223
Brant	.....	13	Common Raven	.....	201
Common Goldeneye	.....	4	Common Crow	.....	15213
Oldsquaw	.....	20	Blk.-capped Chickadee	.....	113
Common Eider	.....	4	Boreal Chickadee	.....	19
White-winged Scoter	.....	2	White-br. Nuthatch	.....	1
Surf Scoter	.....	15	Red-br. Nuthatch	.....	38
Common Merganser	.....	30	Brown Creeper	.....	3
Sharp-shinned Hawk	.....	4	Red-w. Thrush	.....	4
Red-tailed Hawk	.....	22	American Robin	.....	284
Rough-legged Hawk	.....	18	Golden-cr. Kinglet	.....	29
Bald Eagle - adult	.....	4	Northern Shrike	.....	1
immature	.....	5	Starling	.....	1005
Marsh Hawk	.....	3	Yel.-rumped Warbler	.....	2
Merlin	.....	2	House Sparrow	.....	1424
Ring-necked Pheasant	.....	133	Red-winged Blackbird	.....	2
Gray Partridge	.....	61	Common Grackle	.....	4
Common Snipe	.....	2	Brown-headed Cowbird	.....	796
Gr. Black-backed Gull	.....	557	Evening Grosbeak	.....	295
Herring Gull	.....	1305	Purple Finch	.....	22
Ring-billed Gull	.....	9	Pine Grosbeak	.....	40
Blk.-legged Kittiwake	.....	1	Common Redpoll	.....	23
Rock Dove	.....	488	Pine Siskin	.....	1
Mourning Dove	.....	67	American Goldfinch	.....	98
Short-eared Owl	.....	6	Savannah Sparrow	.....	10
Hairy Woodpecker	.....	4	Dark-eyed Junco	.....	515
Downy Woodpecker	.....	15	Tree Sparrow	.....	264
Chipping Sparrow	.....	1	Vesper Sparrow	.....	1
White-thtd. Sparrow	.....	266	Lapland Longspur	.....	14
Swamp Sparrow	.....	1	Snow Bunting	.....	433
Song Sparrow	.....	135	Ruffed Grouse	.....	2



To this should be added nine (9) more species seen in the count period:

Iceland Gulls	Great Blue Heron	Purple Sandpiper
Dovekie	Mockingbird	Fox Sparrow
Winter Wren	Ruby-crowned Kinglet	Rufous-sided Towhee

This count is particularly noteworthy in the high incidence of species that should have been in a warmer cline far to the south; Robins for example; not since 1968 have such large numbers been noted.

To sum it up this count has quite obviously been a success for which the participants are to be congratulated. For my part I particularly thank them for their cooperation.

(Editor's note:) The Christmas Bird count began in 1900, originating as an alternative to the Christmas "side hunt" on which hundreds of birds were shot. Since then it has spread throughout the world, with numbers of observers per count area ranging from one to over 100. The Wolfville Christmas Bird Count began in 1920 with but one observer for many years, Dr. Robie Tufts, noted Canadian ornithologist and author of The Birds of Nova Scotia, Birds and Their Ways, and numerous articles including a number for the BNS Newsletter. He was eventually joined by Mr. John Erskine until this year when we had a record 37 people looking for birds in the 15 mile circle centering on Nowlan's Canteen, Wolfville. Before the 1976 count, the highest total species count was in 1974 with 51 different kinds of birds observed. Although the final Nova Scotia Christmas Count has not yet been compiled, all indications point to many, many records being broken, both as to total numbers of birds, as well as total species seen and "rarities" for Nova Scotia.

Our Birds Since the New Year

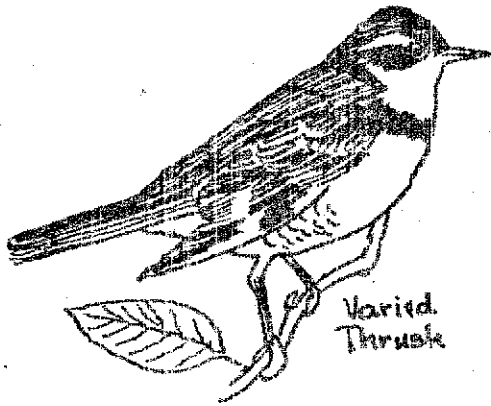
Jean M. Timpa

Up until Feb. 1st, at least, the winter of 1976-77 will undoubtedly be recorded as one of large amounts of snow and long periods of continuous, severe cold.

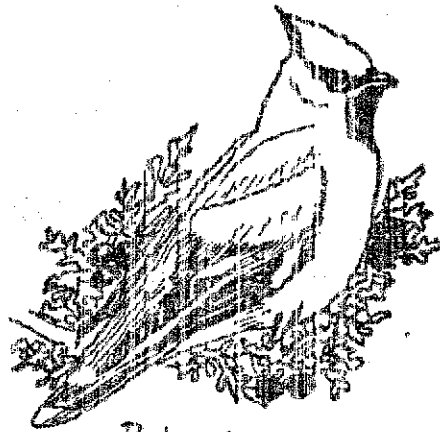
It has encouraged more birds than usual to become dependent on human handouts, and those of us with bird feeders have been particularly thrilled by the large numbers of purple finches present. The males sport a cheerful raspberry red on their heads, breasts, and rumps. It hardly seems possible that the dark brown, heavily striped sparrow-sized bird feeding beside it is its mate, and not a sparrow. But look closely at the heavy finch beak and compare it to the bills of the English, Song, White-throated or Tree Sparrows you probably have at your feeder, also.

For the past 5 or 6 years Mrs. Walter Urban of Avonport has been feeding large numbers of Mourning Doves at 3 trays and sometimes on top of a backyard picnic table. Last winter she could sometimes count as many as 80-90 at one time! Just before storms when they feed most heavily, Mrs. Urban reports the birds stand on one another's backs trying to obtain feed. This winter she has seen as many as 50-60 individuals at any one time. Mrs. Urban has also seen a number of these birds in the summertime but has never been able to locate a nest; there's a challenge for our bird-nester, Bernard Forsythel. Oscar and Ruth Morehouse also saw, literally, a tree-full of Mourning Doves (76) Christmas morning behind the ACA Co-op in New Minas. Jim Wolford of the Acadia University Biology Department as counted over 100 in the same area, attractive to the Mourning Doves because of the feed spilled from the railway cars.

A Varied Thrush has been around a home in South Maitland, Hants Co. for some time. This bird has been well-photographed and positive identification has been confirmed by some of the more expert members of the Nova Scotia Bird Society from Halifax. It is quite similar to the robin except that the orange of the breast extends to the throat, up on the head in a band over the eye and a bit on the wings. Most distinguishing, however, is a broad black band across the middle of its breast which our robin,



Varied
Thrush



Bohemian
Waxwing

of course, lacks. According to The Birds of Canada by W. Earl Godfrey, the Varied Thrush "breeds from north-central Alaska, northern Yukon, and northwestern Mackenzie south to northwestern California, northern Idaho, and northwestern Montana. Winters from southern British Columbia to northern Baja California." Occasionally when migrating it wanders east of the Rocky Mountains so has been reported as an "accidental" in Quebec (1890), New Brunswick (wintered in Stanley in 1960) and in Ontario on several occasions. This seems to be its first "official" visit to Nova Scotia.

Some of you will remember a "first" for Nova Scotia last winter when Dr. Sherman Bleakney discovered a Townsend's Solitaire, a bird of similar breeding and wintering distribution, in his back yard here in Wolfville.

Another "Westerner" appeared Saturday afternoon, January 29 in the form of a lone Bohemian Waxwing which alighted momentarily in the lilac bush outside my living room window. So brief was the stay that I really wondered if I were dreaming, but the next day Bernard Forsythe saw a small flock feeding in a berry-laden tree at or near the entrance to the Greenwich exchange to the 101 highway. Somewhat larger than our more familiar Cedar Waxwing, the Bohemian also sports more colour: cinnamon on the face, rump, and under the tail, a greater amount of bright red sealingwax-like appendages on the secondaries of the wings as well as some white and yellow wing markings absent on the Cedars. Bohemians have visited Nova Scotia in winters past, but most certainly we should count them among the "irregulars." Three or four winters ago most all of Nova Scotia was invaded by large numbers of these handsome birds. I saw them nearly every time I walked up and down Gaspereau Avenue to Pleasant Street and remember watching them bathe in a drainage ditch on a warm March day. Not long after I saw the most I have ever seen together-nearly 70-for the last time that winter in the Hawthorne bushes and trees down over the embankment of Hillside Avenue opposite to Willowbank Cemetery.

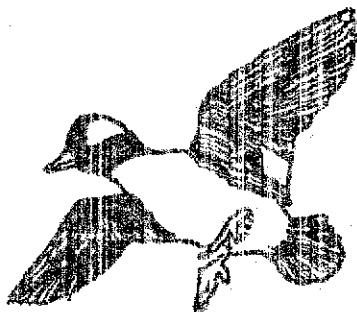
Cyril Coldwell reports the presence of one mature and three immature Iceland Gulls at the ACA Co-op, New Minas. On this side of the Atlantic it winters from southern Labrador to Virginia, but is not very common. The adult very much resembles our Herring Gull except the wing tips of the Herring Gull are black, tipped with white, whereas the wing tips of the Iceland Gull are white. The juveniles, too, are very similar. The young Iceland appears to be a lighter brown and again lacks the dark wing tips.

On January 26th Cyril also spotted a male bufflehead duck on the Gaspereau River. This would not be a common sighting, as the Bufflehead breeds west of Hudson Bay and does not stray far east that often.

About 4 p.m. on January 31st John Timpa spotted a Pileated Woodpecker flying fairly low over the 101 highway near where the New Ross road overpass crosses it. Almost identical in size to our common crow (17-19.50 inches vs. 17-21 for the crow), the pileated woodpecker is by far our largest woodpecker. It breeds here in Nova Scotia, but is considered to be uncommon to rare in distribution, and by birders, quite the treat to see. When flying, conspicuous white wing bars against the black are evident on the underside, helping to distinguish it easily from the crow as well as a different flight pattern.

On Sunday, January 30th Cyril Goldwell and assistants made a preliminary winter bald eagle count in our area. Twenty-two (22) birds were sighted, eight (8) adults and fourteen (14) immatures, 17 from the Gaspereau Valley, 3 near the ACA Co-op in New Minas, 2 from Church Street, Port Williams, and none from the Canning area. Several were first year birds, so Cyril is hopeful that more birds were fledged during the summer of 1976 than 1975 (only 2). A more thorough check will be made toward the end of February at the peak of winter migration and will be reported in our March Newsletter. Last year 24 eagles were recorded. So, if you want to see a really unusual sight, this is the time to take a drive along the Gaspereau Valley to see the largest of our native birds.

We have also been asked to keep an eye out for multicoloured Ravens and report them (time and location especially) to the Wildlife Unit, Acadia University (542-9037) to Carolyn Crawford who is carrying out a study on them or to Dr. Peter C. Smith, Cyril Goldwell, or any of the other wildlife students who will pass the information along to Carolyn. Her study is trying to determine the dispersal of Ravens and their longevity. She has been given permission by the Canadian Wildlife Service to band one hundred and fifty (150) of these, our largest all-black Corvines. Each bird is "decorated" as follows: 1) a band of 1 colour affixed near the top of the tail; 2) a standard leg band on one leg; 3) a plastic band of 3 different colours on the other leg; and 4) a tag affixed to the leading edge of the front primaries of one wing of the same three colours as on the leg. The colours may come from any of the following: red, orange, yellow, blue, white, or gray. If you can determine and report the colours as well to Carolyn so much the better, but any help on this project will be greatly appreciated.



Bufflehead

Halifax Field Naturalists - The First Year

By Howard Ross

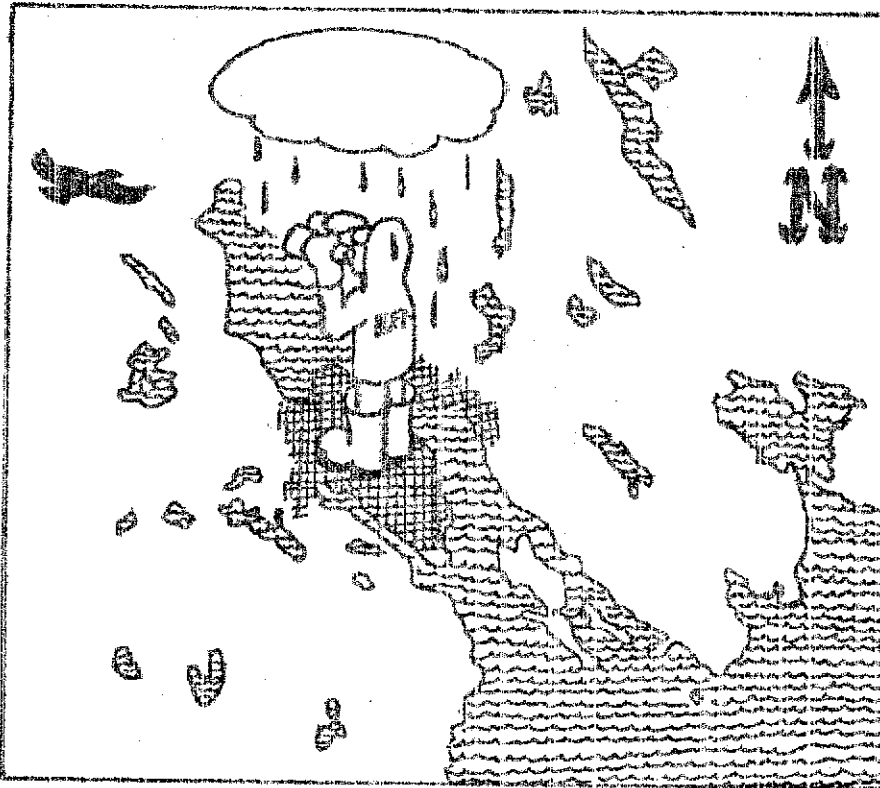
On the eve of the celebration by the Halifax Field Naturalists of our first complete year of operation it is appropriate to take a quick look back at what has transpired. The seed for this organization came from a small group, Debby Burleson, Winnie Cairns, Scott Cunningham, Paul Keddy and Anne Linton, who set up shop in the Biology Department at Dalhousie University in the fall of 1975. By mid-summer 1976 as the organization spread city-wide the membership had grown to the point where the larger meeting facilities of the Nova Scotia Museum became necessary. At present, the future seems so rosy that HFN is undergoing incorporation procedures.

HFN as conceived by its founders, was to be an organization to help Nova Scotians come to know and appreciate their natural heritage and to take steps to help ensure its preservation. To this end HFN carried on a wide range of activities. Guest speakers featured at the monthly meetings have spoken on such diverse topics as Sable Island, mushrooms, whales, bumble bees, lichens, the stars, shorebirds and summer flowers. The membership has also thoroughly enjoyed an evening of nature films and another evening of members' slides. Conducted hikes, frequently associated with the topic of the previous meeting, visited such Halifax hotspots as Conrad's Beach, McEab's Island, Hemlock Ravine and Peggy's Cove. Good times were had by all on expeditions to a maple sugar bush camp in Cumberland county in April and to Ralph Wirrig's private nature

reserve and Winnie Cairns' Piping Plover beach on the South Shore in July. HFN hikers were also the breakfast guests of the Cole Harbour Historical Society following an early morning shorebird walk led by Don MacDougall and Eric Cooke. A bimonthly newsletter run by Debby Burleson and her blue pencil rounds out the day-to-day activities of HFN.

The Halifax Field Naturalists have also been busy on a wider scale providing input into public discussions on conservation issues of provincial and national interest. Last January HFN co-sponsored a public Spruce Budworm Symposium in Halifax which brought together biologists, government and forest industry spokesmen in an educational discussion of this problem. In April we held a Kejinkujik National Park planning workshop and subsequently submitted a brief to Parks Canada. Later in the spring four members went to Ottawa as delegated to the Canadian Nature Federation conference on endangered species. When the Berger Commission on the Mackenzie River Valley Pipeline held hearings in Halifax in June, president Paul Keddy testified in our behalf. We can only hope that our contributions to these discussions are perceived as reasonable and coherent and that our efforts bear fruit.

And now, as our first birthday party we're about to hold a day-long symposium on nature preservation in Nova Scotia. By the time you read this the day (Jan. 22) will have passed and I can only hope that you have heard of this symposium by other means and came to Halifax to visit us on this special day.



Tidal Generated Electricity by 1990?

Larry Bogan

The concept of electrical energy production from the tides in the Bay of Fundy has been around for decades without ever really happening. It appears that with the increasing fossil fuel prices, the latest review of tidal power might show that it is at least an economically competitive means of generating electricity. Within the last year there have been numerous public statements of support for construction by government officials (mostly provincial) and members of the public and business communities. There has even been an offer of financial support from a wealthy financier.

A preliminary report of the Tidal Power Review Board (TPRB) was released in November 1976 (dated August 1975) which surveyed the possible sites for tidal generation in the Bay of Fundy.

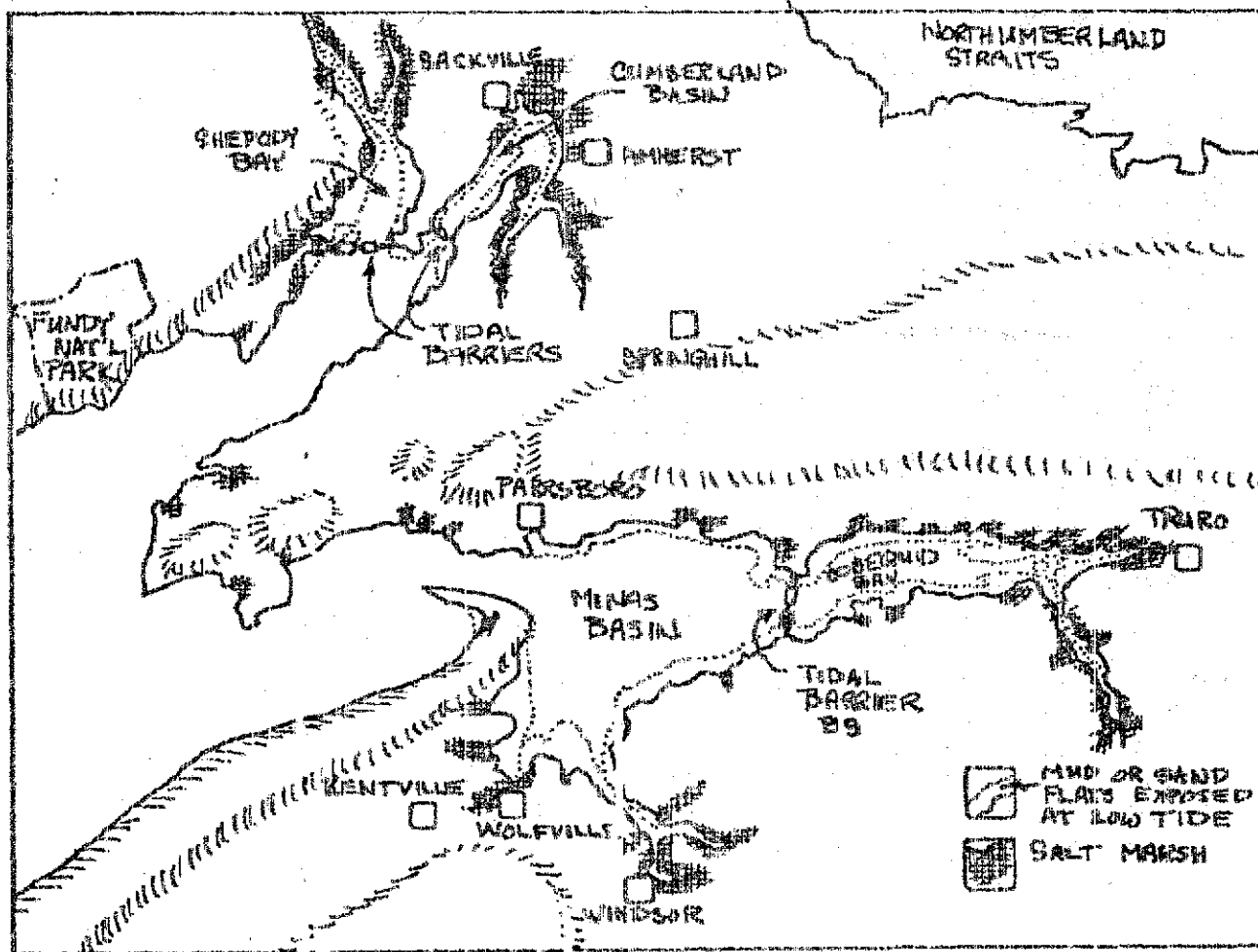
The most favorable sites from an economical point of view were

ones with tidal barriers across the entrances to Cobequid Bay, Cumberland Basin, and Shepody Bay. The Cobequid Bay site appears to be the most advantageous to develop, and an estimate of the capital expenditure necessary is 3.6 billion dollars. At a 7% interest rate on the borrowed money for construction, the estimated cost of the electricity would be 2.7¢ per kilowatt-hour at the site. Peak output would be 3,200 megawatts (approximately twice the total electrical generating capacity of Nova Scotia at present). The earliest that this tidal electricity could be available is about 1990 if the present study is favorable.

There is too little space here to summarize the TPRB proposals for distribution and utilization of the tidal electricity. Basically, however, they project that the increase in usage of electricity will be by over five times from 1976 to 2000 in the Maritimes, Quebec, and the New England States and that this will make possible the absorption of the tidal electricity as peaking power (the electricity generated will not be available on demand but only at times when the tides are favorable, which is only 4-7 hours of the 12 hour 25 minute tidal cycle). This means that the tidal facility will not help to reduce the number of nuclear and fossil-fuel generating facilities needed. It will only displace some of the electricity generated by them from time to time. In the above scheme for utilization of tidal power there are few advantages to the Maritimes, because much of the power would have to be sold to New England or Quebec, where it can be utilized more efficiently.

What does the development of tidal power mean to the environment of the Maritimes?

A workshop held in November, 1976 at Acadia University attempted to answer such a question. The results of the workshop showed that far too little is known about the natural systems involved to answer the questions properly. It is hoped that time will be allowed for the necessary investigations to take place to give good answers, and that enough consideration is given to environmental effects so as not to proceed if tidal development might produce significant detrimental effects in the environment.



The workshop was able to point out possible changes in the environment that could occur if a tidal barrier were constructed. One reason for the difficulty in predicting effects of the tidal development is that they will depend to some extent on the operational mode of the facility. If, for instance, it generates power only on the out-going tide, the mean level behind the barrier will be higher than the normal. This will result in permanently covering some tidal flats that have always been dry at low tide; it will change the level of flooding of the salt marshes and cause damage to present marshes; it will increase the distance to which salt water intrudes into the fresh ground water causing wells near the shore to become salty; and it will change the levels of mud and sand flats due to erosion and redeposition. Since the flow of water will be reduced, turbulence will decrease resulting in a lowering of suspended sediment and deposition of excess sediment somewhere on the bottom of the basin. The flow of fresh water into the basin from rivers will dilute the salt water more than normal since flushing is reduced, and the salinity of the water will be reduced (some plants and animals are sensitive to the salinity of the water). There could be a stratification of the water behind the barrier with a probable icing of the basin in winter; this would produce a colder, dryer climate in the winter where the wind predominantly blows off the water (Noel shore in the case of a tidal facility in Minas Basin).

If the power plant is operated both on the inflow and outflow then the mean level would be unchanged from the normal level but the maximum and minimum levels may change. These level changes will have some direct effect on the salt marsh vegetation due to changes in the erosion and building of the marshes.

Any change in the marshes, which are usually prolific producers of organic material, will have effects on the marine life in the bay and possibly life in the Atlantic. It is not known how important the Fundy system is to the Atlantic fishery.

What are the resources that are available in the head waters of the Bay of Fundy?

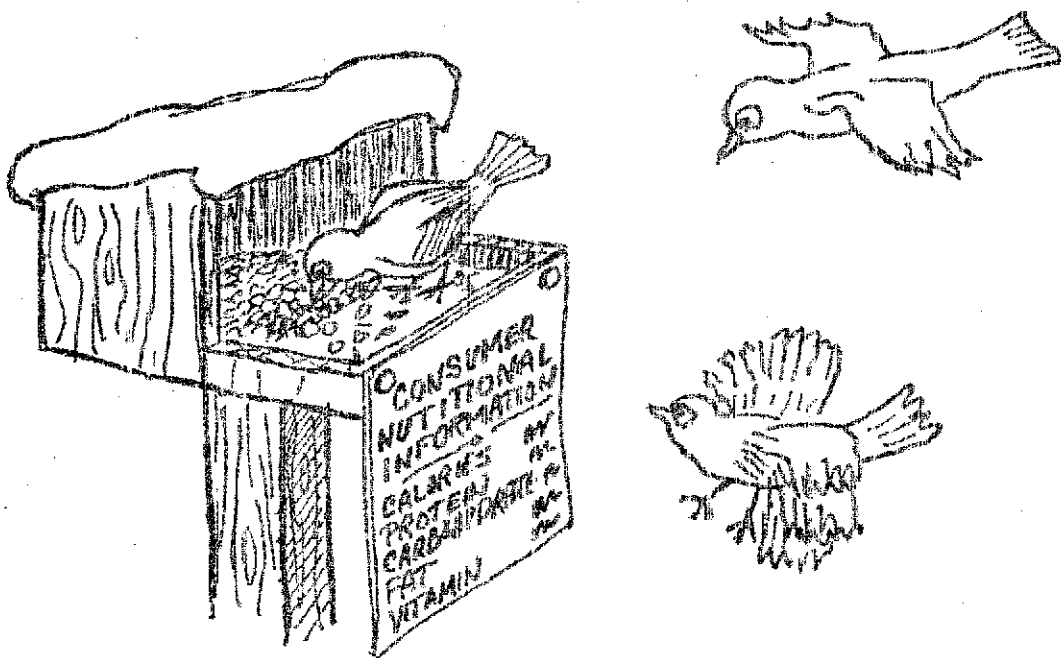
The mud flats are very productive for sediment feeders. Estimates calculate about 24 billion *Macoma balthica* (deposit feeding clams) and 3 billion *Mya arenaria* (soft shelled clams) exist in the Minas Basin alone. The shore birds feed on worms and crustaceans in the muds of the basins. In a survey of 1974 shorebirds (included over 25,000 acres of salt marsh and almost 180,000 acres of mud flat) 55,000 were counted in the Minas Basin and channel and 77,500 in the Shepody, Cumberland, Chignecto region. Another survey of senipalmated sandpipers all along the Atlantic coast of North America showed the greatest number occur in the Cumberland, Shepody, and Chignecto region and the second greatest in the Minas Basin and channel (230,000 and 52,000 respectively). Sedimentation at too great a rate in the flats will bury and kill much of the bottom life living there. An existing example of this is the mud island formed in front of the Windsor causeway which is not nearly as productive as the rest of Minas Basin.

The amount of sediment in the Basin is large, and with shoreline erosion it is estimated that there will be an accumulation of a sand bar 600 meters wide seaward of the tidal barrier in 20 years. The predicted life of the tidal plant used by the engineers to calculate the cost of electricity is 75 years. The sedimentation problem may lower that number and change the economics drastically (not to mention create a changed environment in Cobequid Bay).

It is just these problems mentioned above that stimulated the organization of the Committee for Responsible Tidal Development (CRTD) last year. The group is acting as a watchdog on the proposals presented by the Tidal Power Review Board. The CRTD has been studying all aspects of tidal power and plans to keep the public informed and hopes to ensure that a fair public decision is made on its development. For the moment, the CRTD feels that tidal power development should not take place until it can be conclusively shown that it will be beneficial to the Maritimes and will

not cause unwarranted ecological damage to the Basins and environs involved.

The CRTD needs help both financially and physically. If you wish to help, please contact the CRTD at P.O. Box 1364, Wolfville, N.S. Please send a couple of dollars to help support mailing and publication of information. If you are interested in studying tidal power, sending letters, typing, printing, writing, drawing, etc., please let the CRTD know.



THE BLOMIDON NATURALISTS SOCIETY NEWSLETTER

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"...the primary objective of the Society shall be to encourage and develop in its members an understanding and appreciation of nature. For the purposes of the Society, the word 'nature' will be interpreted broadly and shall include the rocks, plants, animals, waters, air and stars." ...from the BNS Constitution.

BLOMIDON NATURALISTS SOCIETY MEMBERSHIP

Please use the form below or send dues, name and mailing address to our Secretary-Treasurer, John Timpa, at the address given below. DUES: \$2.00. If we do not hear from you by March 21st, we will not be able to send you notices of meetings, field trips or the Newsletter after this date.

Membership Form: BLOMIDON NATURALISTS SOCIETY

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Send to: John W. Timpa, Secretary-Treasurer, BNS
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