

HALIFAX FIELD NATURALISTS NEWSLETTER

c/o Nova Scotia Museum
1747 Summer Street
Halifax, N. S.

nov.-dec. '76

8



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Meetings are held on the third Tuesday of each month, at eight pm; in the Auditorium on the ground level of the Nova Scotia Museum, 1747 Summer St., Halifax.

Field Excursions are held at least once a month, or as can be arranged.

Membership is open to anyone interested in the natural history of Nova Scotia. Membership is available at any meeting, or by writing to Membership, Halifax Field Naturalists, c/o the Nova Scotia Museum. Fee three dollars yearly, with a family membership at five dollars. Members receive the newsletter and notice of all excursions or special programs.

Executive for 1975-76

| | | |
|------------------|------------------|-------------------|
| President | Paul Keddy | 422-7238 evenings |
| Secretary | Winnie Cairns | 422-5581 evenings |
| Newsletter | Debby Burleson | 429-4610 daytime |
| Program | Scott Cunningham | |
| | Nan Hennessey | |
| | Don MacDougall | |
| | Mary Primrose | |

Mailing Address

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c/o Nova Scotia Museum
1747 Summer Street
Halifax, N. S.
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HFN is a member organization of the Canadian Nature Federation

This newsletter is printed with the assistance of
the Nova Scotia Museum

president's report

dynamite!

Paul
Keddy



- Annual General Meeting -

Mark off the date of our AGM on your calendar now! Here's a chance to meet other HFN members, hear speckers on the natural history of N. S. and indulge in an informal potluck and punch supper. For those of you who haven't been to an HFN meeting before, come out and meet everyone. Have a piece of our first birthday cake! Saturday, January 22, 1977.

- 10:00 - 12:30 Symposium "Nature Preservation in Nova Scotia"; see below.
- 2:00 - 5:00
- 5:00 - 5:45 Halifax Field Naturalists business meeting, members only:
election of new executive, nominations for directors at large
- 6:00 HFN supper, members only: Potluck and Punch

Potluck Supper This buffet supper will immediately follow. Warming ovens and refrigeration will be available, so bring your offerings with you and the supper committee will look after them until dupper time. To assist in meal-time planning, we suggest members with surnames beginning with A to M consider a main course of some sort, while N to Z consider dessert or salad type items. We will provide the punch, plates, etc.

Location of AGM Dalhousie University was the only facility where both auditorium and food preparation space was available. Enter via the main gates on Coburg Road, and drive straight ahead. When you can't go any further, you are facing the Life Sciences Building, and the parking lot is immediately adjacent. Meet in room 2840--we'll have signs to guide you.

HFN Symposium: Nature Preservation in Nova Scotia

What is being done in N. S. to protect wildlands, representative ecosystems and interesting natural areas? What areas of N. S. are already set aside, and what plans exist for the future? This Symposium will attempt to answer some of these questions, and acquaint you with some of these interesting natural areas of Nova Scotia.

Proposed program:

National Parks and Nature Preservation--the Kejimikujik Example
Peter Hope, Chief Naturalist, Kejimikujik National Park.

Provincial Parks and Nature Preservation--speaker yet to be confirmed.

Ecological Reserves---Jim Stanley, Provincial Committee on Special Areas.

Land Use Planning and Nature Preservation--the Pictou County Example
Rick Williams, Pictou County planner.

Roles for the N. S. Museum in Nature Preservation--Lynton Martin, Director.

Roles for Naturalists in Nature Preservation--Barry Goldsmith, Dalhousie.

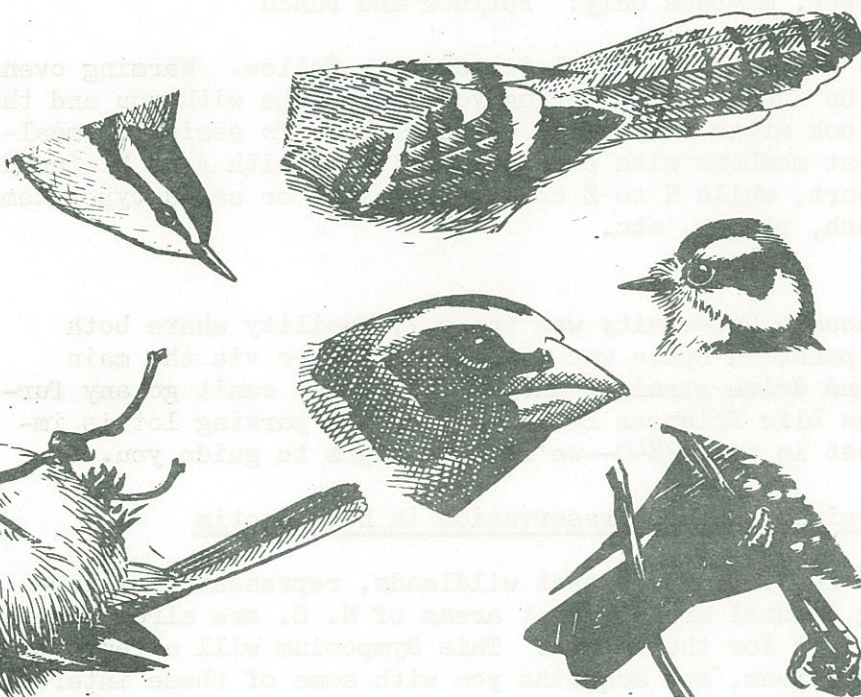
CHAIRMAN: Don MacDougall, HFN executive member, past president and director of the Nova Scotia Resources Council.



Count those Christmas Birds



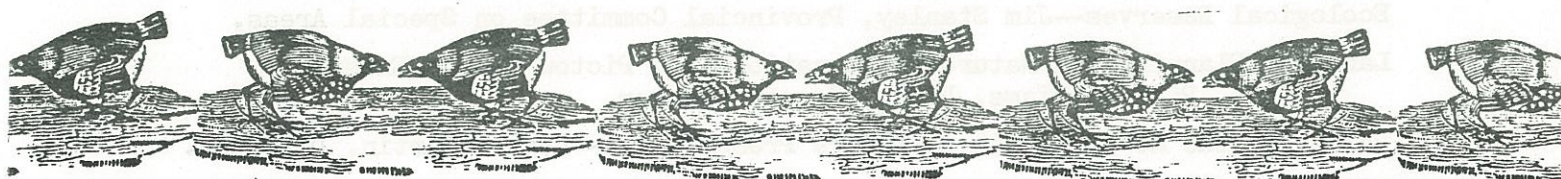
Nova Scotia Bird Society's Annual Christmas Bird Counts -- Each year at Christmastime the ardent members of the NSBS are busy recording and counting the bird species present at various points around the Province, as part of a bird observation that dates back many years and covers many countries. This year 15 counts have been scheduled during the period Dec. 18 to 31. If you would like to participate, contact Ross Anderson, 463-4188 for more information.



Ye olde Experte



Indoor birdwatching for the pure-of-heart but weak-of-flesh. Showing you the whole bird would be too easy and too unrealistic. Ye olde experte can identify them by the sounds of their chirps.



Change in Nova Scotia's Forests

Barry Goldsmith

Natural and semi-natural types of vegetation are very dynamic and changes occur as a result of climatic fluctuations and population phenomena within the species themselves. Seral stages in forests can last for several hundred years and natural outbreaks of pests and diseases can also occur over quite long time periods. Hence in examining Nova Scotia's forests we must bear in mind that human impacts have been relatively recent and possibly of lesser significance than, say, glacial and post-glacial effects, which had such marked effects on geomorphology and soils as well as the vegetation and fauna.

Today there is also considerable spatial variability due to differences in geology, soil, climate and past land-use and such variability certainly existed prior to human interference so there has never been a uniform forest type in Nova Scotia. This diversity has always been exploited by man who selects those species useful to himself and removes them. This was practised by the Micmac Indians and has been pursued through history to the present day. It may be contrasted with traditional European silviculture which seeks to encourage the growth of useful components of the forest. The critical question is whether the intensive cropping of the more useful species such as white pine and red spruce has had a serious impact on the forest of today; that is its species composition, forest structure, soil structure and nutrient status. To answer this question fully will require the work of a team over many years. We can, however, start off by looking at the historical evidence for change and it is to this end that I submit figure one and the bibliography.

Prior to about 1600 the impact of man, that is Indians, was probably in balance with the forest ecosystem and we could say that the forest could support that number of people over an indefinite period of time. The yield that men were taking was, therefore, sustainable. It is interesting then to examine the early reports of European settlers who first came to Nova Scotia.

Marc Lescarbot (1606), an Acadian based principally at Annapolis, comments on the richness of game but says rather little about the forest itself. He observed that organic fertilizer increased the yield of the vegetable plots which suggests that even then Nova Scotian soils were fairly nutrient deficient.

Saw Dust.

The saw dust question has been ventilated in the Dominion parliament on several occasions during the present session. The government has held the policy that saw dust deposits from the mills in rivers is injurious to the fisheries. Mr Kaulback (Conservative) is trying to induce the government to make the La Have river an exception, and to allow saw dust from mills on that river to go into the stream, as aforesaid. The minister of Marine and fisheries does not concur in the desire of Mr. Kaulback. N. W. White Esq. expressed himself as of the opinion that saw dust deposits, even in the La Have River, can not be otherwise than injurious to the fisheries.

Denys (1672) writes in much greater detail about forest structure and species composition and to my eyes describes a forest much like that of today. One report attributed to him in 1688 suggests that all the masting (white pine) is not good in the province which suggests that some areas in the original forest were of poor structure.

As early as 1728 the British government had to introduce measures to protect the better white pine trees as masting for the navy. Individual trees over 24 inches diameter were marked with the traditional broad arrow and this practice continued until 1760. If it was necessary to mark individual trees they must have been somewhat uncommon.

→ from the Shelburne Budget, July 29. 1891.

In 1773 Morris, a Surveyor-General of Nova Scotia, describes black birch (probably yellow birch) "in bigness about 9' or 12 in girth" on Cape Breton.

Other people have described birch forests on mainland Nova Scotia in living memory that one could ride a horse underneath and it is possible that many of these areas are currently covered by scrubby maple and white birch which appears so common today.

In 1784 there is reference to timber being imported from the United States which must support the theory that there was little timber suitable for house construction at Shelburne and Halifax at that time.

In the same year John Wentworth, Governor of Nova Scotia and Surveyor General of Woods of all British territories in America, commented that by Grand Lake, Shubenacadie there were Pines 2' - 2'6" diameter and clear of branches for 50 feet.



Woodcutter

By then the province had entered a period of rapidly increasing demands for timber and the number of sawmills was steadily increasing from 27 in 1767 to 90 in 1785 (See figure). This was the period of European settlement with land grants reaching their peak between 1759 and 1800, shiploads of fir being exported to England increasing from 565 in the year 1800 to 28,059 in the year 1818. Europe was cut off from its Baltic supplies of timber in 1808 by the Napoleonic Wars and turned to North America for its supplies. Shipbuilding within the province entered a boom phase with 600 vessels built between 1831 and 1838. Between the years 1815 and 1840, 40,000 new immigrants arrived and presumably timber homes were built. By 1860 Nova Scotia's forests must have looked very different from one hundred years previously. However, this suggests that the accounts written before this period provide us with a pre-exploitation description and accounts after 1860 with a kind of post-blitz impression. By 1861 the number of sawmills reached 1401, a number never to be equalled again in the province's history.

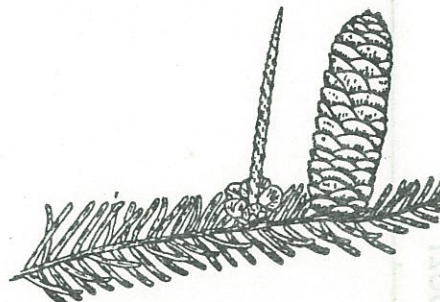
In the middle of this very interesting period there is a detailed and comprehensive account by Titus Smith, Jr. (1802) which describes three journeys by land across the province. His report repeatedly mentions barrens indicating that they were probably as extensive then as they are today. One day I hope that somebody will repeat his journeys and objectively determine the changes that have occurred since then.

More recently, Captain Hardy writing in 1869, describes the forest in considerable detail. He reports that "the burnt barrens extend for many miles, and are most dreary in their appearance and painfully tedious to travel through". He must rank as the greatest champion of conservation in the province, the equivalent of Gifford Pinchot in the United States. It is worth quoting Hardy directly:

"In the hands of which class of men does this colony now find itself? And I fear the unhesitating answer of the impartial stranger and visitor would be, that in all regarding the preservation of our living natural resources, we were in the hands of the destroyers. The course of destruction so ably depicted by the author quoted, is being presented throughout the length and breadth of Nova Scotia, and the settlers of this province, blind to their own interests, careless of their childrens, and utterly regardless of restraint imposed by the laws of the country, worse than useless because not carried out, are bringing about the final depopulation of our large wild areas of land and water."

After Hardy's time matters probably became worse because the pulp industry started about 1875 and by the year 1900 about 45,000 cords of pulp per annum

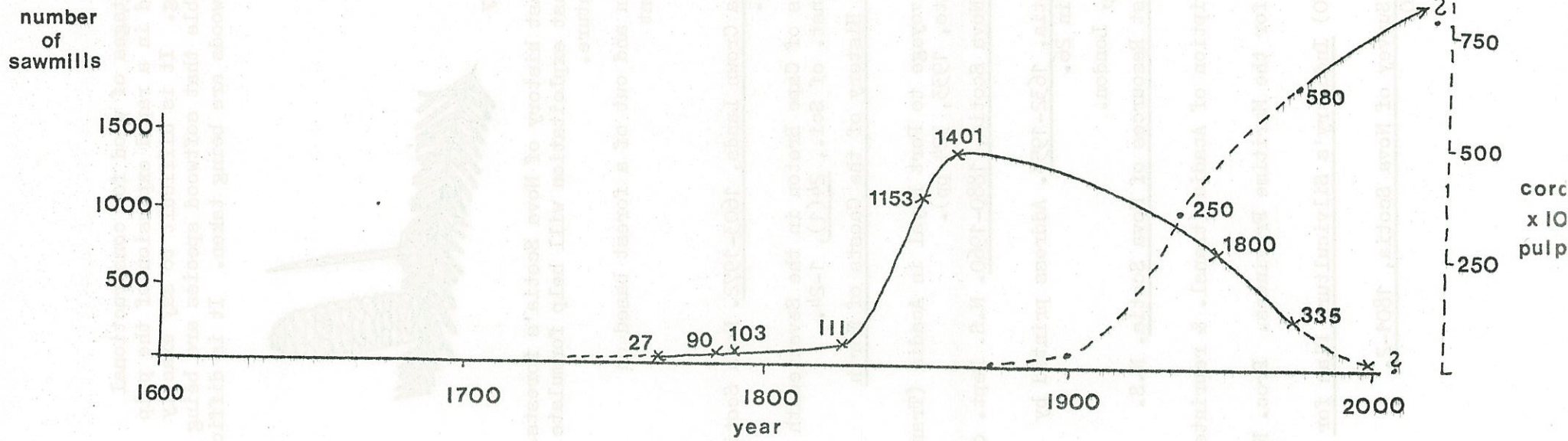
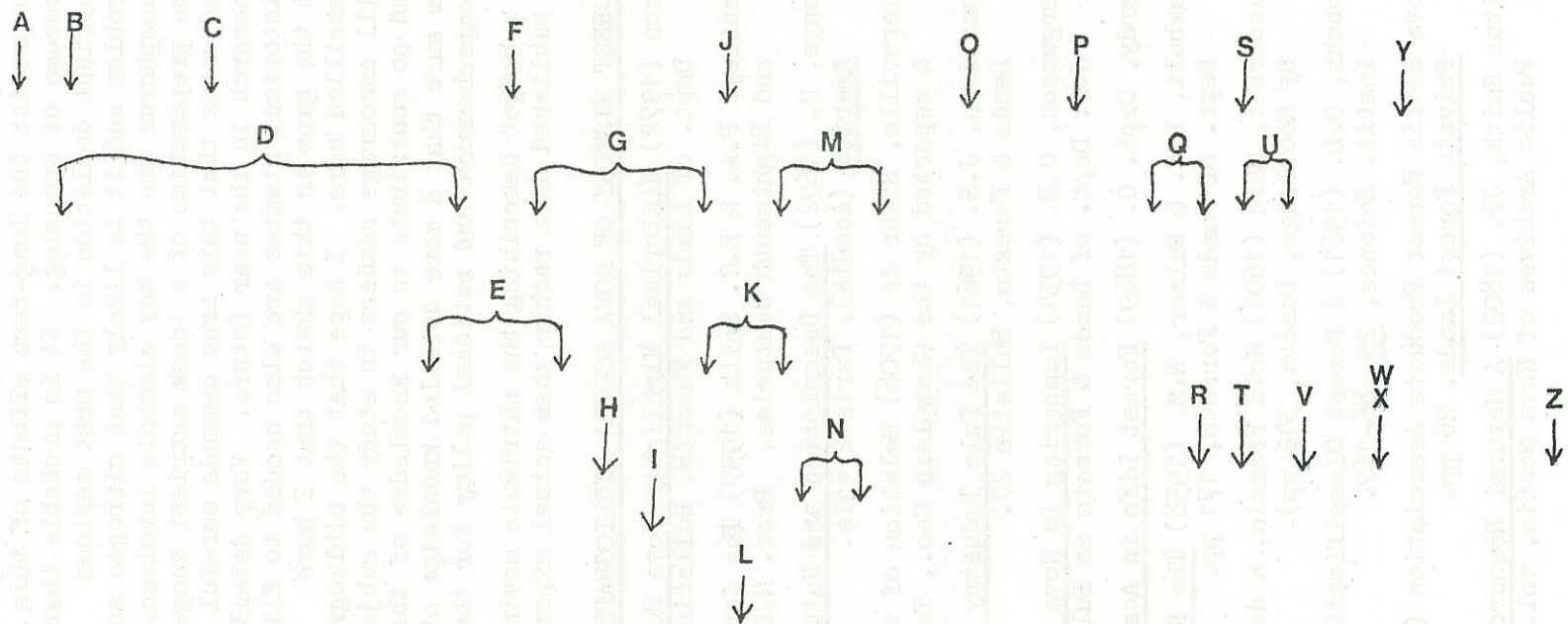
were being processed. At the same time shortages of wood for constructional purposes and changing market demands resulted in a rapid expansion of the pulp industry and a parallel decline in sawmilling. It is difficult to say exactly what the present position is but it is probable that softwood species are being over-exploited whilst only about 20% of hardwoods are being taken. It is difficult to predict the long-term effects of this process of cropping. It is probable that nutrient depletion is the most serious problem and it is likely that nitrogen and phosphorus are the key elements involved. The preparation of a 'desk nutrient budget'* indicates that this area demands careful research in the near future. Very detailed historical studies are also needed to fill in the gaps in this sketch that I have pencilled here. I hope that the bibliography will encourage readers to study the subject and so contribute to our knowledge of the past history of Nova Scotia's forests. I am sure that a more detailed knowledge of past exploitation will help formulate a comprehensive and rational policy for the future.

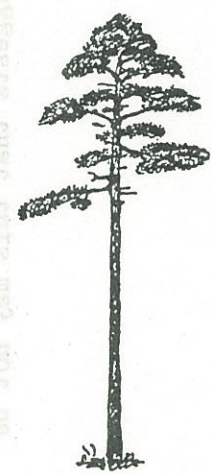
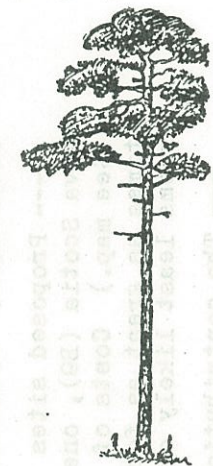


* a budget describing the nutrients moving in and out of a forest based on published data rather than actual experiment

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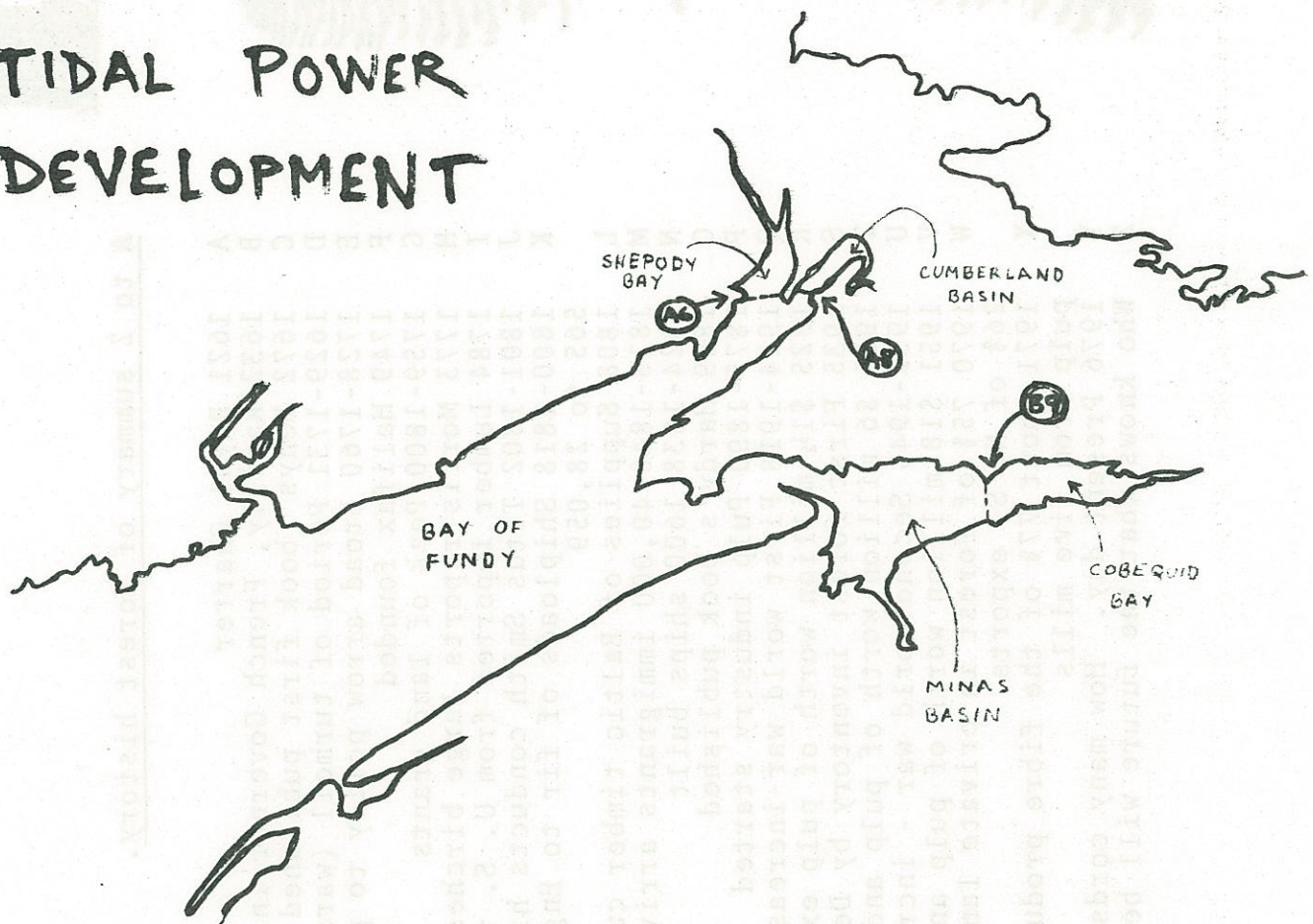
A to Z summary of forest history.

- A 1621 Royal Charter
- B 1632 Razilly, French Governor in Denys' time
- C 1672 Denys' book first published
- D 1629-1731 Period of turmoil (wars and strife)
- E 1728-1760 Broad arrow policy to protect large white pines
- F 1749 Halifax founded
- G 1759-1800 Peak of land grants
- H 1773 Morris reports large birches on Cape Breton
- I 1784 Lumber imported from U. S. to Shelburne
- J 1801-1802 Titus Smith conducts his survey
- K 1800-1818 Shiploads of fir to England increase from 565 to 28,059
- L 1808 Supplies of Baltic timber cut-off by Napoleonic Wars
- M 1815-1840 40,000 immigrants arrive from Europe
- N 1824-1838 1600 ships built
- O 1869 Hardy's book published
- P 1875-1890 Pulp industry started
- Q 1914-1918 First world war-increased demand
- R 1925 \$1½ million worth of pulp exported
- S 1935 First forest inventory by Dept. of Lands and Forests
- T 1935 \$6 million worth of pulp and newsprint exported
- U 1939-1945 Second world war - increased demand
- V 1951 \$18 million worth of pulp and newsprint exported
- W 1970 75% of forest in private land. Forestry exports are 26% of N. S. exports.
- X 1971 About 77% of the fibre production is exported as pulp from five mills
- Y 1976 Present day. How many cords of pulp are exported?
- Z Who knows what the future will be?



..... more on Fundy

TIDAL POWER DEVELOPMENT



A workshop funded by the Fundy Tidal Management Committee was held recently (Nov. 4 and 5) in Wolfville under the auspices of the Acadia Institute of Public Affairs. The FTMC is the body charged with the appraisal of the feasibility studies for the whole tidal development scheme, and must report its findings to the Power Review Board within 1½ years. The Wolfville meetings brought together scientists and knowledgeable individuals from a broad spectrum of disciplines with expertise pertinent to the problems of tidal power development. Published proceedings from the sessions should be available from the Acadia Institute at a later date. Meanwhile, a few gleanings of interest

--- Proposed sites now under consideration have been narrowed to three: one in Nova Scotia (B9), one in New Brunswick (A6), and one between the two provinces (A8). (See map.) Costs of erecting a structure at the Cobequid Bay site would be four times as great as for either of the other two; therefore, the Cobequid Bay site seems least likely of the three.

--- The contribution made by the upper waters toward productivity at the mouth of the Bay of Fundy is not known. The headwaters have been traditionally noted for their low productivity, but recent evidence suggests that this may not be the case.

--- Within the time limit accorded for the appraisal of tidal power, the biologists involved have recommended that studies be concentrated on shorebirds, fish, and macrophytic algae, and that these be used as indicators. Physical oceanographers want a thorough and effective analysis of the data currently available to them, while the geologists are calling for a detailed survey of the bottom of the Bay of Fundy. Chemists see the need for studies to evaluate the effects of heavy metals, pesticides and sewage entering the system above the barrage site.

--- The barrage design being considered consists of a series of concrete caissons with gaps in between to allow some passage of water. Although it is predicted that there will not be massive build-ups of sediment around the barrage this is not known for certain. Simulation models indicate a very small change in tidal amplitude at the barrage site at high tide (perhaps a few cm) but an increased effect with distance from the site (up to ± 20 cm at the far end of the Gulf of Maine (Boston area)), a factor which could lead to international repercussions. Behind the barrage the low water levels would be about the same as the present mean water levels. This could very drastically affect salt marshes as well as drainage patterns on adjacent low-lying agricultural land.

--- At present there seems to be at least one major objection to each of the three proposed sites; plus, in essence, one is economically unfeasible (Minas Basin), while the other two are relatively unknown as to productivity, geophysical and ecological structure, etc.

1) The mud flats of Mary's Point near Shepody Bay are a major staging area for hundreds of thousands of shorebirds which annually stop to refuel before moving southward, some then flying non-stop as far as the Caribbean.

2) The muds of the Cobequid Bay - Minas Basin area are known for their high invertebrate (e.g. shellfish) populations and the area may also be important as a nursery for fish stocks in the mouth of the Bay of Fundy.

3) Cumberland Basin is bordered by very extensive salt marsh systems and low-lying agricultural land.

--- Aside from the site considerations any tidal power development will also result in massive social and economic changes to surrounding areas. Roads, houses, schools, docks and a host of other facilities will be needed to service the project as well as the work force needed for the undertaking. Afterwards transmission lines will proliferate in all directions, and unless careful planning has occurred, the townsites and transportation systems will become obsolete in the low labour intensive post - construction era.



SWEET FERN

Super Smelly Stocking Stuffer

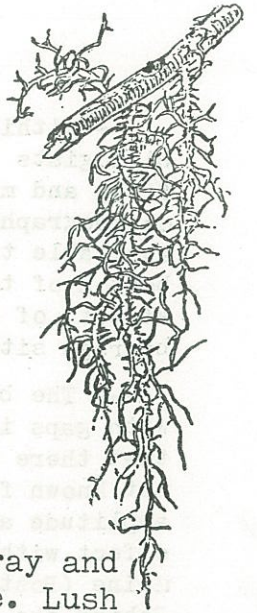
Here's the second spiffiest item you can stuff a friend's stocking with this Christmas. First is an HFN membership! Crumble up some dried sweetfern leaves; this plant grows everywhere on N. S. roadsides. Put crushed leaves in a little mesh bag, and you have a delightfully aromatic reminder of warmer days to help someone through the winter.



1 inch
Lung Lichen

Season of Lichens

Kathy Brawn



Winter is upon us once more. Deciduous trees stand gray and naked, stripped of their brilliantly painted fall foliage. Lush green grasses of summer are faded to somber browns, and crackle and break in the icy wind. Gone are the flaming fireweeds, the laughing daisies, the rosy red apples. Only the evergreens provide relief in the colourless landscape, or so it seems at first glance. There is one plant that does not sleep away the entire winter. Small and inconspicuous, the lichens remain healthy under their blanket of snow or ice.

Lichens are actually made up of two plants which form a partnership. The algal partner produces food while the fungus provides shelter and protection. It is a very effective partnership and together the two can endure the harshest conditions. Neither desert nor arctic intimidates the hardy lichens; they can survive on bare rock, sand, soil, tree bark or buildings. Wherever they appear, lichens add a spot of colour to their surroundings.

It is the algae which are colourful. The fungi, which form the outer layer, are dull gray when dry, but when wet are translucent and allow the brilliant reds, greens, yellows, oranges and browns of the algae to shine through. Water is necessary not only for the algae to be seen, but also for them to manufacture food. Lacking a root system, water is supplied to lichens by rain, fog, dew or wet snow and is absorbed through all parts of the plant. On hot, sunny days, lichens quickly dry out, become dormant and cease to produce food or to grow. In winter, too, lichen metabolism slows down and a state of dormancy prevails. However, lichens are quick to take advantage of any warmth, and whenever the sun is able to melt a bit of snow, lichens spring to life.



1 inch
British Soldier Lichen

This winter, be on the lookout for lichens. Masses of Old Man's Beard capped by sparkling white snow, brilliant red British Soldiers gleaming through the ice, and bright green Lung Lichen sprung to life on the dripping bark of a sun-warmed tree are all to be found. These and other lichens add a touch of colour and life to the stillness of winter.

Naturalists' Notes

A Hatch of Snaplings

Hatchling snapping turtles highlighted an October camping trip to Kejimikujik National Park. Their flask-shaped nests appeared as five-centimeter holes in the sand about twenty meters from the lake's edge. We found two nests about seven meters apart with hatchlings clambering up the hole. Once on the beach, each little turtle headed for the water without hesitation, being attracted by the large area of illumination provided by the lake. When we discovered the well camouflaged dark gray youngsters with their mottled heads and jaws, there were about fifteen of them spread apart on the beach. A button-like yolk sac, which is absorbed in a few days, was attached to the center of their plastrons (underside of the shell).

Rather than make the twenty-meter stretch to the water in one go, the young turtles would determinedly plod up and down the sand ripples, frequently resting in mid stride. Nearing the shore's edge, many would withdraw partially into their shells (snapping turtles are unable to withdraw completely). However, morning prodded the hatchlings' first flawless swimming strokes, demonstrating early their preference for water.

Young snappers actively forage for food while older ones lie in ambush to seize prey. Feeding usually takes place underwater, the source being fish, invertebrates and plant material. They are nocturnal, active by night, sluggish by day. The snapping turtle, Chelydra serpentina serpentina, is our largest freshwater turtle, preferring waters with a soft, muddy bottom, plenty of vegetation, and submerged brush, since this provides a good place to hide and to hibernate in winter. Both males and females become sexually mature when the carapace is about twenty centimeters long, which takes about five years. From June to mid July, the females will come ashore to find a good spot in sand loam or plant debris, and there, dig a nest, using her hind feet. Usually, twenty to forty eggs are laid per nest, many of which are eaten by raccoons and other small mammals. Hatchlings appear from late August to early October, and often fall prey to heron, bitterns, crows, hawks, bullfrogs, large fish and snakes. About twenty-five tiny turtles appeared that Saturday and Sunday, and more were still poking their heads up out of their nests when we reluctantly left.

Sue McCormack

Dung Fungi (seriously!)

Next time you are on a field trip try looking for animal droppings, they are interesting on two levels; first they indicate what species of furry or feathered animal has passed that way recently, and secondly they can grow a nice succession of fungal species. There is a specialized group of fungi that grow almost exclusively on dung. They are called the coprophilous (or dung-loving) fungi. Those fungi of special interest to the naturalist are the mushrooms. There are several species of mushrooms which grow on the droppings of herbivores (plant-eaters). The animal droppings I have found that yield mushrooms are listed in order of decreasing variety: cow, horse, domesticated rabbit, moose, porcupine, bear, wild rabbit and hare.

None of these dung mushrooms are known to be edible. Several of the Paneolus species are poisonous and some on the West Coast are hallucinogenic although none on the East Coast are. I would NOT recommend any experimentation since they are so closely related to several poisonous species which are fatal to man in large doses.

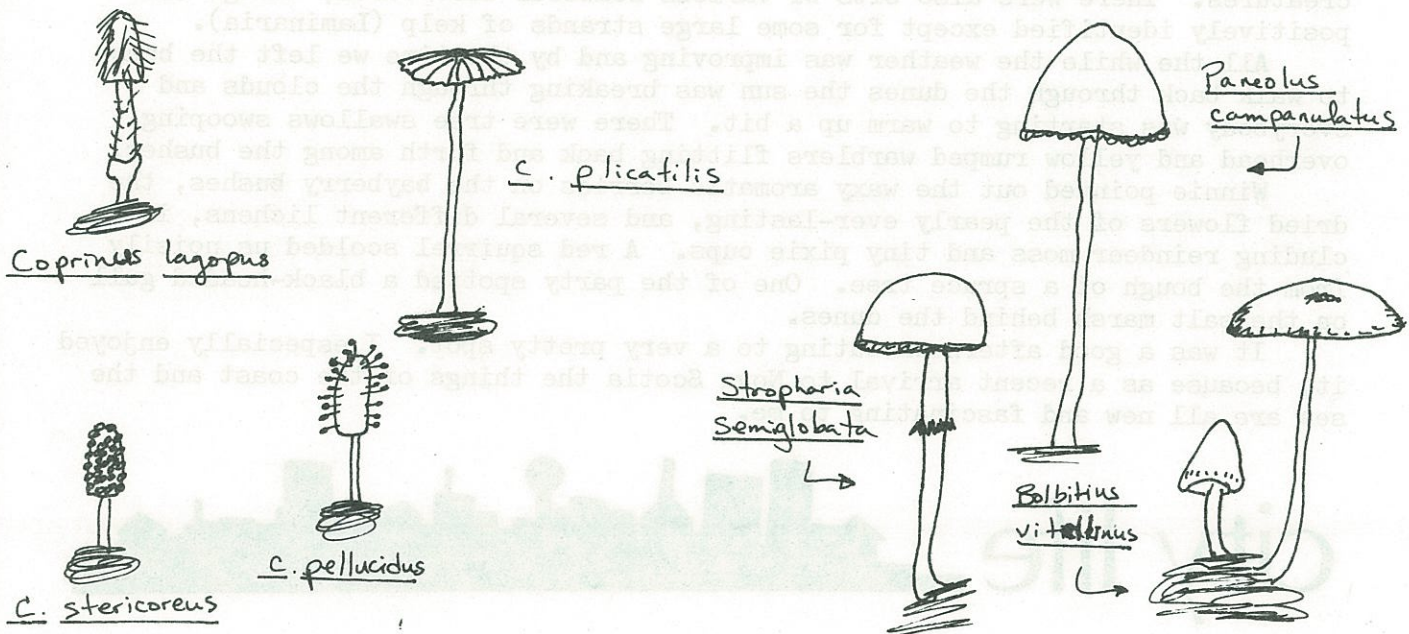
The mushrooms get into the dung by a very interesting mechanism. First they produce spores which fall around them, are blown by wind and rain onto grasses and bark of shrubs and trees. These plants provide food for animals. When the fungal spores are consumed with the food, they pass through the animal's digestive tract and are deposited with its dung. It is possible that some species may even require digestive juices in order to germinate. At any rate the droppings prove to be an ideal medium for growing the mushrooms, providing that conditions of temperature and moisture are adequate. They grow and ripen to produce spores of their own which consequently are released to fall on the grasses and shrub around them where they will be eaten by animals, thus completing the cycle.



The mushrooms sold in grocery stores are commercially grown on sterilized horse manure which is seeded artificially. Fungi in nature however occur naturally in dung by the mechanism discussed above, and will actually overwinter as spores in the dung and germinate the following spring. They can be forced to grow by the enterprising naturalists who bring them home and incubate them. Sometimes dung mushrooms can be seen growing in nature, but for the most part they have to be 'force-grown' by incubation.

While you are on a field trip, just check the ground as you walk along looking for birds or plants and you will be surprised how many different types of 'scats' or droppings there are now that you are actually looking for them. Collect these droppings in plastic bags. Porcupine 'berries' are quite small and require small bags while cow pads are larger and might take a garbage bag. I prefer to collect specimens that have dried in nature or overwintered since they have little odour left. Place them in a glass container with a little air circulation so that they don't get mouldy and leave them in a warm sunny spot like a radiator or window sill. Just water them enough to make them moist but not wet and wait for a few days to a few weeks. Nine times out of ten you will get some mushrooms to grow. This is a good project for children since these dung fungi will grow in the winter when no other mushrooms are up. For this reason they are well suited to Biology classroom demonstrations.

The most common of the dung fungi are the 'inky-caps', but there are also a number of longer lasting species to be found, on cow dung for the most part.



A useful reference to various types of dung is Peterson's Field Guide to Animal Tracks. A Key to Fungi on Dung by M.J. Richardson and R. Watling can be ordered for one British pound from the British Mycological Society. It is somewhat technical but has a few nice hand-drawn pictures in the back.

Leslie Houck
Wolfville

There was a respectable turnout for the trip to Conrad's Beach. We arrived in the early afternoon, to be greeted by a spattering of rain, a bitter wind, and an ominous-looking sky.

We set off along the trail through the dunes. Winnie Cairns, the trip leader, identified a number of the plants growing there and told us a bit about them--the maram grass, goldenrod and hawkweed, the insipid-tasting rose hips, and the false Solomon Seal with its pretty red berries.

Then we came out on to the beach where a pair of sharp eyes immediately discovered a fierce-looking jawbone, perhaps from a dogfish, someone suggested, and the egg case of a skate, poetically known to some as a mermaid's purse, to others as a devil's purse. Other finds were the skeletons of sand dollars, sea urchins and a crab.

We left the stretch of sandy beach and picked our way over rocks and boulders at the water's edge. The tide was low enough to expose dense clusters of tiny mussels, barnacles, periwinkles, and a few predatory dog whelks. Mike Burke provided a lot of interesting information about the habits of these creatures. There were also bits of various seaweeds discovered, though none positively identified except for some large strands of kelp (*Laminaria*).

All the while the weather was improving and by the time we left the beach to walk back through the dunes the sun was breaking through the clouds and everybody was starting to warm up a bit. There were tree swallows swooping overhead and yellow rumped warblers flitting back and forth among the bushes.

Winnie pointed out the waxy aromatic berries on the bayberry bushes, the dried flowers of the pearly ever-lasting, and several different lichens, including reindeer moss and tiny pixie cups. A red squirrel scolded us noisily from the bough of a spruce tree. One of the party spotted a black-headed gull on the salt marsh behind the dunes.

It was a good afternoon outing to a very pretty spot. I especially enjoyed it, because as a recent arrival to Nova Scotia the things of the coast and the sea are all new and fascinating to me.



Seems like everyone I meet these days, naturalist or not, has a comment about the large number of Robins still in the city. It's a bit late for these birds, as they normally spend the winter in more southern climes such as Florida or the Carribbean. One explanation offered is that this year there has been an exceptionally good crop of seed cones (pine cones and the like) and other tree fruits. It's hard not to notice the abundance of bright orange Rowan-tree berries along city streets. During the early part of November a flock of 30 or so robins feasted daily on the Museum's rowan tree fruits, then vanished. Several distinct flocks have been reported around town. One large one seems to be working the northwest sector--I've seen them one week eating berries on Edinburgh Street, then on to Liverpool, London, and Young Streets. It's not hard to tell where they've been--the rowan trees are bare in their wake. Perhaps we'll have some of these Robins with us all winter long, if they delay their departure much later. A few robins always show up in the Christmas bird counts, but look for red breasts against white snow to be more frequent this year.



Underwater Highways

A paved road under 18 feet of uninhabited lake! Well, that is what it looked like when discovered while I was skin diving last summer off Forest Point in Lake Ponhook near Greenfield, N. S.

The reason for the dive was to check the holding ground for the anchor of a small boat. On reaching the bottom I observed a most peculiar phenomenon: the entire bottom of the lake in that area appeared to be paved with a supersmooth asphalt, not a plant or rock in sight. The "paved" surface had been cracked by the anchor, revealing smooth sand beneath the hard layer. A cracked piece was lifted out, it was about three-quarters of an inch thick and to all appearance looked like asphalt. Once the piece had dried out it seemed that it was built up of many fine layers, the layer colours varied from black through mahogany to medium brown. It appeared to have been precipitated there but why, how and when? The Halifax Field Naturalists and the Nova Scotia Museum might have the answer. So I gave a piece of the "paving" to Debby Burleson at one of our fall meetings.

The answer to the underwater highway is a most interesting piece of natural history.....what is it, Debby?

Roy Wood

The Answer

A piece of pavement seemed out of the question, but that is exactly what the fist-sized specimen looked like. Next guess was a chunk of slag, but we were reasonably certain that Sydney Steel had never operated a western branch plant on the shores of Ponhook Lake. Bob Grantham, Museum geologist, was consulted, and Bob told us, "Wad it is".

That is, it is Wad, a term applied to a mixture of oxides of manganese with water. Apparently the manganese compounds precipitate out of water in quite a few acid lakes in Nova Scotia. This certainly accounted for the layered appearance of the specimen. One component of Wad, Pyrolusite, is an important ore of manganese. With manganese nodules on the bottom of the sea and a manganese icing on the bottom of Ponhook Lake, the world's supply seems assured.

Bob liked the specimen so much, it being better than those in the Museum collection, that Roy kindly donated it to us.

Thanks Bob, and thanks Roy for bringing this unusual item to light.

Book Review

ANIMAL SIGNATURES

A FIELD GUIDE TO SOME NOVA SCOTIA WILDLIFE



Developed by

Edward Claridge & Betty Ann Milligan
Education Section

Published by
The Nova Scotia Museum

On receiving this booklet for review my first impression was that, as a field guide, the size ($4\frac{1}{2}'' \times 11\frac{1}{2}''$) was too long and unwieldy for maximum field efficiency. On looking into it, however, I realized that the length had been chosen with a purpose. The book sets out the track prints of some of the commoner species of Nova Scotia animals and these are reproduced in life size and arranged together with smaller diagrams of the track "patterns". This feature is so helpful in the field that it more than offsets the un-pocketlike shape.

Coverage is divided into groups of species--cloven-hoofed, pad-footed, etc. In addition to the track prints and patterns there is a drawing of each animal with a short description of size, colour and habitat. In all but a few cases all the information on each animal is contained on a single or double page--a real on-the-ground bonus, obviating hurried thumbing around for details. Included for comparison are tracks of a few common domesticated animals--cow, dog, sheep, etc., another extra help to the beginner, for after all a fox and dog track are not all that dissimilar. At the end of the track section there are a few pages of the track patterns printed in small scale, side by side, with page references. A short section on animal browse comes next (how to tell what has been nibbling the shrubs) followed by some depictions (mercifully not all life-sized) of animal scat and a miscellany of notes and tips on tracking.

The field guide is produced on a medium heavy paper, stapled, not glued, with a ticket board cover (which helpfully includes a measure in centimeters and inches), not as sturdily made as its contents deserves but nevertheless fairly durable.

The publication does not purport to be an exhaustive guide to our native animals and their tracks, but, as stated in the introduction, to include those most commonly encountered. This is commendable, as a proliferation of species would only confuse. Nonetheless, I do feel that there are some notable omissions. No common everyday rabbit or beaver, and none of those fascinating tiny-tracked shrews and lemmings?

I found the section on bird tracks disappointingly short, with no shore-bird tracks at all (very commonly seen) and other notable omissions--like the Great Blue Heron track which often decorates our shores and pond edges. Such criticisms, however, should not detract from the overall impression of the publication which is that it is well thought out and painstakingly and lovingly put together. The mere fact that one wishes it included more serves as evidence of the enthusiasm it generates.

Edward Claridge and Betty Ann Milligan are to be congratulated on their production.

reviewed by Shirley Cohrs

Have you marked that AGM date on your calendar yet? Remember, its's Saturday, January 22, 1977.

MEANWHILE, all of our trusty field trip leaders seem to have great personal plans for this holiday season, so we must leave you to enjoy the outdoors on your own this month. It's a good time of year to learn the difference between Fir and Spruce trees.

Movie Night is planned for January 8 (Saturday) at 8pm at the Museum. Titles to be announced, but should be good for the whole family.

1977 Topics may include Predators, Ferns, Bird Migrations, Saltmarshes, Bats--your ideas are always welcome. Dig out the long underwear, because there'll be winter field trips too. And in a mere three months or so we'll be out chasing Spring Peepers across cold rainy roads. With events like this, how can you help rushing right out to

SEND US YOUR 1977 MEMBERSHIP, NEW OR RENEWAL.

Material for the January-February newsletter should be at the Museum by January 25. And Season's Greetings to all.



Membership in the Halifax Field Naturalists is open to anyone interested in the natural history of Nova Scotia. Membership fee is three dollars annually, family membership five dollars. Come to a meeting or write care of the Nova Scotia Museum, 1747 Summer Street, Halifax.

All members are reminded that we would like to receive your fees for 1977.

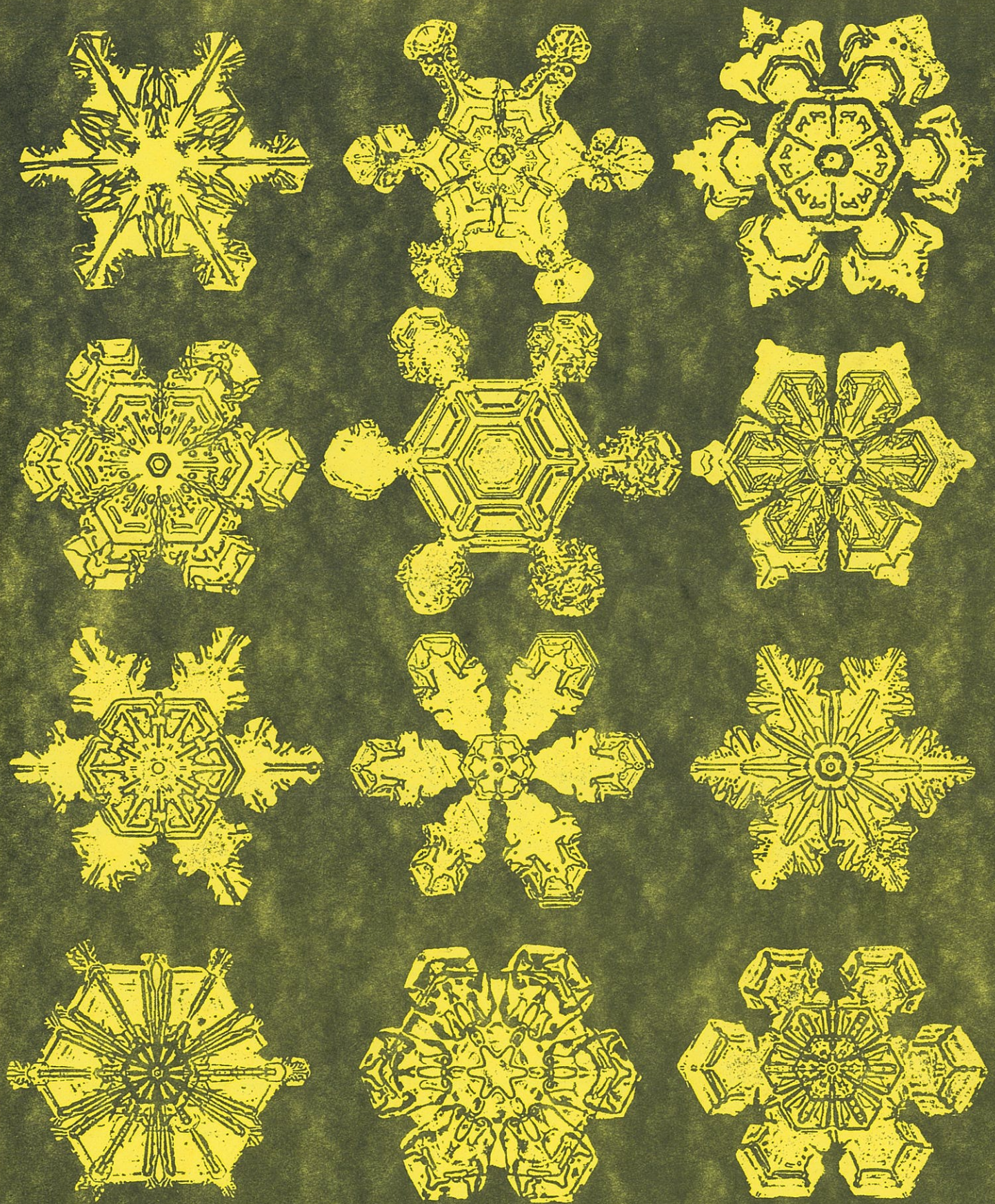
Halifax Field Naturalists new ____ or renewal ____

name _____

address _____

occupation or interests _____

suggestions for programs? _____



Snowflakes - a feature topic for our Jan.-Feb. newsletter