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# HALIFAX FIELD NATURALISTS NEWSLETTER

c/o Nova Scotia Museum
1747 Summer Street
Halifax, Nova Scotia
B3H 3A6

APRIL - DECEMBER, 1981.

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Meetings are held on the first Thursday of every month at 8.00 P.M. in the Auditorium on the ground level of the Nova Scotia Museum, 1747 Summer Street, Hfx.

Field Excursions are held at least once a month.

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 N.S. Museum. Individual membership is $5.00 yearly; family membership is $7.00. Members receive the newsletter and notices of all excursions and special programs.

Directors for 1981-82 -

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HFN is a member organisation of the Canadian Nature Federation
HFN is incorporated under the Nova Scotia Societies Act.

# hfn news

HAND LENSES FOR SALE -

Recently, HFN purchased ten double-lens folding hand lenses for sale to our members. The cost per hand lense is $8.70. If you would like to purchase one, please contact Anne Greene (423-8919). The magnifications of the two lenses are 2.5 X and 4 X, and can be used together. Thanks to member Norman Pinsky for picking these up for HFN while in New Brunswick.

ANNOUNCEMENT -

The Alberta Society of Professional Biologists will hold a symposium (20-21 April, 1982) on Environmental Monitoring.

For further information, contact the Editor.

NEW PARKING LOT AT HEMLOCK RAVINE-

You no longer need to worry about access to Hemlock Ravine. Now, at the end of Kent Street (take the Bedford Highway out as far as the "Round House" and directly on your left is Kent Street) is a brand new parking lot. Out of the way of the main road, it is moderate in size and unobstrusive. Bravo!

OUR LIBRARY -

We are receiving some extremely useful material. Here are some recent additions. Please come in and see them.

Canadian Conservation Directory

Published by the Canadian Nature Federation, this further addition provides up-to-date documentation of the many organisations which are concerned with the environment across Canada. Everything from citizens' groups to consulting companies and environmental lawyers are listed. Addresses, a short descriptive paragraph, number of members and recent activities are provided.

Environment Canada - Atlantic Region Regional Directory

This booklet provides good access to the Federal Government's Environment personnel in the Atlantic Region. Contact persons, addresses and phone numbers are provided for each branch of the department (e.g. Canadian Wildlife Service, Lands Directorate, etc.) as well as short descriptions of each branch's activities.

Several governmental publications regularly received by HFN, if scanned, can provide you with a really good idea of what is going on environmentally across Canada.

These are:

1) Park Scan - put out by Parks Canada bi-monthly.
2) Citizens' Bulletin - published jointly by Friends of the Earth and Environment Canada.
3) Environment Update - published by Environment Canada bi-monthly.

## EDITOR'S NOTE

Another late issue, but well worth the wait. The enthusiastic group studying the South End Railway Cutting have finished their report which is presented in this issue. It is well done and very interesting reading. The four persons involved deserve a lot of credit. M.J. Harvey was the project co-ordinator , ably assis - ted by Doris Butters, Maud Godfrey and Bernice Moore. Thank you all for a job well done.

## SOUTH END RAILWAY CUTTING

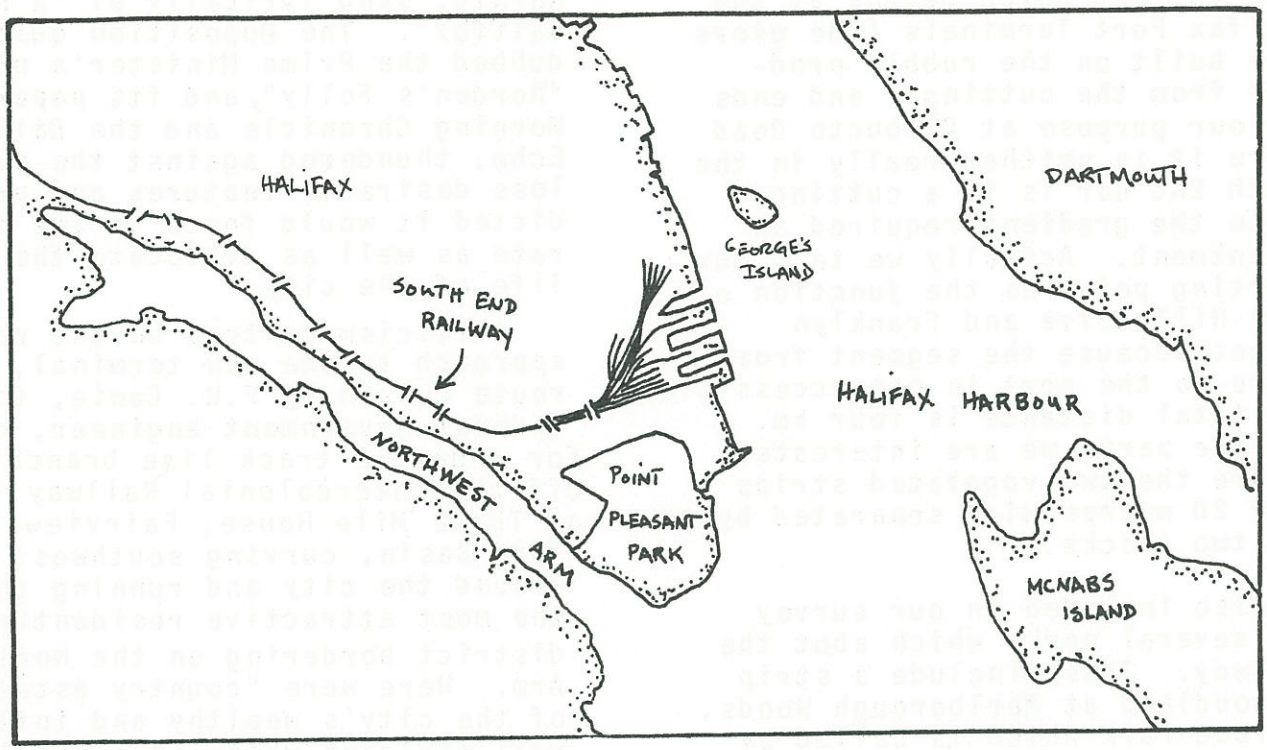
### REPORT NO. 2 OF THE AREA

### STUDIES GROUPS

Fifteen years ago, when one of us moved into the South End of Halifax, the railway was bordered by a narrow strip of grass and shrubs into which it seemed even the local kids rarely ventured. However, weekend walks revealed a wealth of features and over the years this has grown into a fascinating story which we think is worth sharing. In addition, a gradual change in public consciousness has raised interest in both the history of Halifax and in natural history.

On a personal level our interest started with casual strolls on warm days during which a large number of garden plants were found growing with more or less vigour where they had been unceremoniously dumped among rubbish from gardens just across the road. These included daylily, daffodils, lily-of-the-valley, periwinkle and even a rhubarb plant. But it became obvious that other garden plants were of older origin since their cultivation dates back from the last century. For instance, few people nowadays voluntarily grow the giant Japanese Knotweed (with its charming local name of "chinese rhubarb"), or goutweed or toadflax, or even know the herb sweet cicely with its finely-divided leaves smelling of aniseed. These are ex-garden plants either of no interest to modern gardeners or even regarded as weeds. One such relic of old times is a female hop plant growing near the Beaufort Drive electricity sub-station. It reminds us of the days when people brewed their own beer (some of us still do).

The gardening instinct resulted in the discovery of some Rhododen-




MAP SHOWING THE LOCATION OF THE SOUTH END RAILWAY.

dron seedlings grown from seeds blown from an adjacent garden. The seeds had germinated on a damp, north-facing bank and the plants are now flowering-sized bushes in one of our gardens.

Late summer brings a crop of berries which used to be solidly ignored by most of the adjacent residents; soon after moving to the South End a neighbour told one of us that the berries were poisonous because the CN sprayed them (they don't). However, increasingly through the 70's people re-learned some of the old traditions and berry-picking is now so popular that it is hard to get any raspberries or blueberries, and even the abundant crop of blackberries is assiduously picked not only by the locals but by people who drive from some distance away.

The only fruit which are largely ignored are the less valuable indian pear (quite good in pies) and rose hips (which need a lot of work to make jelly or syrup but easy to dry for making rose-hip tea).

While it was fruit and flowers which acted as the main attraction for some of us, for others it was bird-watching, and for yet others, health. In fact, we watched in amazement as a government campaign to promote fitness - you remember, there was hope that some of the young among us might even become as fit as the average 60-year-old Swede - resulted in the grass strip along Beaufort Drive becoming a jogging strip and by 1974 the hitherto pristine turf had a footpath pounded into it.

So our story is a mish-mash of food and fitness, gardening and geology, plants and politics.

What is the South End Railway? We use the term to refer to the rock cutting which begins at the Halifax Port Terminals (the piers were built on the rubble produced from the cutting), and ends for our purpose at Chebucto Road where it is neither really in the South End nor is it a cutting, since the gradient required an embankment. Actually we take our starting point as the junction of Pine Hill Drive and Franklyn Street because the segment from there to the port is not accessible. The total distance is four km. and the parts we are interested in are the two vegetated strips some 20 metres wide separated by the two tracks.

Also included in our survey are several parks which abut the railway. These include a strip of woodland at Marlborough Woods, Conrose Park which is called by the locals the Horsefield, and Flinn Park with the parallel park across the line running along Quinpool Road.

## History

Hopes for an enlarged ocean railway terminal had been simmering in the Halifax buisiness community since before the turn of the century. These were encourged by politicians from time to time. Robert Borden's statement that "the terminals at Halifax should be improved" in his August 18, 1903 speech on government railway policy was taken as a promise, and became a key plank in his election campaign of 1912. Well before the actual plan for a railway and shipping terminal at Greenbank near Point Pleasant Park was announced, with great fanfare at a Board of Trade luncheon on October 30, 1912, there was a good deal of speculative real estate activity in areas expected to be subject to expropriation.

Reactions to the announcement by the Hon. Frank Cochrane, Minister of Railways and Canals, were positively ecstatic in Conservative circles whose newspaper, the Halifax Herald, sang lyrically of "a new Halifax". The Opposition quickly dubbed the Prime Minister's plan "Borden's Folly", and its papers, the Morning Chronicle and the Daily Echo, thundered against the plan's less desirable features and predicted it would force up the tax rate as well as dislocate the whole life of the city.

Criticism centred on the railway approach to the new terminal. The route chosen by F.W. Cowie, the federal government engineer, called for a double track line branching off the Intercolonial Railway (I C R) at Three Mile House, Fairview, on Bedford Basin, curving southwest around the city and running through the most attractive residential district bordering on the Northwest Arm. Here were "country estates" of the city's wealthy and influential citizens whose spacious lawns and tree-lined carriageways, even one or two of their residences, would be demolished by the steam-shovels carving out the roadbed for the railway tracks.

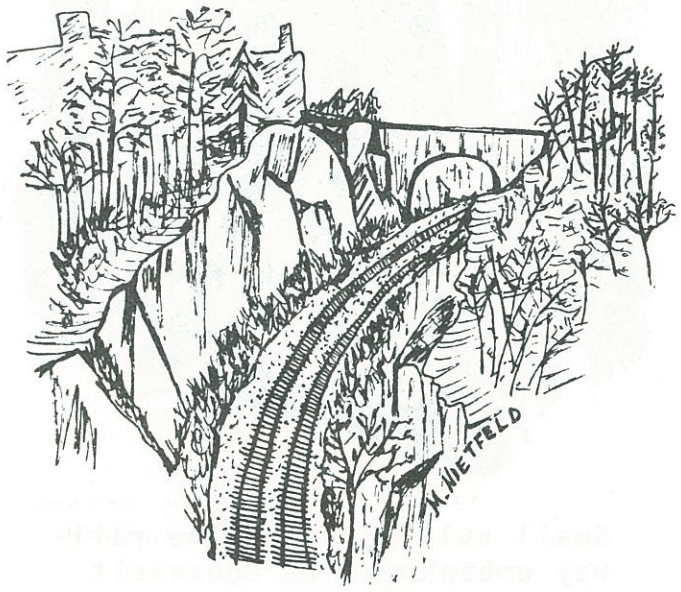
The idea of running a branch line this way from the ICR was not new. As early as 1896 it was proposed to have electrical trains on such a route, down to the People's Heat and Light Company's Works on the Northwest Arm.

The most vigorous opposition did not come from the very large landowners, some of whom had been interested in the project, and whose pain at the loss of flowerbeds and exotic imported trees was much assuaged by the prospect of a very good price for land they could easily spare. Real opposition came from small property owners who feared that level crossings, smoke and noise would reduce their neighbourhood from "a good residential, aristocratic district to a mechanic's district".

Liberal supporters, led by the Morning Chronicle, thundered furiously at "scandals" and at all the drawbacks, mustering experts

to prove the navigational hazards of an ocean terminal so near the mouth of the harbour, requiring a breakwater.

The naval and military establishment complained that the plan contravened legislation safeguarding its rights, and would interfere with communication between the Citadel and the Harbour defences, thus obstructing defence in the event of attack from the sea.




The Federal Government's engineers had prepared four proposals for combining an ocean and a rail terminal, even one located in Dartmouth, but they were well prepared to forestall objections to their preferred plan entailing the line through Halifax's South End residential district. They promised a line going below ground level at just above Quinpool Road, and hidden in a cutting at depths varying from 35-60 feet to eliminate nuisance from smoke and noise. And they promised "artistic" bridges on all intersecting streets to obviate level crossings. Opposition was to a certain extent disarmed, and also so tardy that when a public protest meeting was finally called about six months later, the attendance was not impressive.

The contractors employed to put the line through and erect the bridges were Cook Construction Co. Ltd., Sudbury, Ont., and Wheaton Bros. Railroad Contractors, Amherst, with principals Andrew and William D. Wheaton. The Nova Scotia Directories of the time do not list such a company in Amherst, but an Andrew Wheaton and a William D. Wheaton were listed in the Cumberland Co. section of McAlpine's Nova Scotia Directory for 1914, living at Nappan and Woods Mountain respectively. The official start-up date was to be July 31, 1913. There seems to be some confusion as to whether or not there was a formal sod-turning ceremony, but the General Manager of Government Railways was in Halifax on July 30th to officially inaugurate the project. The Herald headline on July 31st proclaimed "Work begins at Fairview on Halifax Terminals Railway", while the Morning Chronicle lamented "The Vandalism Begins". However, it may have been a token beginning because little equipment was on hand till nearly a month later. On August 21,1913, the Herald reported "thirty-eight dumping cars, two locomotives and two steam shovels' were on their way to the city.

Work began first at the Fairview end of the line on Bedford Basin, and a few weeks later at the Harbour end, at Greenbank near Point Pleasant Park. For four years two crews of labourers of various origins dug and blasted towards each other, and many people remember the fascination with which, as children, they watched the very small locomotives and string of about thirty tiny cars travelling back and forth with their small but heavy loads of rock. The work trains from the Fairview end discharged their cargo into Bedford Basin to build the freight-marshalling yards. Those from the Greenbank end dumpedthe rock into the Harbour where some of it was used to build the breakwater.

Area residents suffered not only from the noise and dirt inseparable from such operations and an invasion of "navvies", but also from more serious troubles. The blasting cut off their water supply

and it took some time to persuade the city that it should lay special piping to restore it. Trestle bridges put up at street crossings until completion of permanent bridges were undoubtedly viewed with some trepidation by what were then called "autoists" and also by passengers on the street railway along Quinpool Road. Women who were students at the Halifax Ladies College at the time recall the shivery qualms with which the 'crocodile' crossed the suspension footbridge on Tower Road. Girls who suffered from fear of heights got to be very ingenious thinking up ways to be excused from the daily walk. By the time the work was completed there were sixteen handsome concrete bridges. The contractors proudly advertised that the longest single span was 144 feet, and the longest bridge, at Young Avenue, was over 210 feet. Other, less obvious structures, had to be built along the way of course, and some of these can still be seen by the alert observer. One of the more noticeable is a not-yet-buried culvert bearing the date 1914, near where Churchill and Roosevelt Drives join.


Small culvert under the railway embankment at Roosevelt and Churchill.

The two work crews finally met sometime in the fall of 1917, but by then the First World War was filling the papers and monopolising everyone's attention and scant notice was taken of progress on the railway line.

That the work had gone doggedly ahead through the war years was to prove providential after the Halifax Explosion on December 6, 1917, destroying the North Street Railway Station and the lines leading to it. Construction crews worked furiously around the clock to put up temporary train sheds at the proposed site of the new South End Terminals and to ready the lines so that relief trains carrying medical personnel and supplies could be routed around the devastated area and brought within reach of the city centre. But for that line, relief workers, medical supplies, food, and the hundreds of other necessities would have been much slower reaching the wounded and homeless.

The first official passenger train, the Maritime Express, steamed out of the still incomplete new station on December 22, 1918, carrying a distinguished group of governmental and business dignitaries bound for Fairview, thus ceremonially inaugurating the new service. Excited, cheering crowds gathered on the bridges, especially at Young Avenue and Tower Road, to watch the historic train go through. Perhaps the train was led by one of the red "ten wheeler" engines designed by Timothy Blood of the Manchester Locomotive Works, bought by the ICR in 1901 and used 'till

about 1927. Passengers undoubtedly looked up with awe at the rock walls towering above them. Residents of homes near the cutting heard the wail of the whistle, the roar of the thundering wheels, and smelled the smoke of the coal-fired steam engines, while housewives ruefully surveyed soot-speckled laundry. For, monumental as had been the labour of blasting out millions of tons of bedrock, to a depth of 65 feet in some places, the line was not as inconspicuous and quiet as promised until the advent of the Diesel engines many years later.

Walkers along the cutting today, wherever they can circumvent the fencing which federal railway legislation requires the CNR to maintain (and, incidentally, us to respect) can be grateful to the railway planners of 70 years ago who inadvertently preserved for us a slim slice of an earlier, almost rural Halifax. If it were not for the cutting, the area would be entirely private residential property, every trace of native vegetation and earlier ways of life vanished.

Thanks to the railway we can still walk through a little of Marlborough Woods. Around the turn of the century groups of children roamed these lovely woods playing at Robin Hood, signalling each other with secret 'bird calls' which later, on First World War battlefields enabled Haligonians to locate each other.

Progressing wherever the railway's steel fencing has been breached, we can follow a narrow footpath and find occasionally some flower or shrub to remind us of the stately gardens of yesteryear. Could the Manitoba Maple between Oakland and South Streeet be a survivor from the magnificent gardens maintained at "Oaklands" by William Cunard, second son of Sir William Cunard?

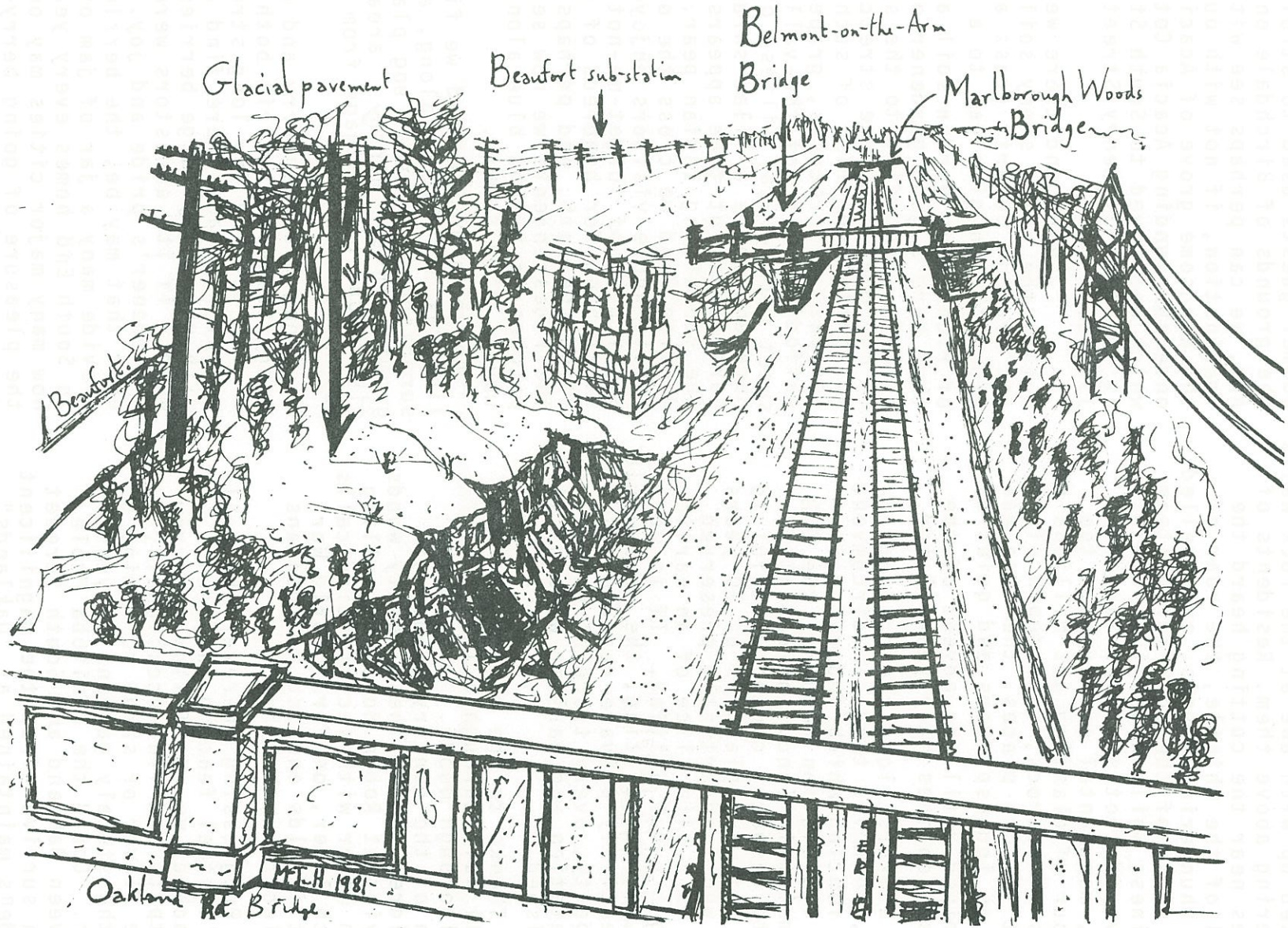
Nearing Coburg Road, where summer guests used to stroll in the grounds of Birchdale on the Arm, we can perhaps see with our imagination, if not with our eyes, the handsome grove of Acacia trees once surrounding Acacia Cottage, which was moved to South Street at the foot of Henry Street in the 1950's.

Here and there we will notice the thin, stony soil with its crop of poverty grass and rosy crust lichen give way to a stretch of rich, deep garden soil and know that here a good gardener once worked. According to the season we may meet in these stretches the delightful surprise of such 'garden escapes' as crocuses, grape hyacinth, daffodils, lily-of-the-valley, sweet cecily, day lilies, or pansies Here and there a lilac shrub or horse-chestnut tree appears among the prevailing Indian pear. Near Jubilee Road we cross the old Pryor estate where visitors enjoyed the sunny blue of forget-me-nots stretching for hundreds of yards along the path, and perhaps it is their descendents we now see in patches of bright blue along the way in high summer.

Above Quinpool Road we find English Oak and futher along, are surprised by typical bog plants growing in the marshy area caused by diversions of drainage from the railway.

Among the raspberry and blackberry bushes which rim both sides of the cutting for long stretches, we may here and there find a bush with unusually large berries and wonder if its ancestors were once a gardener's pride and joy. However that may be, the berries provide many a jar of jam or jelly in South End homes every year. In how many major cities may one have the pleasure of going berry-picking in the fall?

View of the South End Railway looking southeast from the Oakland Road bridge.



Time has softened the outlines of the scar made by dynamite and steam shovel across Halifax's loveliest neighbourhood. And the railroad has preserved for us the chance to step back in time and wander through surviving traces of wilderness, interspersed with evidences of the work of people devoted to the creation of their personal vision of beauty.

## Geology

The railway runs through the south end of Halifax in a cutting in slate of the Halifax Formation. This is an ancient, metamorphosed sedimentary rock of Cambrian-Ordovician age (c.500 million years ago) and owes its origin to silt and clay eroded from a long-vanished mountain chain which must have been situated somewhere around where present-day Morocco now lies. This is not so unlikely as may initially seem since the Atlantic Ocean did not exist in those times. The suspended matter from rivers settled out on the seabed in neat horizontal layers, but during Devonian times (400 m.y. ago) there was a very active period of mountain building and the layers were folded and heated. This event almost obliterated the original bedding planes (they can just be detected), superimposing a completely different set of fracture planes and considerably toughening the rock by recrystallisation. Some of the heat and pressure for this probably came from the intrusion which formed the granite on the other side of the Northwest Arm. If you examine this granite you will see occasional lumps of Halifax slate which were mixed into it while it was still in a mushy state. Thus the granite came after the slate.

Turning now to relatively recent happenings, the Ice Age, which began maybe as much as two million years ago, is the event which literally shaped modern Nova Scotia. The Ice Age consisted of several glacial episodes interrupted by warm periods. The latest cold spell ended about 9000 years ago with the last ice melting ing from Nova Scotia on the Cumberland Mountains and Cape Breton Highlands. As everyone now should know, it is only a matter of time until the next cold spell starts.

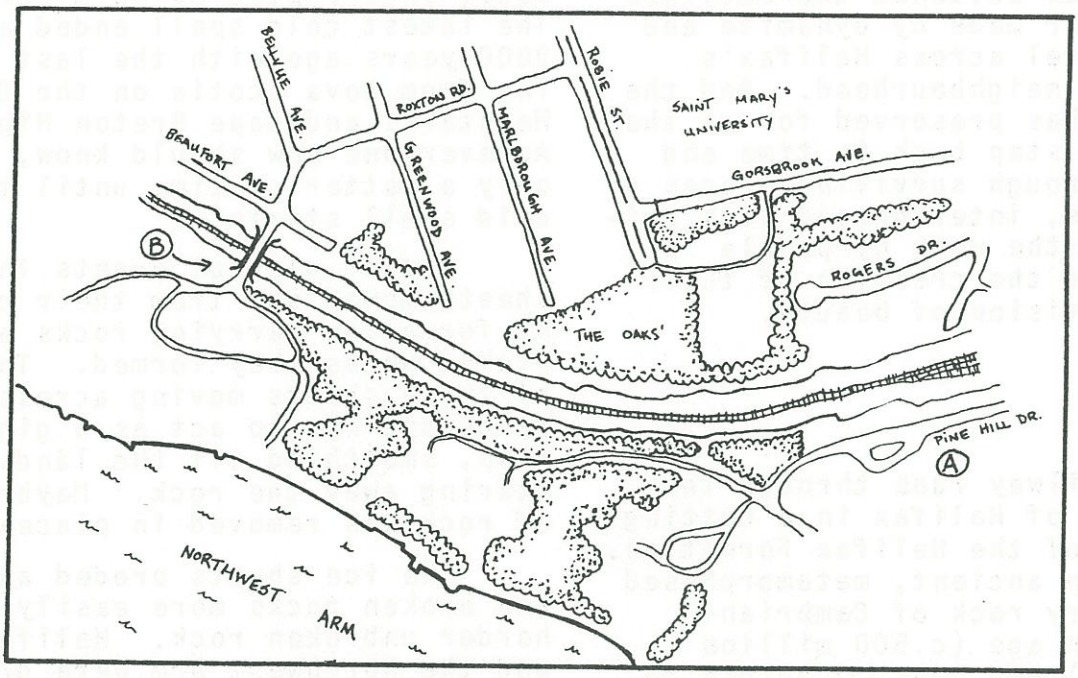
During glacial events the ice sheets moved out from their centres of formation carrying rocks and clay picked up as they formed. The effect of these sheets moving across the landscape was to act as a gigantic rasp, smoothing off the landscape and wearing away the rock. Maybe 500 m. of rock was removed in places.

The ice sheets eroded away soft and broken rocks more easily than harder unbroken rock. Halifax Harbour and the Northwest Arm were ground out by the ice sheets probably along fault lines. Thus Halifax Peninsula, as a suitable deepwater port for military and commercial use, is the result of the Ice Age. When the ice melted, the smoothed-off rock surface, the so-called glacial pavement, was left exposed or covered with clay and broken rock. Where the latter was the case, the scratches on the rock surface were preserved from weathering and can be seen when the glacial till is removed. This can be seen along a section of the cutting between Oakland Road and Regina Terrace.

## Habitats

The habitats which existed along the route before the railway was built can be deduced from a study of historic records and the existing vegetation. Basically the species composition of the vegetation is conservative, changes occur in a predictable way, and by knowing what is there at present, a backward extrapolation in time can be made to reconstruct the former vegetation.

Some plants, for example Indian Pear and Pin Cherry, are pioneer species and will establish in fields. Thus a strong growth of these implies a former state of




MAP SHOWING RAILWAY FROM PINE HILL DRIVE (A) TO THE MARLBOROUGH WOODS BRIDGE (B).

rough ground or pasture. Other plants are conservative and are unable to move much from their aboriginal sites. Examples of the latter are the grass Oryzopsis asperifolia, indian pipe, the moccasin-flower and the spotted coral root. Where the latter are found you can be pretty sure that the vegetation has had only relatively gentle modification from its original state. With this type of knowledge we can walk along the margin of the railway and put together a picture of how the human use of the land has varied from place to place.

Historically we know that at the time the railway was put through, 1912-18, Halifax City was principally composed of wooden buildings on the slopes facing the harbour. From this nuclear city a series of roads ran across the peninsula giving access to the farms, cottages and shorelines towards and on the Northwest Arm. These roads were Chebucto, Quinpool, Jubilee, Coburg, South and Inglis, which later stopped at about where Bellevue now is.

Where St.Mary's University now stands was Gorsebrook Golf Course, behind that was Marlborough Woods. The Studley Campus of Dalhousie University was Studley Farm and along the Northwest Arm were various estates, some quite large, and a string of summer cottages. The railway cut through this mixture of field, gardens and woodland but at the time buildings were so sparse that no houses (or maybe one or two) had to be demolished for the right of way.

Number 764 Tower Road, at one time a farmhouse, was moved the relatively short distance from its original site in the direct path of the cutting, to where it now stands.

## Pine Hill Drive to Marlborough Woods Bridge

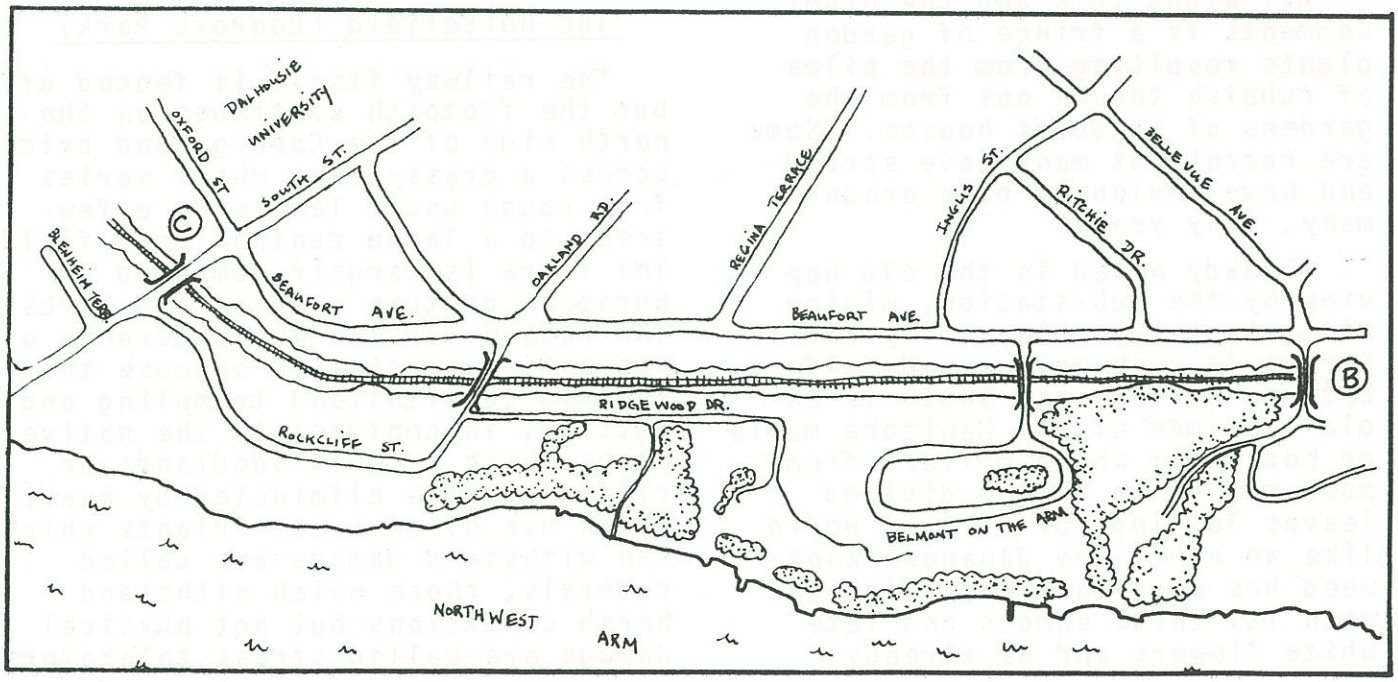
Looking now at the vegetation types along the track their origin becomes clear. The section to the Marlborough Woods Bridge was cut through woodland. This is especially

the case on the higher north side where there is a currently dense growth of oak and red maple coppice. This side was brush cut about four years ago and the stumps have sent up very vigorous sprouts which now makes the area (1981) almost impenetrable. It seems most sensible to assume that at the time the railway was put through, this area was woodland with its herb flora intact. The old stump sprout clusters attest to coppicing at intervals to prevent the growth of tall trees. There are, however, mature oaks on the property behind which is called appropriately enough, 'The Oaks' and was the former Stanfield property. These and other oaks in the region are relics of the original Marlborough Woods and were obviously thought worth preserving when the other trees were cut down.

On the south side there is a greater proportion of indian pear and red maple in the coppice and this side was presumably reduced to base rock by the process of cutting the railway, and the trees represent seeding establishment since.

Along this section may be found some of the slow-growing and woodland dependent herbs which are unable to colonise fields. These are mayflower (Epigaea repens), moccasin-flower (Cypripedium acaule), spotted coral-root (Corallorhiza maculata) and indian pipe (Monotropa uniflora). These are the rare plants of the railway and readers should make a point of not digging any of them up or even picking a single flower. It is a pleasure to find such things within the boundaries of a modern city and they should be left alone and admired in situ. Some of these are abundant elsewhere in the Province where there is no harm in picking a few, but right here in the City they are rare and should be left strictly alone. Also among the bushes is the grass Oryzopsis asperifolia another relic of open woodland.

Also in this section is a narrow strip of woodland which is public property and gives access to the Northwest Arm. The City maintains the area and has followed a practice of keeping down the bushes, especially coniferous ones.




MAP SHOWING RAILWAY FROM MARLBOROUGH WOODS BRIDGE (B) TO SOUTH STREET (C).

## Marlborough Woods Bridge to South Street

This section was presumably a series of fields and gardens at the time the railway was put through. It consists of grassy and rocky areas being progressively invaded by early succession bushes and trees. At irregular intervals scrub is cut down, as it is all along the railway. Thus the area is maintained in the early stages of plant succession which has the effect of encouraging, among others, the growth of blackberries and raspberry and make this strip one of the prime berry-picking places in the city. The blackberries appear to be a complex mixture of the native species with the two extreme sizes - the robust,upright Rubus allegheniensis with its large, excellent fruit and the tiny, creeping Rubus hispidus with its shiny, evergreen leaves - easily recognised, but including also several of the intermediate arching forms which we have lumped under the convenient but possibly incorrect title of 'Rubus canadensis'. The raspberries appear to be garden remains of the European raspberry.

All along this and the other segments is a fringe of garden plants resulting from the piles of rubbish thrown out from the gardens of adjacent houses. Some are recent but many have spread and have obviously been around many, many years.

Already noted is the old hop vine by the sub-station, mixing with virginia creeper. By Inglis Street is musk mallow and halfway between Oakland and South is an old specimen of the Manitoba maple or box elder which differs from most maples in having divided leaves looking for all the world like an ash. The Japanese knotweed has a certain magnificence with its thick shoots and late white flowers and as already mentioned dates from the time when gardens were larger and people needed some giant herbs to fill in the odd corner.

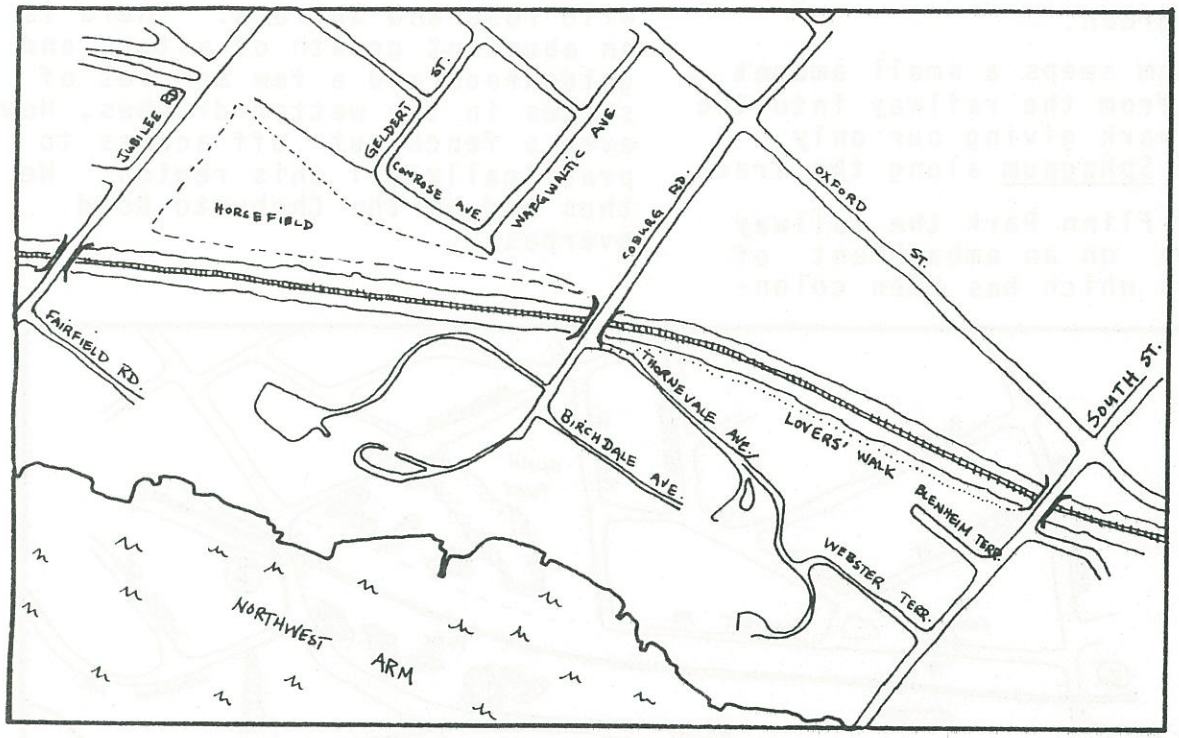
In addition to the abundant wild rose are rare plants of the European dog rose and the Japanese multiflora rose, both of which probably originated as rootstock of imported garden roses. In addition, just off the railway property at the Marlborough Woods bridge were the sweet briar and a single tall-growing, old garden rose, possibly the damask. These may have been eliminated by the recent spate of housebuilding in the area.

## Lovers' Walk (South to Coburg)

The path is along the southern edge of the railway and is notable for the number of escaped garden plants growing alongside it. Lily-of-the-valley, periwinkle and ground ivy have crept through the hedges of gardens as they have elsewhere but sweet cicely, with its highly-divided leaves smelling of aniseed, is found only along this section. Sweet cicely is an ancient pot-herb brought over from Europe along with other umbellifers such as caraway, goutweed and carrot.

## The Horsefield (Conrose Park)

The railway itself is fenced off but the footpath continues on the north side of the Coburg Road bridge across a grassy area which varies from rough uncut land with a few trees to a large central mown field. The flora is largely composed of European pasture grasses and herbs. The reason for the preponderance of non-native species is because they evolved to withstand trampling and cutting, in contrast to the native herbs which inhabit woodlands or cliffs but are eliminated by heavy human use of an area. Plants which can withstand damage are called ruderals, those which withstand harsh conditions but not physical damage are called stress tolerators.




MAP SHOWING "LOVERS WALK" AND "THE HORSEFIELD".

This is a recent ecological classification of plants by Grime; his third category is that of competitors which includes plants which maximise leaf area and the amount of carbon fixed by photosynthesis.

Herbs on the Horsefield include the common grasses: bent, kentucky bluegrass, annual bluegrass, red fescue, timothy, cocksfoot, couch and others including the native poverty grass and ticklegrass. In addition are clovers, fall and spring dandelions, mouse-ear hawkweed, knapweed, milfoil, creeping buttercup, stitchwort, mouse-ear chickweed, knotgrass and greater plantains, the list is not exhaustive.

## 5. Quinpool to Chebucto

The section from Jubilee to Quinpool is inaccessible hence our last section includes the two park areas of Flinn Park on the north and the Quinpool Road park on the south.

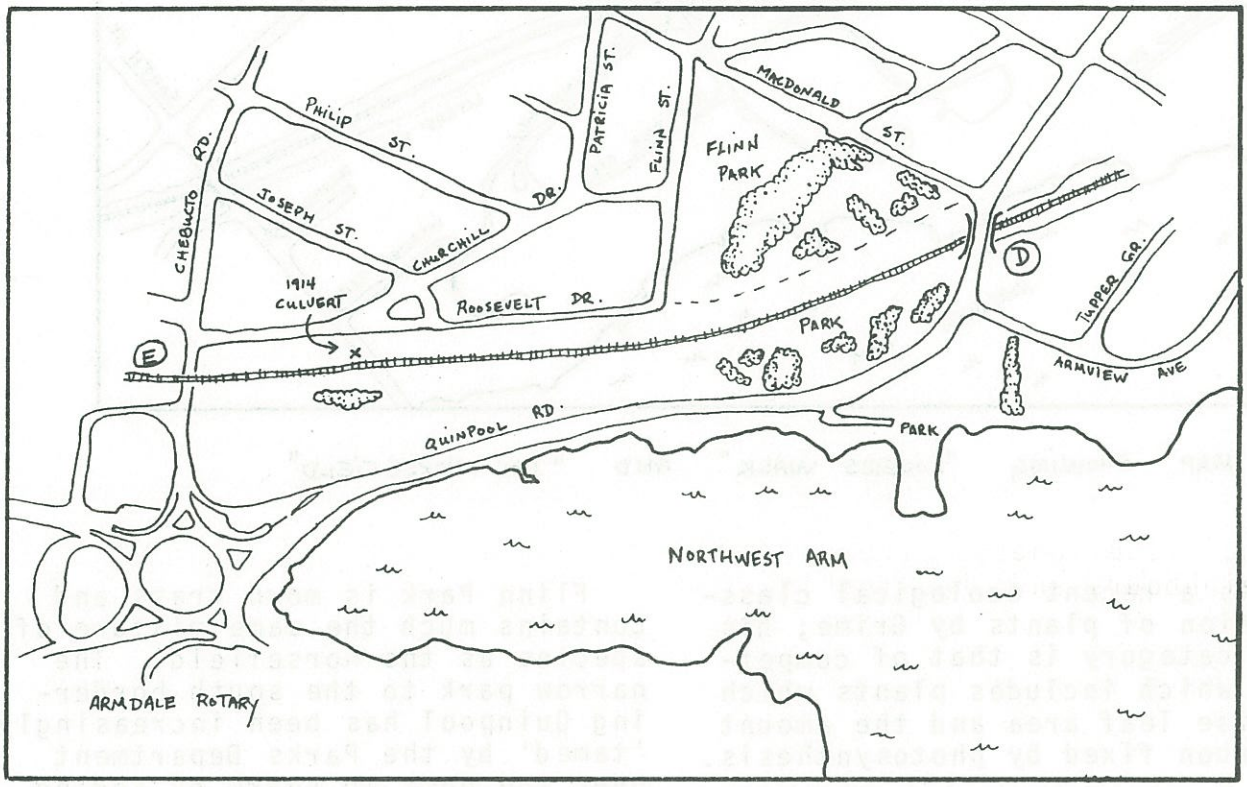
Flinn Park is mown grass and contains much the same mixture of species as the Horsefield. The narrow park to the south bordering Quinpool has been increasingly 'tamed' by the Parks Department over the past 10 years by adding flower beds and naturalising spring bulbs in the grass. Its native flora is largely birch scrub and poverty grass because the soil is thin and stony. In fact the bulbs have not multiplied as hoped probably because of a combination of the soil and the narcissus bulb maggot which is unfortunately common in the city.

Along the railway are areas of broken rock near the Quinpool Road bridge which have apparently not been colonised by plants. Thus 70 years have not been sufficient time for the succession to get started on exposed ridges of broken rock. This is a tribute of sorts to our rock and our climate. Elsewhere

poverty grass has seeded in giving tufts of green.

A stream seeps a small amount of water from the railway into the Quinpool park giving our only growth of Sphagnum along the track.

Beyond Flinn Park the railway tracks run on an embankment of loose rock which has been colonised by shrubs such as brambles, wild rose and Spiraea. There is an abundant growth of asters and goldenrods and a few species of sedges in the wetter ditches, However a fence cut off access to practically all this region. We thus end at the Chebucto Road overpass.




MAP SHOWING RAILWAY FROM QUINPOOL (D) TO CHEBUCTO ROAD (E).

## ANIMALS AND PLANTS SEEN ALONG THE SOUTH END RAILWAY.

### *Miscellaneous Lower Plants*

We did no consistent search for the mosses, lichens or fungi but a few were identified by various friends for us.

Lichens -

| | | |
|---|---|---|
| *Baeomyces roseus* | pink earth | - common on exposed banks |
| *Cladonia chlorophaea* | mealy goblet lichen | - on the ground |
| *cristatella* | British soldiers | - on the ground |
| *pleurota* | cup lichen | - on the ground |
| *pyxidata* | pyxie cups | - on the ground |

| | | |
|---|---|---|
| *Hypogymnia physodes* | puffield shield lichen | - on trees |
| *Parmelia sulcata* | cracked shield lichen | - on trees |
| *Stereocaulon sp.* | -- | - on the ground |

Mosses

*Leucobryum glaucum*
*Polytrichum sp.*
*Sphagnum fallax (recurvum)*
*fimbriatum*
*imbricatum* var. affine

Fungi

There is a fairly good selection of fungi but we did not collect these. Two of the stinkhorn group however, attracted attention in gardens just across the road from the railway on Beaufort Drive. These are the dogs stinkhorn *Mutinus caninus* and the netted stinkhorn *Dictyophora duplicata*.

*Animals Other Than Birds*

Without a trapping programme it is difficult to detect many of the smaller animals and we depend on the miscellaneous observations of neighbours and the trophies their cats have brought back home.

The red-backed Salamander ( Plethodon cinereus ) was seen several times in the area. Spring peepers (Hyla crucifer) can be heard in the trees around Belmont-on-the-Arm but other frogs and toads we did not see although they should be present.

Reptiles are few and consist of the ring-necked snake (Diadophis punctatus) found under a pile of branches in an adjacent garden and numerous bright green grass snakes brought home by one of the neighbour's cats. This particular cat was able to catch the snakes in the spring when they were either still sluggish or were more conspicuous. The green snake (Opheodrys vernalis) is particularly beautiful and can be handled with impunity since it does not bite. The neighbour did not seem to be aware of either fact. Other snakes should be looked for. None of the Nova Scotian snakes are venomous and all can be handled with ease. It is utterly pointless to kill snakes.

A siamese cat belonging to MJH was responsible for catching two voles (Microtus pennsylvanicus) in an adjacent garden and the same species has been seen running about and forming runways during the winter, these becoming visible on snow melt in spring. It seems obvious that wild mice are present but we did not see any. The deer mouse (Peromyseus maniculatus) and white-footed mouse (P.leucopus) should be present, possibly others.

Another neighbour had the star-nose mole tunneling in his garden but gardens are probably more attractive to moles since the soil layer on the railway banks is thin or stony.

Raccoons have been sighted by several people over the past few years as has the common brown rat which is found throughout the city. Both are of course scavengers.

Red squirrels are fairly common in the treed areas. Chipmunks were not seen but are to be expected since they are common in Point Pleasant Park.

Walter Chute observed a short-tail weasel several times in one year.

Insects have only been observed in a pejorative manner. Blackfly and mosquitoes found us, but for the most part we lacked the expertise necessary to identify the numerous moths, butterflies, bees, ants, flies, etc., which are present. Crickets are noisy in summer and seem to like the rocky slopes. One curious phenomenon we found was a large caterpillar of a sphinx moth on the Marlborough Bridge. It was green with long, pseudo-tails and these curious creatures often attract attention in the late summer. The interesting thing about this one is that it had been parasitised by an ichneumon wasp and the larvae were escaping from the now moribund host. As these larvae were pupating some tiny flies were observed hovering over them. These tiny flies were a hyper-parasite apparently laying their eggs in the ichneumons. The adage that 'big fleas have lesser fleas upon their backs to bite 'em' seemed to be particularly applicable.

This report is obviously only a preliminary survey. We hope that other people will add to our general lists of species and will also study particular stretches of railway in detail. We need more knowledgeable people to tackle the groups which we omitted, e.g. small mammals, insects, bryophytes. One use of this type of survey is that it sets down in print some sort of baseline picture so that in later years people can look back at it and see how much, or how little, has changed.

Change is of course inherent in these unstable ecological situations. The changes are due to the inherent progressions by which one group of organisms replaces another, but especially in urban areas the changes are often largely due to the direct interference of man.

Some new species can be expected to become established in the region but change in urban areas usually means the elimination of organisms. The organisms which will be eliminated are those which can least tolerate disturbance and which are already present in low numbers. Thus, to take a few rare plants as examples the two introduced roses, the product of garden throwouts, Rosa canina and Rosa multiflora (European dog rose and multiflora rose) are rare now but are species of pioneer habitats and have a certain weedy ability to withstand disturbance and competition from other plants. We venture to hazard that in 25 years these will have spread.

On the other hand the coralroot orchid and the indian pipe are species of mature forest, have very little ability to compete with pioneer growth of vegetation and are eliminated by the least disturbance. We will be very fortunate to be still able to find these in 25 years' time.

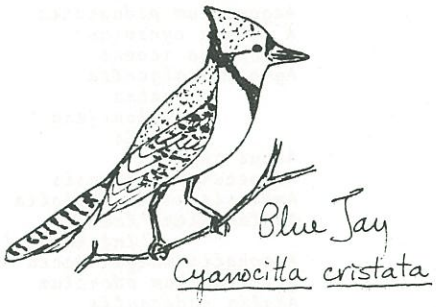
All of which brings a point of conservation to mind. We have given details of several rare species. What we do not want to happen is for people to say, "Oh look, such-and-such grows along the railway, let's go and pick a bunch, (or dig it up)". We have to put a certain amount of trust in the use of the lists we present and hope that readers will enjoy looking at the things we describe but will not eliminate them. We are not killjoys; by all means pick a bunch of ox-eye daisies or wild roses, but please, leave the ladyslippers.

Acknowledgements

A group of four shared the work of the survey although three of us would like to point out that Maud Godfrey did all the research on the historical aspect of the railway using the facilities of the Nova Scotia Archives. However, we have blind spots and several people assisted in filling some of these.

The birds were of most concern and a chance meeting with Dr. Walter Chute revealed that he had been keeping lists of bird and mammal visitors to his garden, adjacent to the railway, for many years. He very kindly presented us with the list in this report.

Elaine Wallace helped us with the lichens and Dr. Wolfgang Maas with the bog mosses.




## *Birds of Marlborough Woods, (1960-80)*

The total list for the past 25 years is more than double this length. Some birds have been seen several times in different years - but not regularly.

Year-round residents; nesting

| | |
|---|---|
| *Cyanocitta cristata* | bluejay |
| *Dendrocopus pubescens* | downy woodpecker |
| *Parus atricapillus* | black-capped chickadee |
| *Passer domesticus* | house (English) sparrow |
| *Sturnus vulgaris* | starling |
| *Junco hyemalis* | slate-coloured junco |

Migrant, part-time residents; nesting

| | |
|---|---|
| *Colaptes auratus* | flicker |
| *Turdus migratorius* | robin |
| *Archilochus colubris* | ruby-throated hummingbird |
| *Contopus virens* | wood peewee |
| *Vireo olivaceus* | red-eyed vireo |
| *Dendroica petechia* | yellow warbler |
| *Carpodacus purpureus* | purple finch |
| **Iridoprocne bicolor* | tree swallow |
| **Dumetella carolinensis* | catbird |
| *Melospiza melodia* | song sparrow |
| *Zonotrichia albicollis* | white-throated sparrow |

* (once regular, now uncommon)

Part-time residents; non-nesting

| | |
|---|---|
| *Larus argentatus* | herring gull |
| *Corvus brachyrhynchos* | crow |
| *Corvus corax* | raven |
| *Accipiter striatus* | sharp-shinned hawk |
| *Dendrocopus villosus* | hairy woodpecker |
| *Sitta carolinensis* | white-breasted nuthatch |
| *Certhia familiaris* | brown creeper |
| *Regulus satrapa* | golden-crowned kinglet |
| *Quiscalus quiscula* | common grackle |
| *Hesperiphona vespertina* | evening grosbeak |
| *Spinus tristis* | common goldfinch |
| *Molothrus ater* | cowbird |
| *Spinus pinus* | pine siskin |
| *Spizella arborea* | tree sparrow |
| *Columba livia* | domestic pigeon |

Migrants seen regularly in passage

| | |
|---|---|
| *Bombycilla cedrorum* | cedar waxwing (Spring) |
| *Icterus galbula* | baltimore oriole (Spring & Fall) |
| *Hylocichla guttata* | hermit thrush |
| *Hylocichla ustulata* | olive-backed thrush |
| *Dendroica coronata* | myrtle warbler |
| *Setophaga ruticilla* | american red-start |
| *Geothlypis trichas* | yellow-throat |
| *Dendroica magnolia* | magnolia warbler |
| *Wilsonia pusilla* | Wilson's warbler |
| *Mniotilta varia* | black and white warbler |
| *Dendroica striata* | blackpoll warbler |
| *Dendroica pensylvanica* | chestnut-sided warbler |
| *Dendroica virens* | black-throated green warbler |

## Vascular Plants

| | | |
|---|---|---|
| *Abies balsamea* | balsam fir | n, o |
| *Acer negundo* | manitoba maple, box elder | ge,r |
| *platanoides* | norway maple | ge,o |
| *rubrum* | red maple | n, c |
| *saccharum* | sugar maple | n, r |
| *Achillea millefolium* | milfoil | ew,c |
| *Aegopodium podagraria* | goutweed, bishops weed | ge,o |
| *Aethusa cynapium* | fool's parsley | ew,r |
| *Agropyron repens* | couch grass | ew,c |
| *Agrostis gigantea* | bent grass | ew,r |
| *scabra* | tickle grass | n, c |
| *stolonifera* | creeping bent | ew,o |
| *tenuis* | brown top | ew,c |
| *Alnus rugosa* | alder | n, c |
| *Alopecurus pratensis* | foxtail grass | ew,c |
| *Ambrosia artemisiifolia* | ragweed | n, o |
| *Amelanchier 'laevis'* | indian pear | n, c |
| *'intermedia'* | " " | n, c |
| *Anaphalis margaritacea* | pearly everlasting | n(?),c |
| *Anthoxanthum odoratum* | sweet vernal grass | ew,c |
| *Aralia nudicaulis* | sarsparilla | n,c |
| *Arctium minus* | burdock | ew,o |
| *Arenaria lateriflora* | sandwort | n, c |
| *Armoracia rusticana* | horseradish | ge,r |
| *Aronia melanocarpa* | chokeberry | n, o |
| *Artemisia vulgaris* | mugwort | ew,r |
| *Asparagus officinalis* | asparagus | ge,r |
| *Aster acuminatus* | wood aster | n, r |
| *lateriflorus* | small white aster | n, c |
| *novi-belgii* | michaelmas daisy | n, c |
| *umbellatus* | tall white aster | n, c |
| *Barbarea vulgaris* | yellow rocket | ew,o |
| *Berberis thunbergii* | japanese barberry | ge,o |
| *vulgaris* | common barberry | ge,r |
| *Betula papyrifera* | paper birch | n, c |
| *populifolia* | wire birch | n, c |
| *Bidens frondosa* | common beggar-ticks | ew,o |
| *Bromus inermis* | smooth brome | ew,o |
| *Campanula rapunculoides* | bellflower | ge,r |
| *Capsella bursa-pastoris* | shepherd's purse | ew,r |
| *Carex umbellata* | sedge | n, c |
| *sp. (dry banks)* | | n, r |
| *sp (ditches)* | | n, c |
| *Carum carvi* | caraway | ge,o |
| *Centaurea nigra* | knapweed | ew,c |
| *Cerastium vulgatum* | mouse-eared chickweed | ew,c |
| *Chelidonium majus* | greater celandine | ge,o |
| *Chenopodium album* | lamb's quarters, fat hen | ew,r |
| *Chrysanthemum leucanthemum* | ox-eye daisy, marguerite | ew / ge,c |
| *Cichorium intybus* | chicory | ew / ge,o |
| *Cirsium arvense* | creeping thistle | ew,o |
| *Clintonia borealis* | clintonia, snakeberry | n, o |
| *Comptonia peregrina* | sweetfern | n, c |
| *Convallaria majalis* | lily-of-the-valley | ge,o |
| *Coptis trifolia* | goldenthread | n, o |
| *Corallorhiza maculata* | spotted coralroot orchid | n, r |
| *Cornus canadensis* | bunchberry | n, c |
| *stolonifera* | dogwood | ge,r |
| *Crataegus laevigatus* | hawthorn, mayflower | ge,o |
| *Cypripedium acaule* | mocassin flower, lady's slipper | n, o |
| *Dactylis glomerata* | cocksfoot, orchard grass | ew,c |
| *Danthonia spicata* | poverty grass | n, c |
| *Daucus carota* | wild carrot | ew,c |
| *Dennstaedtia punctilobula* | hay-scented fern | n, c |
| *Deschampsia caespitosa* | hair grass | ew,r |
| *v.parviflora* | | |
| *flexuosa* | hair grass | n, c |
| *Diervilla lonicera* | bush honeysuckle | n, c |
| *Digitaria ischaemum* | small crab-grass | ew,o |
| *sanguinalis* | crab-grass | ew,r |
| *Epigaea repens* | mayflower, trailing arbutus | n, r |
| *Equisetum arvense* | horsetail | n, o |
| *Erigeron canadensis* | horseweed | n, o |
| *Festuca pratensis* | meadow fescue | ew,o |
| *rubra* | red fescue | ew,c |
| *tenuifolia* | fine sheep's fescue | ew,c |
| *Fragaria virginiana* | wild strawberry | n, c |
| *Fraxinus excelsior* | european ash | ge,c |

| | | |
|---|---|---|
| *Galeopsis tetrahit* | hemp nettle | ew,o |
| *Galin soga ciliata* | gallant soldier | ew,o |
| *Galium palustre* | marsh bedstraw | n, r |
| *Gaultheria procumbens* | wintergreen | n, c |
| *Glechoma hederacea* | ground ivy | ge,o |
| *Gnaphalium uliginosum* | cudweed | ew,c |
| *Hamamelis virginiana* | witchhazel | n, o |
| *Hemerocallis fulva* | day lily | ge,o |
| *Hesperis matronalis* | dame's violet | ge,o |
| *Hieracium aurantiacum* | devil's paint brush | ew/ge,o |
| *floribundum* | king-devil | ew,o |
| *pilosella* | mouse-ear hawkweed | ew,c |
| | | ge,r |
| *Houstonia caerulea* | bluets | n, c |
| *Humulus lupulus* | hops | ge,r |
| *Hypericum perforatum* | St.John's wort | ew,c |
| *Iris versicolor* | blue flag, wild iris | n, r |
| *Juncus bufonius* | toad rush | ew,r |
| *effusus* | soft rush | ew,r |
| *tenuis* | rush | ew,o |
| *Juniperus communis* | common juniper | n, o |
| *Kalmia angustifolia* | lambkill | n, c |
| *Lapsana communis* | nipplewort | ew,o |
| *Leontodon autumnalis* | fall dandelion | ew,c |
| *Linaria vulgaris* | toadflax | ew/ge,c |
| *Lolium perenne* | perennial ryegrass | ew/ge,o |
| *Lonicera canadensis* | american fly-honeysuckle | n, r |
| *Lupinus polyphyllus* | garden lupin | ge,r |
| *Luzula multiflora* | woodrush | ew,c |
| *Lycopodium* | clubmoss | n, r |
| *Lysimachia nummularia* | moneywort | ge,r |
| *Maianthemum canadense* | mayflower, wild lily-of-the valley | n, c |
| *Malva moschata* | musk mallow | ge,r |
| *Matricaria maritima* | mayweed | ew,r |
| *matricarioides* | pineapple weed | ew,c |
| *Melampyrum lineare* | cow-wheat | n, o |
| *Melilotus alba* | white sweet-clover | ew,o |
| *Monotropa uniflora* | indian pipe | n, r |
| *Muscari botryoides* | grape hyacinth | ge,r |
| *Myosotis sylvatica* | garden forget-me-not | ge,o |
| *Myrrhis odorata* | sweet cicely | ge,r |
| *Narcissus poeticus* | poet's narcissus | ge,r |
| *pseudo-narcissus* | daffodil | ge,r |
| *Oenothera biennis* | evening primrose | n, r |
| *Ornithogalum umbellatum* | star-of-bethlehem | ge,r |
| *Oryzopsis asperifolia* | rice grass | n, r |
| *Oxalis stricta* | yellow wood-sorrel | ew,o |
| *Panicum capillare* | witch-grass | n, o |
| *dichotomiflorum* | panic-grass | n, o |
| *lanuginosum* | woolly panic-grass | n, o |
| *subvillosum* | " " " | n, o |
| *Parthenocissus quinquefolia* | virginia creeper | ge,r |
| *Pastinaca sativa* | parsnip | ge,r |
| *Phleum pratense* | timothy | ew,c |
| *Picea glauca* | white spruce | n, o |
| *rubens* | red spruce | n, o |
| *Pinus banksiana* | jack pine | n, r |
| *strobus* | white pine | n, c |
| *sylvestris* | scots pine | ge,r |
| *Plantago major* | greater plantain | ew,c |
| *lanceolatus* | ribwort plantain | ew,c |
| *Poa angustifolia* | narrow-leaved bluegrass | ew,o |
| *annua* | annual bluegrass | ew,c |
| *compressa* | creeping bluegrass | ew,c |
| *nemoralis* | wood-bluegrass | ew,o |
| *pratensis* | kentucky bluegrass | ew,c |
| *trivialis* | rough bluegrass | ew,o |
| *Polygonatum multiflorum* | solomon's seal | ge,r |
| *Polygonum aviculare* | knotgrass | ew,c |
| *convolvulus* | | ew,r |
| *cuspidatum* | japanese knotweed | ge,o |
| *persicaria* | persicary | ew,r |
| *Populus tremuloides* | aspen | ew,c |
| *Potentilla argentea* | silvery cinquefoil | ew,r |
| *simplex* | creeping cinquefoil | ew,c |
| *tridentata* | three-toothed cinquefoil | ew,c |
| *Prenanthes trifoliolata* | lion's paw | n, c |
| *Prunella vulgaris* | heal-all | ew,c |
| *Prunus pensylvanica* | pin cherry | n, c |

| | | |
|---|---|---|
| *Ranunculus acris* | buttercup | ew,c |
| *repens* | creeping buttercup | ew,c |
| *Raphanus raphanistrum* | charlock | ew,o |
| *Rhinanthus crista-gallii* | yellow rattle | ew,o |
| *Rosa carolina* | wild rose | n, c |
| *canina* | european dog rose | ge,r |
| *micrantha* | sweet brier | ge,r |
| *multiflora* | multiflora rose | ge,r |
| *Rubus allegheniensis* | large blackberry | n, c |
| *'canadensis'* | blackberry | n, c |
| *hispidus* | trailing blackberry | n, c |
| *idaeus* | raspberry | n, o |
| *odoratus* | flowering raspberry | n, r |
| *Rumex acetosa* | sourdock | ew,o |
| *acetosella* | sheep-sorrel | ew,c |
| *crispus* | curly dock | ew,o |
| *Salix humilus* | small pussy-willow | n, r |
| (*Salix unidentified Quinpool*) | | |
| *Sambucus pubens* | red elderberry | n, o |
| *Saponaria officinalis* | soapwort | ge,r |
| | | ew,r |
| | | ew,c |
| *Sedum acre* | stonecrop | ge,r |
| *telephium* | orpine | ge,o |
| (*plus other sp.escaped from gardens* | | |
| *Senecio jacobaea* | ragwort | ew,c |
| *viscosus* | sticky groundsel | ew,c |
| *vulgaris* | groundsel | ew,o |
| *Sisymbrium officinale* | hedge mustard | ew,r |
| *Sisyrinchium montanum(?)* | blue-eyed grass | n, o |
| *Solanum dulcamara* | woody nightshade | ew,c |
| *Solidago canadensis* | goldenrod | r, n |
| *gigantea* | " | r, n |
| *graminifolia* | grass-leaved goldenrod | c, n |
| *puberula* | goldenrod | c, n |
| *rugosa* | rough goldenrod | c, n |
| *Sonchus arvensis* | creeping sowthistle | ew,r |
| *asper* | prickly sowthistle | ew,r |
| *oleraceus* | common sowthistle | ew,r |
| *Spergula arvensis* | corn spurry | ew,o |
| *Spergularia rubra* | sand spurry | ew,o |
| *Spiraea latifolia* | meadowsweet | n, c |
| *Stellaria graminea* | stitchwort | ew,c |
| *media* | chickweed | ew,r |
| *Syringa vulgaris* | lilac | ge,r |
| *Tanacetum vulgare* | tansy | ge,o |
| *Taraxacum officinale* | dandelion | ew,c |
| *Thalictrum polygamum* | meadow rue | n, o |
| *Tilia europaea* | linden | ge,r |
| *Tragopogon pratensis* | jack-go-to-bed-at-noon | ew,r |
| *Trientalis borealis* | starflower | n, o |
| *Trifolium pratense* | red clover | ew,c |
| *repens* | white clover | ew,c |
| *Tussilago farfara* | coltsfoot | ew,o |
| *Ulmus glabra* | wych elm | ew,r |
| *Vaccinium angustifolium* | lowbush blueberry | c, n |
| *myrtilloides* | " " | c, n |
| *Veronica chamaedrys* | germander speedwell | ew,r |
| *officinalis* | common speedwell | ew,c |
| *serpyllifolia* | thyme-leaved speedwell | ew,o |
| *Viburnum cassinoides* | witherod | c, n |
| *Vicia cracca* | blue vetch | ew, c |
| *Vinca minor* | lesser periwinkle | ge,r |
| *Viola fimbriatula* | blue violet | r, n |

c - *common*
o - *occasional*
r - *rare*
ge - *garden escape*
ew - *European weed*
n - *native*

The notes about common, occasional, rare, are rough indications and apply only to the railway and the adjacent grass strip belonging to the City. That, say, chickweed is relatively rare, merely reflects the poor soil by the tracks; it may be taking over adjacent gardens but we do not count this.

## The Amelanchier Problem

Two groups of flowering plants present real problems of naming, even to experts. These are the blackberries (Rubus) and the indian pears (Amelanchier), also known as shadbush,

The blackberries are a problem because of their largely apomictic breeding system by which seeds are produced asexually and the offspring resemble the parent very closely. This would be fine if there were only one blackberry and it always reproduced asexually. In practice there are many basic species which occasionally reproduce sexually and form hybrids. These hybrids can reproduce asexually and spread widely, then very occasionally reproduce sexually again and produce more forms. By the time this cycle has gone on for a number of years you have a wonderful mixture of erect plants, gently arching plants or low plants with large, medium or small fruits. We did not even attempt to identify the microspecies of blackberries present along the South End railway. Back to the indian pear problem.

Like the blackberries there is a profusion of forms among the indian pears growing along the railway. Possibly we just looked harder but there seemed to be more forms along the railway than elsewhere. If so, this may be because the ecological conditions have been held at about the optimum conditions for bush growth for 80 years. Thus there has been time for odd plants to accumulate.

The difficulty is that, especially at flowering time, there are many distinguishable forms. Forms with red leaves, forms with green leaves, hairy or glabrous, upright stems or bushy, petals long or rounded, and so on. There are several ways out of this dilemma. One extreme is to say that they are all microspecies so that there would be maybe a dozen such along the railway. In other words to treat them like the blackberries and recognise an abundance of independent taxa. The drawback to this is that Amelanchier is not apomictic but has normal sexual reproduction.

The opposite solution is to say that there is only a single variable species, that some individuals have some genetic factors and other don't. This of course completely solves the problem but is an intellectually lazy solution and doesn't answer the question of why Amelanchier should be so variable compared with most other plants.

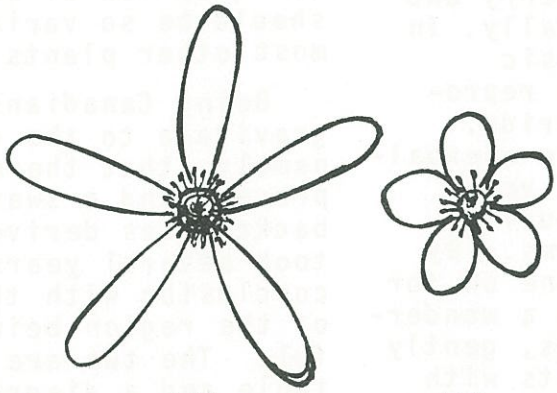
Being Canadians we naturally gravitate to the compromise solution; namely, that there are two species present and a swarm of hybrids and backcrosses derived from them. It took several years to reach this conclusion with the standard floras of the region being not very helpful. The two are contrasted in a table and a diagram (over).

The scientific names have been quite mixed up. Our "A" seems to be Amelanchier laevis. "B" gets a variety of names, e.g. A. canadensis or A.wiegandii. The other plants can be explained as various combinations of these two species.

While the hybrid swarm along the railway is very well developed, it is by no means unusual and similar situations are common around the Maritimes, not only between these two but involving other species.

BLACKBERRY (RUBUS SP.)

| Amelanchier "A" | Amelanchier "B" |
|---|---|
| tree | shrub |
| young shoots little branched, erect | branching, twiggy |
| spring leaves red | green |
| leaves glabrous | hairy |
| inflorescence , drooping, pedicels long | axis stiff, pedicels short |
| petals long, narrow | short rounded |
| petals widely separated | petals touch |
| habitat, more mesic, moist soils | drier places (xeric) |
| woodland | rocky areas |



"A" "B"

# review

## THE NOVA SCOTIA SPECIAL PLACES PROTECTION ACT -

In May, 1980, Bill 68, The Special Places Protection Act was proclaimed law. The full title of this legislation is:

> "An Act to Provide for the Preservation, Regulation and Study of Archaeological and Historical Remains and Palaeontological and Ecologi - cal Sites."

The Act, as its title states enables the government of Nova Scotia to protect "Special Places". These are defined in the Act as "Heritage Sites" and "Ecological Sites". Heritage Sites are sites containing archaeological, historical or palaeontological objects or remains. Ecological Sites contain rare or endangered native plants or animals in their natural habitats or are representative examples of natural ecosystems within the Province. Areas that are, for other reasons, suitable for scientific and educational purposes may be protected as Ecological Sites. Severely dis-

turbed or man-modified ecosystems for example, may be valuable scientifically for the opportunity they provide for studying the recovery of ecosystems.

The Act provides for an Advisory Committee to be established to investigate and recommend protection for suitable sites. The Director of the Nova Scotia Museum is designated in the Act as the ex officio chairman of the Committee. The other members are to be representatives of:

1) The Dept. of Education;
2) The Dept. of the Environment;
3) The Dept. of Lands and Forests;
4) The Dept. of Mines and Energy;
5) The Union of Nova Scotia Indians;
6) "Such other agencies, whether public or private, which the Governor in Council on the recommendation of the Minister, deems advisable."

The Committee is responsible to the Minister of Education. Its responsibilities include making recommendations concerning the administration, classification and acquisition of Special Places, making regulations and management plans and conducting research related to Ecological Sites.

An important distinction in the Act is that between a Heritage Site and an Ecological Site. Heritage Sites are treated differently in the Act than are Ecological Sites. Any land, public or private, in Nova Scotia may be designated as an "outstanding archaeological, historical or palaeontological significance". In the case of privately owned land, the owner is notified not less than thirty days prior to his land being designated. The owner "may comment upon the proposed designation", but he is not entitled to compensation for losses he may suffer as a result of his property being designated a Heritage Site. A Heritage Site whether designated or not, may be protected while it is being investigated. Sites threatened by commercial or industrial development, for example, are protected while they are under study as potential Heritage Sites.

Ecological Sites may be designated on Crown land, but on private land only with the consent of the owner. Any research activities on private land must have the written consent of the landowner before they can be carried out. Before an Ecological Site can be designated, the Advisory Committee must prepare a management plan for it, including the purpose of the site and information and regulations to insure its protection. There is no provision in the Act, such as there is for Heritage Sites, to protect threatened potential Ecological Sites while they are being investigated.

The impetus to protect natural areas has come from private and public agencies. Naturalists groups, the universities and organisations such as the Nature Conservancy of Canada, and above all the world-wide effort of the International Biological Programme (1964-1974) have led the way in protecting natural areas. Most Provinces now have an Ecological Reserves Act or equivalent legislation. The Advisory Councils set up to administer these acts usually include non-government members. The New Brunswick Council, for example, is composed entirely of non-civil servants with a government secretariat. The Nova Scotia Act provides for a representative of the Union of Nova Scotia Indians and "such other agencies...the Minister deems advisable". Considering the number of agencies including the Halifax Field Naturalists, the Nova Scotia Bird Society, the universities and many others interested in the protection of natural areas, it will be interesting to see who is appointed to the Advisory Committee.

Lyn Martin, Director of the Nova Scotia Museum, said he expects the Committee to be appointed early in the new year. During 1981, the Museum had a small budget to administer the Special Places Protection Act. The money was used mainly to make an information package for the Advisory Committee, to gather data that would be useful to the Committee and to prepare material to explain the Act to the public. Derek Davis, Chief Curator of Science, is preparing information on Ecological Sites. The 1981 budget, and what funds in it are allotted to Special Places, will not be known until January or February of that year.

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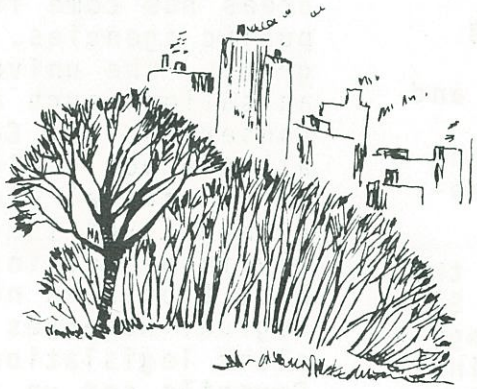


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