PAST NATURE:

PUBLIC ACCOUNTS OF NOVA SCOTIA'S LANDSCAPE

1600-1900

Heather L. MacLeod, 1995

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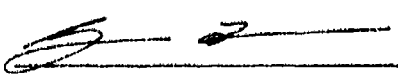

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ABSTRACT

This thesis examines the ecological changes in the land that took place with the European colonization of Nova Scotia over a three hundred year period (1600-1900). Public accounts of Nova Scotia's landscape are studied to determine what kind of environment these newcomers first encountered and how the natural history features of the land changed with settlement. The diverse cultural responses to landscape are examined and categorised into distinct patterns of responses to nature. Narratives are also used to determine natural history patterns and the transformations that came with agriculture, lumbering, the fisheries and fur trade. Central to this story are the tensions between two different cultures colliding -- Micmac and European-- and the ties to the land that both united and divided them. Ecological consequences of both ways of living in nature -- the hunter and the cultivator -- are examined.

This thesis makes a contribution to our collective understanding of the central role of nature in Nova Scotia's past cultural history. Three centuries of discourse over the land reveal an intense interest in this subject and serve to expand our vision of the natural world and the role of humans in it.

Chapter One

NATURE AS CONSTRUCT

> Here is a part of the earth more in its natural state than any country which has long been possessed by a civilised race.
>
> ------- Titus Smith on Nova Scotia, 1834 [1]
> Surveyor, Writer & Botanist

The meeting of people and the land lies at the heart of the North American experience. How nature was lived with and worked, talked about and transformed constituted an extraordinarily important part of the experience of earlier generations encountering Nova Scotia as a new, mysterious and wild land. One common denominator for all -- from Micmac Indian to European explorer to new world settler -- was the shared involvement with the natural environment amid its range of weather, forests, wildlife, soils, rivers, valleys and harbours. Geography influenced destiny, nature molded culture, culture transformed nature. Land was both subject and object, an agent of historical processes as well as the field of human action.[2] The idea that the physical world was something to know, enjoy and control was equally applicable to Indians and to Europeans. For the newcomers, trying to decipher the lay of this land and its natural attributes became a consuming undertaking driven by curiosity, nurtured by need and propelled by greed. It was an interest in nature that combined a fascination with the strange forms of life in the new world, an intense interest in exploiting untapped resources and a desire to be able to live well off the fruits of the land. Its legacy centuries later is the Nova Scotia environment we know today marked by a transformation of land and life.

But hundreds of years later we can only ask what kind of land did these Europeans first encounter? How was that land's natural history different from todays? What role did ecology play in the cultural history of Nova Scotia? How did past peoples respond to and transform the landscapes we now know?

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[1] Smith, Titus. "Lecture on Minerology." Halifax Mechanics Insitute, March 5, 1834 (PANS VF v.183 #9 :2)

[2] Wilson, Alexander. The Culture of Nature. Toronto: Between The Lines, 1991:14

The intent of this thesis is to address these questions by exploring the ecological changes in the land that came with European contact and colonization in Nova Scotia from 1600 to 1900. It is a story of different cultures colliding -- Micmac and European -- and the ties to the land that both united and divided them. It is also the story of human action deliberately and unintentionally transforming a landscape in unforeseen ways in a place where nature formed a central subject of discourse.

From John de Crevecoeur to George Perkins Marsh through to Frederick Jackson Turner, historians, sociologists, political thinkers, and more general commentators have recognized -- from various vantage points -- the shaping influence of the settlement process on the land and North American people. At the end of the 20th century, this story of the 'taming of the land' still lies within the bounds of living memory in Nova Scotia. Some rural families continue to live on land cleared by their pioneer ancestors. These were the colonists who triggered a cultural and ecological revolution in the land. The many narratives written on Nova Scotia as a 'new land' serve to reveal the changes that took place and support a historical framework in which the cultural history of nature is as significant as the ecological history of culture.

How can we construct such an ecological history of Nova Scotia? This thesis will rely on written accounts of the land to reveal the interaction between culture and nature centuries ago. Trees, animals, plants, fishes, rivers and weather fiqure prominently in these narratives which describe the natural history of the province as well as the ecological changes taking place. A vast body of descriptive records will be drawn upon to explore these dual currents -- nature and culture -- some of which reflect the good observation skills of a naturalist, the understanding of an ecologist and the perspective of an historian. The reports -- some brief, others long and detailed -- come from Micmacs, early explorers, Jesuit priests, colonists, fishermen, travellers, colonial surveyors, naturalists, sportsmen, government officials, agriculturalists and forest rangers. Most early Micmac accounts were speeches interpreted and recorded by French priests. The validity of all accounts from all sources will be considered. Corroborating observations repeatedly surfacing among a wide variety of sources will serve to substantiate claims made including the accuracy of environmental observations presented and the cultural perspectives and ulterior motives colouring

the way these informants wrote about the land.

Point of view forms the subtext for all written accounts of Nova Scotia and, as we shall see, provides a structured pattern of specific responses to the land. A blind man describing an elephant by holding its trunk would be an appropriate metaphor for some of the perceptions of Nova Scotia as a land based on the observations of one small area. But together such fragmented accounts combine to paint a broader ecological picture. Bias is inherent in many accounts. Explorers, priests and colonial representatives reporting back to higher authorities felt a need to astutely portray what they witnessed to justify their work and imperial interest in this area. For those with a love of the land or an interest in encouraging colonization efforts, stretching the truth to positively portray Nova Scotia was not uncommon. It wasn't so much outright deception as slight distortion. French fur-trader and explorer Nicholas Denys' accounts of Nova Scotia's climate, written in 1672, bear this out. Having spent 35 years in Nova Scotia until his return to France in 1671 he was very familiar with this land and passionately intent on dispelling distorted rumours spread by cod fishermen. The widely held idea that Nova Scotia's 'horrible' climate consisted of nine months of winter and three months of fog [3] had originated from these fishermen working on fishing banks or coastal shorelines from April to September. In his book *Coasts of North America (Acadia)* Denys deliberately drew a more favourable picture:

> The winter is agreeable in that it is never rainy nor filled with mists, nor hoar-frosts. It is a cold which is always dry and with a bright sun. One never sees a little cloud in the sky. . .One goes from eight to fifteen days, and even three weeks, without seeing it snow, during which time it is always good weather.[4]

Like many other early accounts of the land this obscures as much as it reveals. The information is partially true but it doesn't provide the whole picture. What Denys omitted would later frustrate the English who knew these French reports and sometimes found them to be more favourable than their experience of Nova Scotia's environment and landscape. Gaps between portrayal and reality could be significant.

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[3] Murdoch, Beamish. The History of Nova Scotia. Halifax: James Barnes, 1866 Vol. 2:97

[4] Denys, Nicolas. Coasts of North America (Acadie). 1672. Toronto: Champlain Society, 1908. New York: Greenwood Press, 1968: 395

The accuracy of names used to identify plants and animals is another factor to consider in constructing an ecological history since it is necessary to know the past names commonly used for certain species. Loup-servier meant lynx. The world 'fir' had double meanings referring both to conifers collectively (pines, hemlocks, spruces) or to the individual balsam fir tree. Maples were sometimes called sycamore trees. White birch were also known as Canoe birch. Yellow birch were sometimes called Black birch. Moose were commonly referred to as elk or deer. Caribou were also known as reindeer. Baccalos was another word for cod. Animals were frequently referred to as being members of the furred, feathered or finned tribes depending on whether they were fur-bearers, birds or fish.

Constructing an historical sense of the land must also rely on past government reports and legislative acts. Surveyors such as Charles Morris and Titus Smith crisscrossed the province in the 18th and 19th centuries to research the state of the forests, rivers, soils, fish and harbours. The findings of these reports often instigated legislative acts to protect trees and wildlife. Such laws were cultural indicators of a changing ecology marked by deforestation and declining animal, bird and fish populations.

All of these early written accounts of Nova Scotia will be considered within cultural and ecological contexts. Biological processes will serve as a means to interpret what descriptive records depict. This will involve considering ecosystems as a whole -- that is how a collective entity of plants and animals interact with one another and their physical environment -- and what change does to it. Ecological processes such as forest succession, microclimate change, erosion and pollution will come into play. Plant succession -- the gradual and predictable series of changes in species composition of a community, from the time of colonization of an empty space to the maturing of the final, stable community -- will be particularly useful for measuring change in Nova Scotia's forests. Cultural contexts will include an examination of the differences between Micmac and European subsistence patterns and how these opposing ways of living in an environment had far reaching ecological impact. But equally important are the cultural responses to nature manifested in attitudes, actions and beliefs.

Ideas about a landscape versus the actual reality of it continue to be as divergent today as they were in the past. In the 1990s a powerful image exists of Nova Scotia as a pristine land of 'unspoiled forests, clear rivers and miles of empty beaches'[5] while the human imprint on this landscape reveals another story. Although three quarters of the province is covered in forests, less than 1% of these woodlands are over 100 years old -- the legacy of the longest record of forest exploitation in North America.[6] Many species have long disappeared - the caribou, wolf, walrus and passenger pigeon and the once limitless cod, exploited for five hundred years, is now commercially extinct, overfished by the 1990s and a mere shadow of their former numbers. The salmon are now extinct on 13 Nova Scotia rivers as a result of acid rain.[7] Pollution and abusive forestry and agriculture practices have caused environmental degradation. Harmony and order in ecosystems are matched by disturbance and chaos from both natural and human causes with change and renewal the constant fabric of life. Yet, today as in the past, many people perceive Nova Scotia to be an unsullied wilderness -- wild and empty. In the mid-19th century these same perceptions were equally as distorted as by that time the old growth pine was gone, the beaver decimated, the fish scarcer and the moose over-hunted. Behind these environmental facts of a 'wounded' land is a body of discourse centuries old that depicts human interaction, struggle and adjustment with the natural world.

Nature, has to a large extent, defined the experience of Nova Scotia for diverse groups of people. In 1828 Joseph Howe, noted Nova Scotian politician and journalist, put it this way: "Nova Scotia has no proud Palaces to court the view -- no Cathedral, nor Tower, to be gazed and wondered at -- her attractions are those of nature.." [8] Yet , as we shall see, nature in this land was equally an attractant and repellent. The absence of old European culture in a landscape was, in the eyes of early explorers, what separated civilised and 'savage' lands -- which initially meant wild or untamed. European fisherman Peter Martyr, thus made these distinctions when he described Cape Breton in 1516: "In all this newe lande is neyther [neither] citie or castell [castle]

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5 National Geographic Society, The Making of Atlantic Canada . October 1993

6 Sustainable Development Strategy for Nova Scotia. N.S.Round Table on Environment & Economy: 1992:33

7 Walton, Watt. "The Impact of Habitat Damage on Atlantic Salmon Catches." Canadian Special Pubication of Fisheries and Aquatic Sciences 105, Fishereis and Oceans, 1989

8 Parks, M.G.ed. Joseph Howe: Western and Eastern Rambles, Travel Sketches of Nova Scotia, 1828 , Toronto: Univ. of Toronto Press, 1973:96

but they [the Indians] live in companies lyke [like] herds of beastes."[9] Without the cultural framework of towns and farmlands, humans were the equivalent of animals in the eyes of some old world visitors. The sense of desolation early Europeans felt in encountering a land dominated by nature and devoid of familiar culture was often expressed by a variety of descriptive words such as 'desert' and 'barren' to describe endless forests. The inhospitability of this environment was, of course, a matter of perspective. For the Micmac this land was home and a place of sweet repose where was found "all our riches and all our conveniences among ourselves".[10] The riches of the land was what would bring Europeans to stay and this marked a turning point. Before this time, despite an active cod-fishery taking place, there were few written accounts of the land. With the 1606 establishment of Port Royal as a fur trading base, the French began to write books and comprehensive documents on Nova Scotia or Acadie as the English did after them. In these accounts distinct attitudes towards this 'new land' emerged.

'Nature as wealth' is the conceptual frame of reference behind many of the early writings on Nova Scotia. Resources were diligently researched as explorers and fishermen combed the harbours and coves of the province. Lists were made of what the country had to offer: its fish, harbours, forests, wildlife, fertile valleys. Fish above all dominated this inventory and for over a century Europeans were interested in little else.

After John Cabot's trip to these north Atlantic waters in 1497 word quickly spread on the great abundance of cod to be caught. Each year hundreds of European ships came to fish seasonally off Newfoundland and Cape Breton where it had been said that 'cod could be captured simply by lowering wicker baskets over the side of a boat.'[11] For centuries this type of fishing took place and still the cod and salmon

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[9] Martyr Peter of Angleria. The Decades of the New Worlde or West India. 1516 London: Richard Eden.1555. Citation in Richard Brown's A History of Cape Breton, 1869:14

[10] Micmac elder of the Miramichi band, speaking to a group of Frenchmen, with Chrestien LeClercq interpreting. LeClercq, Chrestien. New Relations of Gaspesia. 1691. Toronto: Champlain Society, 1968:104-106

[11] Letter from Raimondo de Soncino at London to the Duke of Milan, December, 18th, 1497 (Milan,1866). Translated from Italian by Charles Dean (Boston, 1884) Reprinted in The Northmen, Columbus and Cabot. ed. Edward Bourne and Julius Olsen, Charels Scribner's Son, New York, 1906:426-429. Source: Dunfield, R.W. The Atlantic Salmon in the History of North America. Halifax: Federal Dept. of Fisheries and Oceans, 1985: 12

flourished. In the early 1600s the Governor of Acadia remarked that the sea was 'paved with salmon' and other species; at times, fish were so plentiful that they impeded the passage of ships.[12] Governor Cornwallis would write of Halifax in 1749, the day after his arrival: "The coasts are as rich as ever they have been represented; we caught fish every day since we came within 50 leagues of the coast. The harbour itself is full of fish of all kinds."[13] Thomas Henry, reporting on the fisheries in 1883, stated: "The cod fishery, the herring fishery, the mackerel fishery, and probably all the great sea fisheries are inexhaustible. Nothing we can do can seriously affect the numbers of fish. Any attempt to regulate these fisheries seems consequently to be useless."[14] For old world eyes, the abundance of wealth in nature was at times beyond belief. Resources were the engine that drove European involvement with the land and settlements were a means to harness them.

The plenitude of nature engendered other attitudes towards Nova Scotia. This was the metaphor of the 'garden of plenty' or *'nature as the promised land'*. For some Christian Europeans, Nova served to symbolize a land free from scarcity and full of all the necessities of life which the bible had promised. This was the case for Parisian lawyer, Marc Lescarbot. He spent a year at Port Royal in 1606 and wrote of his adventures in *The History of New France* . His descriptions of sailing into Annapolis Basin and first laying eyes on the Annapolis valley is the most direct reference to Nova Scotia as the promised land:

> It was unto us a thing marvellous to see the fair distance and the largeness of it, and the mountains and hills that environed it, and I wondered how so fair a place did remain desert, being all filled with woods, seeing that so many folk. . . might make good of this land . . .
>
> . . . it is like unto the land which God promised to his people: "The Lord they God bringeth thee into a good land, a land of brooks of water, of fountains and depths that spring out of valleys and hills; a land wherein thou shalt eat bread without scarceness, thou shall not lack for

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12 H.P.Biggar, The Precursors of Jacques Cartier, Publications of the Canadian Archives, No.5 (Ottawa: Government Printing Bureau, 1911) P.X1V (citation: Dunfield's: The Atlantic Salmon in the History of North America . 1985: 12)

13 Akins Thomas, History of Halifax City. 1895. Halifax: Nova Scotia Historical Society,1973:12-13

14 Graham, T. The Fish Gate, London: Faber and Faber, 1943:109

anything.[15]

Through all colonial writings the Annapolis valley was seen as the 'Eden' of Nova Scotia. For early explorers this was particularly true since its naturally occurring meadows provided a visual break in a landscape where everywhere it was wooded. But most importantly fertile valleys symbolized land where Europeans could replicate their agrarian way of life. The concept of Nova Scotia as a 'garden of plenty' providing divine deliverance is again vividly expressed in an account of Port Royal written by Scotsmen, Richard Guthrie in 1629:

> [There are] fruitful valleys adorned and enriched with trees of all sorts. . . goodly oakes, high firres, tale beich and birch of incredible bignes, plaine trees, Elme, the woods are full of laurall store of ewe, and great variety of fruit trees, chestnut, pears, apples, cherries, and all other fruits. willow, hazel, sallow. . . . Gooseberries of the collour of ripe graps, Rose berries, and infinit store yet unknowen by us . . And in the woods deere [moose] of infinit bignes. . . besids other beasts apparralled with rich furres, most sweet and pleasant midowes [meadows] yeelding a variety of flowers and hearbs Roses of most fragrant Smell. . . herbs in aboundance, and those verry medicinable, Salsaparilla in infinit aboundance and admirable bignes,. . . The land is most fertile . . . We eat lobsters as bige as little children, plenty of salmons. . . birds of strange and diverse kinds,. . . the Lord has brought us through the seas, and given us our lott in a pleasant Land.[16]

As much as fertile valleys were revered, forests were reviled. *'Nature as enemy'* is the attitude behind much of the writing on forests -- unless, of course, woodlands were viewed in the terms of resource and exploitable wealth. Attitudes to the forests came down from medieval times. The forests were wild areas, alien to humans and in need of felling, firing, grazing and cultivating so they could become civilised abodes. Patrick Campbell, seeing the spruce-fir forest bordering the Bay of Fundy in 1791, reacted stronger than most when he described 'this miserable spruce' as being "fit to be inhabited only by wild beasts."[17] Woodlands were dark and horrible places where

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[15] Lescarbot, Marc. History of New France. 1607, Toronto: Champlain Society, 1911. New York: Greenwood Press,1968: V.2: 312,314. Note: first paragraph varies slightly in translation in the Greenwood Press edition but meaning is the same.

[16] Griffiths, N. and Reid, J. " New Evidence on New Scotland, 1629." William and Mary Quarterly, Vol. XLIX, July 1992:503,504,505

[17] Campbell, Patrick. Travel in the Interior . Inhabited Parts of British North America in the years 1791 and 1792. London. Toronto: Champlain Society #23,1937: 101

there were dangers from wild animals. The word wilderness was almost synonymous with forest; etymologically, it was the place of wild beasts. [18] In Nova Scotia, wrote one traveller, "Trees looked as tho' not one had been cut down here since creation".[19] The weight of eons and uncontrolled, wild nature symbolized a crushing presence for some Europeans encountering this 'new land' which at first sight was marked by "a dark, thick, and almost impenetrable forest indented on all sides with the waters of the sea." [20] On the positive side, the boredom of forests could be cheered up by a break in the monotonous pattern of trees. "The gloomy wilderness is cheered by the lake, the rivulet and the dashing waterfall" wrote one Nova Scotian.[21] The biggest interruption in these endless tracts of forest would, of course, be future pockets of cultivated land that would make the "wilderness blossom as a rose". [22]

In this sense forests held the promise of transformation. For most settlers this couldn't happen fast enough. Too slow was the conversion of this "miserable sullen wilderness"[23] into agricultural lands. Farming was crucial to the progress of settlement. Impediments to cultivation were detested. Agriculture stood to land as did cooking to raw meat. It converted nature into culture.[24] Descriptive accounts spoke of "subduing the forest, conquering the woods and multiplying the resources of human sustenance."[25] As one observer noted: "[Nova Scotia] would. . . grow better and better every day, in proportion as the Woods are cut down, and the Country cleared and improved."[26] The cleared patch, the cultivated ground neatly fenced off, became a symbol of order and civilization. This engendered a conquering relationship to nature. To the very first English pioneers coming to Nova in the mid-1700s the forbidding and

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18 Williams, Michael. Americans and Their Forests. Cambridge: Cambridge University Press, 1989:10

19 Hale, Robert. "Journal of a Yoyage Made to Nova Scotia in1731." Halifax: Report of the Board of Trustees of the Public Archives of Nova Scotia, 1968: 227

20 Hollingsworth, S. The Present State of Nova Scotia with a Brief Account of Canada and the British Islands on the Coast of North America. Edinburgh: William Creech,1787:69

21 Gesner, Abraham. The Industrial Resources of Nova Scotia. Halifax: A.W. MacKinlay,1849:56

22 Ibid:47

23 A Traveller. The Acadian Recorder. March 1st, 1823. Halifax: Report of the Trustees of the Public Archives of Nova Scotia in the year 1939: 24

24 Thomas Keith, Man and the Natural World. New York: Pantheon Books, 1983:15

25 A Traveller. Acadian Recorder. March 1st, 1823 : 24

26 Anonymous, A Genuine Account of Nova Scotia: containing, A description of its Situation, Air, Climate, Soil and its Produce: also Rivers, Bays, Harbours and Fish. London, 1750: 4

repulsive nature of the forests was further amplified, for a brief time, by the fact that Indians seemed to appear from behind trees to attack and then disappear back into the woods. The terror of the forest was also reinforced by the killing and maiming of livestock by wild animals. But the forest also had a symbolic meaning. It was the dark and sinister symbol of man's evil, where humans were beyond the reach of redemption and where even a civilised person could revert to savagery if left too long. Clearing, therefore, became a form of redemption. To fell the forest was almost to enter the kingdom of heaven on earth, as the making of new land seemed to demonstrate the direct casual relationship between moral effort, sobriety, frugality, and industry and material reward.[27] When Joseph Howe spoke of settlers transforming the still unfelled forests of Nova Scotia into an "unbroken prospect of smiling and peaceful cultivation"[28] the symbol of a virtuous mission was strongly encoded in the message of triumphant settlement .Yet one cannot deny the power of basic instinctual human needs and the greatest of these is the fight for survival. Cleared land, for Europeans, meant 'habitat' or place from which to draw sustenance. Micmacs, as well, valued clearings and spent a good deal of time in naturally occuring meadow lands bordering rivers, estuaries and streams where plenty of fish and other foods were found. However, the ardour with which settlers attacked forests went far beyond sustenance needs and left an ecological legacy still felt today.

The idea of *'nature as enemy'* was not represented solely in writings about Nova Scotia's forests. It also was very evident in accounts on climate. In this perspective the harshness of winter, the lateness of spring and ubiquitous fogs hanging over coastal fishing banks embodied nature as foe. Sixteenth century cod fishermen were the first to brand this climate as hostile and inhospitable by word-of-mouth accounts. Written descriptions of this sort would also originate from English travellers or militia men posted for a season or two at Nova Scotia's naval bases in Halifax or Louisbourg. Accustomed to a milder British climate and dressed improperly for such cold climes, these visitors were unprepared for the province's more rigorous weather. This contrasted with the French, who took heed of Micmac ways of living in the land and adapted useful strategies for winter clothing and general subsistence. Dispatched from

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[27] Williams, Michael. Americans and their Forests.: 11-13

[28] Parks, M.G. ed. Joseph Howe : Western and Eastern Rambles. 1828:143

Virginia, English Admiral Knowles arrived in Louisbourg in April of 1746 to relieve the garrison, for a one year period, on a mission to deter the French from recapturing the fort. His descriptions of Nova Scotia's winters are the most hair-raising on record:

> The frosts begin to cease about the middle of May, which are succeeded by fogs. These last to the end of July or the beginning of August, with the intermission, perhaps, of one or two fair days in a fortnight. The cost of fuel last year was 6000 pounds [$12,000.], notwithstanding the number of houses that were pulled down and burnt...Many of the troops have been frozen to death and the sentries, though relieved every half hour, frequently lose their fingers and toes. Some have lost their limbs by mortification in a few hours. There is no such thing as using any kind of exercise to keep themselves warm, the snow in many places laying 10, 12 and 16 feet deep, and when it ceases snowing the whole island is covered with a sheet of ice. Nothing is more common than for one guard to dig the other out of the guard room before they can relieve them...the drift snow sometimes covering houses entirely. . . Our miseries and distresses, occasioned by the severity of the weather, I really want words to describe. Nature seems never to have designed this place a residence for man. The severity of the winters, and the want and misery I foresee people in these parts must be exposed to, makes me despair of any enterprise succeeding in Acadia or Nova Scotia."[29]

Just as the concept of 'nature as enemy' was very strong in colonial writings, so too was the idea of *'nature as wonder'*. Here was a 'new land' with a myriad of unusual, even exotic trees, plants, birds, and wildlife and the response to this was one of intense curiosity. Observation was key to understanding the surrounding community of diverse and profuse creatures which shared the land. No animals impressed more than the beaver. Descriptions of its great building skills as ingenious architects of dams and waterproof houses with air passages, multi-floored rooms, escape exits, and food storage zones took up pages upon pages of space in books documenting the natural history of the land. Aside from the profits to be made in the trade of its fur, beavers reached a mythic status because its cleverness seemed close to that of humans. By reason of its complex social organization and intelligent control over its environment , Micmacs considered beavers to have sense and to form a separate 'nation'. Denys, similarly struck by the beaver's amazing feats, wrote in awe of this new

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[29] Knowles, Admiral. Written account addressed to the Duke of New Castle. 1746. Citation in Beamish Murdoch's History of Nova Scotia, Vol.2, 1866: 97-98

world animal in 1671:

> All the animals of which industry has been the most vaunted. . .are only. . . that is to say beasts, in comparison with the Beaver. . . I know well that there are many men, even skilled in many things, who would be greatly embarrassed if it were necessary for them to build their dwellings for themselves, especially if they had to take so many and important precautions for the preservation of their life as the Beavers must take in regard to their breathing, their food, the water, and the care to conceal themselves from the knowledge of the hunters. . .I leave you to judge whether that instinct which is attributed to the [beaver] is very different. . . from [human] reason and good sense.[30]

Intense curiosity about the creatures and plants of the 'new land' was also matched by intense confusion. The idea of *'nature as wonder'* thereby constituted these two sides of the same coin. Here was a land with many mysteries. How could you tell where the good soil was when the land was covered in trees? Why were codfish plentiful in one area one year and not the next? Why was the winter so long and the spring late? Why was Nova Scotia colder than Europe when it had a more southerly latitude than Britain and much of France? What were the bones of the huge animal (woolly mammoth) found in Cape Breton? What was the geology, or underlying bedrocks, of a land blanketed in forests? With so many puzzles imaginative conclusions were sometimes made. When moose were overhunted and scarce in the 1820s, some Micmac believed they had changed into whales and retreated to the sea, from whence they would later returned to repopulate the province. This idea was substantiated by the presence of moose footsteps by the shore and the finding of a dead moose with seaweed in its the stomach.[31] Europeans also held similar ideas on the transformation of species. Before north-south bird migration was understood in the mid-1800s, some people believed that birds disappeared in the fall to winter in the depths of the ocean before returning in the spring. But despite such ignorance Europeans and Indians were astute observers of nature. By the late 1700s a considerable body of natural history information had began to coalesce launching the passionate study of nature that blossomed into a rigorous, mainstream pursuit during

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30 Denys, 1672:367,369

31 Wallis, Wilson, D. and Wallis, Ruth Sawtell. The Micmacs Indians of Eastern Canada. Minneapolis: University of Minnisota Press 1955:107 See also: Deer of Nova Scotia, by D.W.Benson & G.D. Dodds,1977:21

the 19th century Victorian age.

The pursuit of natural history became a serious business. Nova Scotia, like all 'new world' lands, was a puzzle to sort out. To be able to develop the colony meant knowing what its resources were and in this capacity the study of natural history was invaluable. Colonists were also concerned with studying nature for non-utilitarian purposes simply to know and classify their biological environment for the sake of knowledge and for the satisfaction of imposing some pattern on their surroundings. Interest in wild birds and animals was also powerfully stimulated by the desire of hunters and fowlers to catch them.[32] Likewise interest in soils and vegetation was propelled by the need to successfully farm. Life sciences were still in their infancy as the professions of medicine, geology, botany, zoology and geology did not arise until the latter half of the 19th century. This meant educated laymen became experts of which Nova Scotia produced a considerable number of extraordinarily gifted individuals. They were naturalists, farmers, sportsmen and government officials all working to extend the knowledge of the land by observation, research and publication of their findings in books , periodicals or addresses before various learned societies including Nova Scotia Institute of Natural Science established in 1862. Natural history, in short, equated growth of scientific knowledge with the accumulation of information. And the drive behind it was, in part, to understand the land so it could be better controlled. However the study of nature was also associated with aesthetic appreciation and religious feelings with nature seen as the handiwork of God and its patterns and operations disclosing the creator's wisdom, power and goodness.[33] This perspective, passionately held by many naturalists, was seriously threatened by the development of Charles Darwin's 'theory of evolution through natural selection' where god appeared absent. But nevertheless an interest in natural history -- classifying flora and fauna, identifying geology, looking for ecological patterns at work -- was a dominant theme in many 19th-century Nova Scotian accounts of the land. They reflected a mode of interaction with the environment that was seeded in practicality but born of the idea of *'nature as wonder'* with its twin sides, curiosity and confusion.

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[32] Thomas, Keith. Man and the Natural World: A History of a Modern Sensibility. New York: Pantheon Books, 1983:71

[33] Berger, Carl. Science, God and Nature in Victorian Canada. Toronto: University of Toronto Press, 1983: xii

'Nature as poverty' was another common perspective in writings on Nova Scotia. From this viewpoint the natural offerings of this land were too meagre to entice interest, provide adequate human sustenance or generate prosperity. Famed Englishman William Cobbett's account of his 1783 two-week visit to Nova Scotia, while serving in the King's Marine Service is a case in point. Before his arrival he had been advised on how fine, flourishing and plentiful a country Nova Scotia was. Described as a terrestrial paradise rich in beauties it left Cobbett "perfectly enchanted at the prospect of his voyage".[34] However upon seeing the sight of Halifax he would write:

> When I first held the barren, not to say hideous, rocks at the entrance of the harbour, I began to fear that the master of the vessel had mistaken his way; for I could perceive nothing of that fertility that my good recruiting captain had dwelt on with so much delight. Nova Scotia had no charm for me than that of novelty. Everything I saw was new: bogs, rocks, mosquitoes and bull-frogs. . . Nova Scotia, New Brunswick, and Canada, are the horns, the head, the neck, the shins, and the hoof of the ox, and the United States are the ribs, the sirloin, the kidneys, and the rest of the body. Nova Scotia and New Brunswick were one great heap of rocks, covered with fir trees, with here and there a little strip of land capable of cultivation, by the sides of rivers...In short the most barren, the most villainous piece of waste land. . .[35]

Only by the end of the eighteenth century would the preference for a cultivated and human-dominated landscape be challenged. In Britain, the advent of industrialization, the rise of mechanistic science, the move to cities, the ease of train and steamship travel and the immunity from direct involvement in the agricultural process made landscapes other than the fertile one desirable. Thus landscapes, so detested by Cobbett, could now be embraced as wild, romantic and picturesque in Europe and America. This would develop later in Nova Scotia. With anti-modernism sentiments arising in the 1920s and beyond -- a reaction against wars, economic depression, and the stress of urban society -- Nova Scotia's rugged land began to be considered interesting. As the "rustic" was embraced, the rocky fishing cove of Peggy's Cove -- now easily accessible by automobiles and roads -- was transformed from a 'sterile barren wasteland' to 'desirable place', discovered and made famous by weary urbanites who painted, photographed and wrote about it. The image of Peggy's Cove

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[34] Feitzel, W. ed. The Autobiography of William Cobbett. London:Faber and Faber , 1904: 24

[35] Ibid: 28

and its fishermen, romanticised by artists, was soon promoted by emerging tourism interests to arise as the cultural icon and symbolic landscape that dominates the province today. [36] But this is a relatively new historical development in Nova Scotia's history. For hundreds of years the site of the rocky coast of Nova Scotia's Atlantic shore, particularly the large barren lands at the approach of Halifax Harbour, was equated with deficiency and destitution symbolizing the antithesis of a fertile, productive landscape. It painfully compared to the greater natural endowments of other more prosperous, peopled and advanced lands like the nearby New England states. This instilled in Nova Scotia leaders an intense desire to overcome Nova Scotia's laggard status. Reference to the fertile Annapolis valley, as a point of contrast, was constantly used to redeem the land from its reputation of a sterile wasteland. This was *'nature as poverty'* and it was reflected as much in traveller's accounts of the land as it was in those of prominent Nova Scotians.

The concept of *'nature as habitat'* dominated writings on Nova Scotia for almost four hundred years, but blossomed in the mid-1700s when the British began settlements efforts. Geography as a key influence, or environmental determinism, was the theme of many such accounts. What the land had to offer determined where settlements or townships were set up. It was closely related to the concept of 'nature as wealth' but differed in that settlement was the goal, not quick exploitation of a resource followed by departure. Appraisal of harbours, fishing grounds, soils, forests, rivers and topography came into play in order to determine where to locate settlements or townships. John Harris, working as a surveyor, reported his findings to Chief Surveyor Charles Morris in this 1814 report which is typical of such writings:

> With respect to the quality of the land, my sons are of opinion that in general, tho' we passed sometimes 4 or 5 miles thro' very indifferent land in general, yet there is not in any one mile's distance so much bad land as not to afford room for one good farm, at least, whereon a man may get a comfortable livlyhood -- and as for **good land,** I have travelled in the direction of my new road more than 20 miles in one continued tract, over good land for settlement, and the greater part as good, or better than ever I survey'd in the province, (and seem to extend N. & S. still farther) -- I reckon the land east of the Liverpool Road, 3/4 good for settlement, and west of that road it may be said to be at least 2/3 parts good to one of

[36] See Ian MacKay's article "Among the Fisherfolk: J.F.B. Livesey and the Invention of Peggy's Cove." Journal of Canadian Studies, Vol.23, No. 1 & 2, Spring/Summer, 1988.

bad.. .[37]

Discourse reflective of the *'nature as habitat'* approach to the land was evident in subjects ranging from the need for surveys to the determine if there was any valuable land left to the need to 'read' the vegetation to know the site of good soils. Settlers were looking for their niche in an enigmatic terrain and good sites meant having better odds at living well off the land. Trying to find a niche -- a decent, unsettled, leftover area -- was also the driving force behind many Micmac petitions to government administrators as this 1832 speech to legislative officials reveals:

> Fathers:
> When the French came to us they asked us for land to set up their wigwam --we gave it freely-- in return they taught us new arts---protected and cherished us--sent holy men our fathers amongst--who taught us Christianity--who made books for us--and taught us to read them--that was good--and we were grateful.
> Fathers:
> When your fathers came and drove away our French fathers---we were left alone--our people were sorry, but they were brave---they raised war cry--and took up the tomahawk against your fathers---Then your fathers spoke to us--they said, put up the axe --we will protect you--we will become your fathers. Our fathers and your fathers had long talks around the Council fire--the hatchets were buried--and we became friends.
> Fathers:
> They promised to leave us some of our land---but they did not--they drove us from place to place like wild beasts---that was not just. . . We ask of you, Fathers, to give us part of that land once our fathers'---whereupon we may raise our wigwams without disturbance. . . where is our land?--- we have none. . . [38]

If the European drive to find a place in Nova Scotia necessitated displacing Indians it

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[37] John Harris to Honbl. Charles Morris. Dec.1814. Halifax: Public Archives of Nova Scotia Report. Appendix 29, 1937: 39 (F90 N85 Ar2r)

[38] Louis Francis Alguimou, Piel Jacque, Oilver Thoma, Peter Tony, Michael Mitchell. In Legislative Assembly of Prince Edward Island Journals, 1832:11. Excerpt in Ruth Whitehead's, The Old Man Told Us:208

was partially because of the idea of *'nature as freedom'* which North America represented. Here was a wild landscape symbolising new beginnings and the ability to reinvent your life. An appropriate motto would have been 'take what you want.' Conceivably you could do almost anything: create a pleasant farm, steal land from Indians, cut down as many trees as you wanted, kill any number of moose, build proud communities or exploit naturai resources for profit. Law enforcement was minimal in sparsely populated places. The absence of the confinements of old Europe meant you could cast off class structures and be an equal among equals living in a pioneer society where land was cheap or free and you could be master of your own domain. Nova Scotian historian Beamish Murdoch expressed it this way in 1866:

> To compensate for the many. . .disadvantages [of settling for] those who had left the regions of old civilization, a sense of freedom arises not only from the aspect of the wild natural scenery [of Nova Scotia] . . . but also in the removal of a thousand conventional shackles that tie down the human mind. . . Self respect [is] produced in those whose life would be but a dull vegetation in the cities of the old world. The abundance of fish in the waters, the profusion of game in the forests, and the plenty of birds everywhere, all which were to be free from the claims of proprietors or the penalties of game laws, were obvious advantages. . . 39

All things have their consequences --- including the perceived liberty to seize from the land what you want. The outcome of the *'nature as freedom'* mindset was the idea of *'nature as wounded object'* in the historical writings on Nova Scotia. It is widely thought that concern for the natural environment is a relatively recent phenomenon when in fact it has a very long history in the form of protest and petition over changes taking place in the land. By the mid-1800s, and, in fact earlier, many Micmacs, naturalists, government officials, agriculturalists, foresters and sportsmen were, at times, appalled by signs of decline in the environment --- fish populations plummeting, no pine trees left, miles of burnt scarred land, abused soils made sterile and game animals in retreat. Many writings detail the ecological transformations taking place. In 1869, sportsman and naturalist, Captain Campbell Hardy addressed *"nature as wounded object"* in this philosophical account:

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39 Murdoch, Beamish. History of Nova Scotia. Halifax: James Barnes,1866,V.2:233

> In the hands of which class of men does this colony now find itself? And I fear the unhesitating answer to 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 children, and utterly regardless of restraint imposed by the laws of the country, worse than useless because not carried out, are bringing about the final [wildlife] depopulation of our large wild areas of land and water.[40]

These then are the ranges of cultural responses to nature evident in historical writings on Nova Scotia's land and its natural history. They span 'nature' perceived as: wealth, the promised land, enemy, wonder, poverty, habitat, freedom and wounded object . All modes of perception overlap, collide, complement and contradict each other and, together, form a sense of the diverse approaches to land and place. They frame a subtext for all other narratives used in this thesis to interpret natural history patterns of the land, ecological change and human interactions with the environment.

To consider ecological transitions is to analyse what a land was like 'before and after' and it raises the question 'changed in relation to what'? Denys would write in 1671 of Nova Scotia being a land of patchwork patterns where there were found "mountains, rocks, marshes, meadows, heaths and good lands."[41] Nova Scotia was not one large, untouched old growth forest as many would like to think today; not a sort of Eden where the natural scheme of things, proceeding without interruption for thousands of years, had reached its ultimate perfection. Change was constant. Electrical storms created fires and hurricanes blew down large tracts of mature forests. The landscape was characterized by diverse ecosystems in different stages of development. The idea of the forest being in some pristine state of equilibrium with nature, awaiting the arrival of the transforming hand of Europeans, has been all too readily accepted as a benchmark against which to measure change.[42]

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40 Hardy, Campbell. Forest Life in Acadie. London: Chapman and Hall, 1869: 345

41 Denys, Nicholas. Coasts of North America or Acadie. 1672:249

42 Williams, Michael. American Forests:49

A nostalgia for 'primitive, untouched nature' initially arose as old growth forests and abundant wildlife disappeared across North America with the establishment of settlements, cities and resource industries. Yearning for 'primitive, untouched nature' sprung, in part, from the *'nature as wounded object'* concept of the land. Just when many 19th-century Nova Scotians were bemoaning the state of the province's wounded and declining environment along comes one of the best selling books in the English speaking world and it portrays Nova Scotia or Acadie as the 'lost paradise' in the psyches of the millions of people who read it.

In 1847, when Henry Wadsworth Longfellow wrote "These are the forests primeval, the murmuring pines and the hemlocks" in the famous opening lines of the poem *Evangeline*, he took us back to that place where one could ideally find unity with unsullied nature. And that place was Nova Scotia. Or more precisely Acadia. It was the place of old growth forests where divine creation was perfectly intact. In Longfellow's view here was the lost paradise. Here was the land where Acadians lived in a state of grace, a golden age, before their cruel 1755 deportation at Grand Pre when they were thrown out of this 'garden of Eden'. This was an Arcadian, pastoral paradise surrounded by the grandeur of pristine wilderness. [43]

In reality, the primeval woods which Longfellow described around Grand Pre didn't exist during the 18th century as the forests in that area had been decimated by a 1710 fire which swept the country from Gaspereau to Piziquid (Avon River). It is probable that the extensive forests covering the mountains to the east were destroyed at the same time. As a result there was a shortage of nearby wood, reflected in the quantity of cut wood coming from a long distance to supply the Acadians -- as some said from the east side of the Avon. Only a small patch [of woodlands] at the head of the river remained. When the English settlers came in 1760 they passed laws for the protection of the wood then standing. For many years the new growth was small, and consisted of spruce, fir, white birch, popular and white pine. It is said that in the year previous to the fire, a cyclone had laid prostrate the forests from Annapolis to East Hants. Over a great part of this territory, the soil is thin on the mountains, and once the fire started in the next year nothing could stop the march of flames till it reached the Avon. [44] Obviously

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[43] See Naomi Griffiths "Longfellow's *Evangeline* : The Birth and Acceptance of a Legend." Acadiensis Vol.11 #1, Spring 1982: 28-41

[44] Herbin, John. Grand Pre and The Marshlands. Toronto: William Briggs, 1900:152

then, in the mid-1700s the area around Grand Pre was not a land of the 'forest primeval' which Longfellow so vividly portrayed one hundred years later.

Not knowing any better, Americans would flock to Nova Scotia to see this 'forest primeval' in the late 1800s. Tourism was emerging, Nova Scotia was a quick, easy trip from Boston and New York, and provincial business interests had advertised boat and train travel to entice Americans to Evangeline's land of paradise. Dozens of books (tourist guides penned by Americans) were written on Acadie and its forest primeval. Thousands of people made annual pilgrimages from the 1860s to the 1930s to witness the golden land. Visitors quoted lines from the poem as they looked at the landscape noting the gap between mythic portrayal and actual reality. Still a mystique existed. Literary licence had created that place. The idea of nature is as powerful as the reality of nature. Humanity has long held ideas about a long-lost golden age. In European culture this has been exemplified by Arcadianism -- the ideal of a simple humble life lived in close harmony with nature. The word derives from a mythical region in ancient Greece called Arcady, whose inhabitants supposedly dwelt in an Eden-like state of innocence, at peace with the earth and its creatures.[45] This concept of Arcadia was soon applied to the new world and gradually descended on Nova Scotia and New Brunswick.

The name Arcadia first appeared on New World maps in the 1520's when the Italian explorer Verranzano visited the Atlantic coast of North America in the name of France. Arriving in the region of present day Virginia or Maryland, he found beautiful trees and vegetation so luxuriant that he named the country "Arcadia" marking it on his map over an elongated east coast. The location of this place name migrated northeastward on later maps and applied to present-day Nova Scotia and New Brunswick. The name was still in use in the form Arcadie on maps of 1572 and in a printed work dated 1575. Then, at the end of the 16th-century, under a coincidental resemblance to native place-names, there was a period of several years of hesitation between Arcadie, L'Acadia and La Cadie. 'Cadie' is the Micmac world for "a place of abundance' - a term used by the Micmacs to describe their homeland to Europeans. In 1603 Champlain made exclusive use of the name Arcadie. It is believed that by the mid-1600s this name was firmly attached to the area now comprising all of Nova Scotia and New Brunswick, but the letter "r" was soon dropped and the name became

[45] Worster, Donald. Nature's Economy. Cambridge: Cambridge University Press, 1977:365

Acadie.[46] Later in the 1600s, when under British rule, this land was renamed Nova Scotia, but it is noteworthy that its original European name would be a merger of the Micmac's sense of ecological abundance and the European sense of a well endowed land where one might live in harmony with nature.

These then were the two worlds that encountered each other. The Micmacs who lived in ecological abundance and the Europeans who sought it . What resulted was the collision of two ways of living in nature: the hunter-gatherer sustained by regional ecosystems versus the agrarian-trader sustained by broadening global ecosystems. With their convergence, the land was transformed.

This was a gradual transformation. It took place over three centuries - 1600 to 1900. Nova Scotia, like the rest of what is now Atlantic Canada, did not have a steady, continuous record of colonization -- unlike other areas. Instead political control over this land was traded back and forth, during treaty settlements between the rivalling French and British. This uncertainty disrupted settlement attempts. Hundreds of shiploads of Europeans had made fleeting visits to this part of America that was nearest to their homelands, but in only one or two small areas had more than a trace of settlement been left. [47]

Before 1749, two groups of Europeans lived in this region. About 6000 people of British origin lived off the coast Newfoundland and in Nova Scotia on the islands off Cape Canso, dependent on the fisheries. Around the Bay of Fundy and in adjacent districts more that 10,000 Acadians lived on their farms, trading with the rich garrison at Louisbourg and with coasting New Englanders. Most of the land was wilderness thinly occupied by Indians - meagre development for an area known by Europeans for two and a half centuries. The Atlantic region had been prized more for its strategic value and its fisheries than for its potential for settlement. Colonization efforts were concentrated elsewhere while this area stood by. [48]

The French encouraged development of their lands on the St. Lawrence River and

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46 Trudel, Marcel. The Beginnings of New France,1524-1663. Toronto: McCelland and Stewart ,1973:10

47 W. S. MacNutt. The Atlantic Provinces: The Emergence of Colonial Society 1712-1827. Toronto: McClelland & Stewart, 1965:1

48 Harris, Cole and Warkentin, John. Canada Before Confederation: A Study in Historical Geography. Oxford: Oxford University Press, 1974:173

expended much energy on attempting to control the interior of the continent while British migrants were attracted to the colonies south of present-day Maine.
With the Treaty of Utrecht in 1713 Acadia switched to British sovereignty but France still held Cape Breton. The English founded Halifax in 1749 to counter the presence of the French at Fort Louisbourg. Later Halifax would become a base for the British to fight the American revolution. By mid-eighteenth century the British began to seriously invest energy into colonisation efforts.

Most ecological change induced by colonization would take place in this period beginning with the arrival of the Loyalists in 1780s. Previous centuries of European influence had also left a trail of consequences. For hundreds of years these newcomers explored Nova Scotia observing and charting the land. So began the transformation of Terra Incognita into Terra Firma.

Chapter Two

PATTERNS OF THE LAND

"I examined it very carefully, and made a map of it, along with all the rest."

------Champlain, The Voyages, 1604-1607

Endowing the natural world with order meant constructing mental maps of the land. This was equally true for the Micmacs as it was for the arriving Europeans who studied the characteristics of Nova Scotia's environment. Ecology played a crucial role in determining overall land-use patterns including the location of Micmac encampment sites and colonial settlements. Consequently close attention was paid to climate, vegetation, soils, wildlife, freshwater and the characteristics of the never distant sea. To live in Nova Scotia meant knowing how to utilize its flora and fauna.

Employing the natural wealth of the land for sustenance was, however, very different than extracting resources for world markets. The word "resource" (to rise again) originally referred to the earth's ability to restore herself. In 1650, Sir John Denham wrote, "For whatsoever from our hand she [the earth] takes, Greater or Less, a vast return she makes. Nor am I only pleased with that resource." [49] Resource meant replenish. The use of the word 'resource' as an abstract term denoting available assets or the source of wealth of a land dates only from the eighteenth century[50] -- no doubt a response to the industrial revolution and the expansion of world markets made possible by the colonization of North America and other continents. But although the modern sense of the word 'resource' was not used previous to the eighteenth century, nature as wealth was obviously a primary way of interacting with the land and was expressed in other ways.

Micmac legends would speak of plant and animals resources as gifts of nature from

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[49] as cited by Merchant, Carolyn. Ecological Revolutions: Nature Gender Science in New England. Univ. of North Carolina Press,1989:11

[50] Shepard, Paul. Man in the Landscape. 1948, College Station: Texas A & M University Press, 1991:237

the Great Spirit to be used to take care of human needs. Micmacs had been "granted the skill and ingenuity necessary for capturing beavers and moose in as great number as were needed for their subsistence."[51] With the arrival of Europeans, and mercantile trade, these same 'resources' of the Micmac became exploitable commodities for the exchange of goods. Early French accounts would write of the "goodness of the land, of the quality of the woods, of the birds, fishes, animals". Conveyed was the sense of vast resources that could be used to both profit the French and pay for the cost of colonization. Likewise, the English would write of the infinite advantage Nova Scotia would be to the King "were it improved, abounding in good harbours, rivers, good land, mines, excellent timber of all sorts, especially for shipping, and the seas abounding with codfish." [52] Later, 19th century Nova Scotians like geologist , Abraham Gesner would bemoan the fact that the colony's resources were insufficiently known to attract the investment needed to build a prosperous province. As he stated, "every aim towards this mark should be encouraged -- until the primitive forests of this country shall ring with the sound of the axe -- the ocean shall yield up abundant supplies of food -- the earth its minerals, and the soil the varied productions of agriculture."[53]

'Resources' or 'nature as wealth were the prime concern of everyone from cod fishermen to colonists to Micmacs. How these resources were perceived depended a great deal on the groups involved. Explorers and visitors provided descriptions of the land that were sometimes no more than lists making reference to the land's 'natural productions'. As S. Hollingsworth noted: "Viewing the produce of the country, thence [we] form a judgment of its value."[54] Some simply came, gathered the profits of the countryside, be it furs, codfish or trees, and left -- having no concern about permanently inhabiting that place and husbanding or nurturing the 'resources'. Greater concern for the land came from natives or those planning to settle. Colonists and Micmacs, having more vested interests at stake, were more likely to be aware of

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[51] Collected by Chrestien Le Clercq (Recollect priest missionary to the Micmac on the Gaspe Peninsula 1675-1683) In New Relations of Gaspesia. Excerpted by Ruth Whitehead The Old Man Told Us. Halifax: Nimbus, 1991: 4

[52] Sir Thomas Temple's November 1668 letter to the Lords of Council. Citation in Beamish Murdoch's History of Nova Scotia. 1865 Vol.1: 143

[53] Gesner, Abraham. Industrial Resources of Nova Scotia.1849: ii

[54] Hollingsworth, S. The Present State of Nova Scotia . Edinburgh: William Creech, 1787: 69

the land's ecological relationships and this was reflected in their discourse over the land.

To 17th century Europeans, and those that followed, what was most impressive about Nova Scotia was its abundance of resources that were scarce in Europe. As Lescarbot wrote, "The city of Paris and other places of France. . . are all bare and without woods..."[55] yet trees were everywhere in Nova Scotia. Likewise England had had severe wood shortages since the mid-1500s.[56] The need of minerals, meant copper and coal were quickly located in Nova Scotia, along with alabaster (gypsum). To strengthen political relations, Micmac sagamore Membertou told the French in 1606 that "he wished to make a present to [their] King of his copper mine [at Cap D'Or] since he saw [they] held metals in high regard."[57] For the king, amethysts were also taken from these same cliffs[58] representing the hidden treasures of the land. But the greatest treasure of all was the fish. Antionia De Ulloa wrote in 1758 that the cod in Europe's waters were "so inconsiderable as to be looked upon as stragglers' compared with the abundance of cod in the Northwest Atlantic."[59]

It was these great quantities of codfish that most impressed Europeans. This 'inexhaustible manna' as it was described, was a valuable international commodity. Catholism's dictate of a fish diet/ fast on Fridays and at Lent stimulated European market demand for the 'beef of the sea'. In England periodic meat shortages created a demand for cod. But more important were the advantages to the State derived from the fishery's stimulation of shipbuilding and its supply of skilled seamen/fishermen who could be drawn into the navy when needed. As William Wood stated: "It is a certain maxim that all states are powerful at sea as they flourish in the fishing trade."[60] By 1712 this North Atlantic Fishery was one of the great industries of the West European

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55 Lescarbot, Marc. History of New France. 1609. v3: 261

56 Perlin, John. A Forest Journey: The Role of Wood in the Development of Civilization. London: Harvard University Press, 1989: 176

57 Lescarbot Vol.2, 355

58 Ibid v.2 :237

59 el Ulloa, Antonio. A Voyage to South America. London, 1758:410. Cited by Harold Innis, The Cod Fisheries: The History of an International Economy. Toronto: Univ. of Toronto Press, 1940: 2

60 Wood, William. A Survey of Trade. London, 1722. Cited in The Cod Fisheries: 01

economy.[61] For France the value of the cod fishery from Isle Royale (Cape Breton) easily exceeded that of Canada's fur trade.[62] When France lost half a continent in 1763, France's foreign minister, left with only St. Pierre and Miquelon, responded: "The Fishery, sir, is the real loss in Canada . . without the fishery, Canada is nothing."[63]

The nearness of the Grand Banks to Nova Scotia's coastline had brought Basque and Breton fishermen to these shores as early as 1504 and by mid-century an active seasonal fishery took place on inshore fishing grounds and offshore banks. 16th-century maps show fishing activity around Cape Breton, Canso and the Southwestern shore that was undertaken by the French, English, Spanish and Portuguese who all had their favourite harbours. According to Denys "there were scarcely any harbours where there were not several vessels"[64] although Canso and Louisbourg were the key fishing centres attracting hundreds of ships each spring. [65] The banks, or shallow waters on the continental shelf, are shown in Paul Olliver's 1624 map detailing the Banqereau, Sable, George's, Acadia (La Have & Brown's) and Grand Banks[66] as well as Nova Scotia's inshore fishing grounds. Maps also indicated the presence of sheltered beaches or rocky shores where one could 'make fish on' -- salting and drying the cod which was unrivalled for its keeping properties. Efforts to make beaches better drying locations often necessitated considerable intervention -- levelling them, removing vegetation and spreading gravel over large rocks, dirt, sand or grass shores. Competition for the best sites was fierce. Since timber was used for drying scaffolds, buildings and firewood, Denys noted that it was thinning out at fishing stations along Nova Scotia's coast by the mid-17th century: "For every year [the firs] are being cut away that no more are left and it is necessary to go after them three, four, five and six leagues away and sometimes farther. There are scarcely any places left

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61 MacNutt, W.S. The Atlantic Provinces:The Emergence of Colonial Society. Toronto: McClelland and Stewart,1965:2

62 Balcom, B. A. The Cod Fishery of Isle Royale, 1713-1758. Halifax: Parks Canada Publication 1984:65

63 Choiseul's Speech at the Counsil at Versailles, August 1st, 1761, documented by John Pearson in The Fish and Fisheries of Colonial North America. Washington: Dept. of the Interior, U.S. Fish and Wildlife Service, 1972:153. Citation also in R.W. Dunfield's, The Atlantic Salmon in the History of North America.: 45

64 Denys 324

65 Gesner states that in 1598 the number of fishing vessels upon the coast was no less than 330. Gesner, 3

66 Dawson, Joan. The Mapmakers Eye: Nova Scotia Through Early Maps. Halifax: Nimbus, 1988: 36

where it is not necessary to go fetch them from a distance." He credited the presence of grassland meadows along areas of the coast to the timber cutting practices of fishermen at fishing stations.[67]

The largest cod, found mainly on the banks, were 5 to 6 feet long[68] necessitating wet or green preservation in salt brine barrels -- since large fish took longer to sun dry and went maggoty first. In coastal waters, cod were smaller, generally 10-12 pounds and more ideally suited for drying. The practice of throwing fish guts overboard was condemned by many fishermen as it was considered ruinous to the fishery, injuring 'the finny tribe'.[69] For one thing, inshore fishermen thought this practice on the banks kept the cod busy eating fish guts there which prevented them from following schools of fish inshore in search of food. For another, throwing fish guts in bays in the inshore fishery most likely had the effect of altering oxygen supplies and destroying bottom dwelling creatures which fish eat. Fish thereby avoided these bays, hence the fishermen's 'fish-guts' complaints. Ships customarily could hold 100,000 or more [70] dried cod and by the mid-1600s Denys thought the heavily fished cod were thinning out: "There are places where there are taken every day fifteen, twenty, and thirty thousand fish, not counting that which is being done at the other places, and a fishery of this extent last six weeks or two months. This thins out the cod immensely, and makes it depart, ...and obliges the captain to follow the fish. . . to ascertain where perchance the fish have gone."[71]

Using the low-impact technology of hand and line fishing, the cod migrations came and went and populations fluctuated but their overall numbers remained strong despite "the almost infinite number of cod taken every year in these seas."[72] As Hollingsworth wrote in 1787: "Upon every part of [Nova Scotia's] coast, and at different distances from the land, there are fishing banks, of greater or smaller extent, and in various depths of water. Upon all of these, the cod fishing is found in all seasons, and

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[67] Denys 224, 281, 282
[68] Innis 4
[69] Gesner 121
[70] Lescarbot Vol. 2 : 362
[71] Denys 314
[72] Hollingsworth 59-60

in every month of the year, notwithstanding what has been sometimes advanced to the contrary. There is, indeed, some variation to the quantity taken, and the depth of the water to which the fish retire, at certain seasons; they, however, never entirely forsake the coast." He noted that "an able naturalist counted the spawn of a cod and found it to contain more than nine million eggs each one capable of reproducing the species, in the same extent and perfection."[73] Determining the natural history of the cod was a matter of great interest to those concerned with the fishery. This involved careful consideration of ecological relationships as reflected by Denys' 17th century account:

> The cod does not go every year to the same bank. The fishery which will be one year upon one bank will be exterminated by the great number who go there together. Thus the following year the fishery is obliged to seek another bank, where the cod will not have occurred the preceding year. There are also the Mackerel and the Herring, which will take another route than that of the preceding year. This comes sometimes from the winds which have prevailed during the winter, or from the young Herring, the Smelt, the Caplin and the other little fish which come in spring to lay their eggs upon the coast and which come earlier or later according to the [nature of the] winter. These are the sustenance of the Mackerel and Herring, and the Mackerel and Herring are the sustenance of the Cod.[74]

As Denys observed, the winds were very much involved in the abundance of fish. Nova Scotia's most productive fishing grounds exist due to the presence of nutrient rich phytoplankton blooms produced by an oceanographic phenomenon known as 'upwelling' which brings cold nutrient rich waters upwards to replace warmer surface waters, resulting in a profusion of microscopic life. This attracts fish. Most upwellings are wind generated but in the Bay of Fundy large tides cause them.

Though Nova Scotia was cod country, equally impressive was the abundance of other marine life - "this vast profusion of nature, so observable in the seas of North America" wrote Hollingsworth.[75] In spring, Harbour Seals peppered shorelines while in February herds of Grey Seals took to islands to have their young where they were found in such abundance that "there are days on which have been killed as many as

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[73] Hollingsworth 59-60

[74] Denys 326

[75] Hollingsworth 60

six, seven and eight hundred [for their oil]".[76] Also killed in such numbers were walruses which were once common on various islands.[77] As Gesner noted "When the French and English first began to frequent Canseau as a fishing station, walruses, or sea-cows, were numerous, and their teeth, which equal the ivory of the elephant, formed a valuable article of trade".[78] Halibut attained an enormous size, weighing half a ton and upwards, and the effort needed to land them was the curse of fishermen.[79] Mackerel were so plentiful it was "impossible to conceive the extent of their armies; shoals are seen from two to five miles in diameter and so closely crowded that the sea is rendered smooth. . . living masses of fish obstructing the passage of boats", wrote Gesner. [80] Denys described an infinity of huge scallops and immense oysters larger than a shoe, very plump and of good taste that were found in numerous harbours. In many areas lobster and crabs were found in such quantities that "it almost passes belief."[81] "We named lobsters sea-partridges on account of their goodness",[82] commented Denys. "The lakes are filled with all kinds of fresh water fish," wrote Isaac de Razilly. "The sea is paved with turbot, sturgeon and salmon."[83] On Salmon River the smallest size salmon were 3 feet long and elsewhere sturgeon were seen "eight, ten, eleven and twelve feet in length, and as thick in body as a sheep."[84]

One of the most amazing sights for Europeans were the spring spawning runs of fish coming up from the sea into certain streams. "Everything swarms with them, " wrote Pierre Biard in 1611. "Anyone who has not seen it could scarcely believe it. You cannot put your hand into the water without encountering them."[85] Smelts were the first to arrive in schools so large that according to Lescarbot "they could feed a whole city. .

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[76] Denys130

[77] Lescarbot vol 3: 241

[78] Gesner 116

[79] Gesner 122

[80] Gesner 138

[81] Laet in 1633 describing Cape Breton. As documented by Murdoch , Beamish. History of Nova Scotia, 1865 Vol 1:131

[82] Denys 356

[83] Cited by Dunfield, Robert. The Atlantic Salmon in the History of North America, 1985: 16

[84] Denys 166,351

[85] Pierre Biard (a Jesuit living in Acadie, 1611-1613) in Jesuit Relations and Allied Documents edited by R.G. Thwaites, 1896, Vol 3:77-83. Excerpted by Ruth Whitehead in The Old Man Told Us.1991: 36

. [coming] in such abundance. . . that we knew not what to do with them." [86] Next, in other brooks, came gaspereau in like multitudes. Later sturgeons and salmons ascended "in such quantities that they carry away the nets we had set for them. Fish abound here in like manner, such is the fertility of this country."[87]

If the 'finny tribe' was prolific so was the 'feathered tribe'. Lescarbot described the great abundance of birds on certain islands "where are such quantity of ducks, gannets, puffins, wild geese, sea-gulls, cormorants and others that it is a wonderful thing".[88] As for bald eagles, "There are such a quantity of them in these parts [Port Royal] that often they ate our pigeons [chickens] and we had to keep a sharp look out for them."[89] Upon Seal and Bird Islands, others wrote, " were so great a number of all kinds of birds that it is past belief, and especially during the spring when they build their nests. If one goes there [the birds]... rise in such vast numbers that they form a cloud in the air which the sun cannot pierce."[90] "Their eggs [which are collected] are better than those of hens," said Diereville, adding that despite numerous raids on the island "yet a large number of Birds is always produced."[91] The multitudes of birds on the Bay of Fundy salt marshes so impressed Acadians that the name Tantramar [marshes] was derived from the Acadian word, "tintamarre", meaning " a mighty roar" -- referring to the cries and wingbeats of vast flocks of waterfowl that stopped over to feed in the salt marshes on their spring and fall migrations. [92] Also striking were the great flocks of passenger pigeons which Denys described as "plaguing us by their abundance."[93]

Mammals, being more widely spread out, did not have the astonishing impact of swarms of fish, jam-packed bird colonies or great flocks of migratory waterfowl, yet their numbers were also considerable. "They have an abundance of game in the

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[86] Lescarbot Vol 2: 236, Vol.3:347
[87] Lescarbot v.3:236
[88] Lescarbot v.3:231
[89] Lescarbot v.3:232
[90] Denys 131
[91] Diereville, Sieur de. Relation of the Voyage to Port Royal in Acadia.1708, Toronto: Champlain Society, 1968: 123
[92] The State of Canada's Environment 1991, Gov't of Canada. 20-8
[93] Denys199

woods," wrote Robinson and Rispin. "The moose... is in great plenty; they are large and their flesh is very good eating." [94] To that, most agreed with Hollingsworth adding in 1787, "Of their amazing numbers we may in some degree form an estimate from those killed last winter, in only one settlement... amounting to at least four thousand [moose]." [95] Deer would not enter the province until the late 19th century, but as Rispin and others noted "They also have reindeer, which are called carroboes [caribou] and numbers of bears, both of which they reckon good eating."[96] Of the other diverse animals inhabiting the woods many would write of the 'infinite wild beasts' -- Lynx, Porcupine, Fox, Marten, Wolverine, Squirrels, Ermine, Mink, Weasel and Snakes. But none would impress more than the beaver in 'its laborious and orderly nature, its industry and obedience in work' and its valuable fur.

Great hordes of insects also made distinct impressions. Lescarbot noted that certain flies [fireflies], shining in the evening. . .fly up and down the woods in such a multitude that is is a wonder."[97] But the "mosquitoes were very troublesome"[98]. According to Diereville in the summer time the 'horrid mosquitoes cause a torment worse than demons could inflict" [99] and made hunting not worth the 'blood from my veins". He also noted that Acadian cattle browsing in the forests on all manner of grasses only returned when driven out by the stings of the mosquitoes and gnats.[100] "There is an abundance of Muskettos here so that in a calm hot day tis almost impossible to live especially among the trees"[101], wrote Robert Hale in 1731. The Acadians, to spare themselves, filled their houses with smoke.The Micmac "to save themselves from the stings of these creatures rub themselves with certain greases and oils which makes them... a tawny colour."[102]

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94 Robinson, John and Rispin, Thomas. Journey through Nova Scotia containing a particular Account of the Country and its Inhabitants. London: 1774:19

95 Hollingsworth 86

96 Robinson and Rispin19

97 Lescarbot Vol.3: 232

98 Lescarbot Vol3:138

99 Diereville 112

100 Diereville 109

101 Hale, Robert. "Journal of a Voyage to Nova Scotia made in 1731." Public Archives of Nova Scotia Report, 1968, Appendix B:230

102 Lescarbot Vol3:139

If acute attention was paid to what was present, equally as interesting was what was absent. French missionary Pierre Maillard who lived with the Micmac in Cape Breton during the 17th century remarked: "There are no tygers, nor lions, nor other beasts of prey to be afraid of unless bears, and that only in rutting time, and even then it is very rare that they attack."[103] Rats were also absent until Europeans arrived. Lescarbot stated: "The savages had no knowledge of these animals before our coming; but in our time [the Micmac] have been beset by them, since from our fort they went even to their lodges, a distance of over four hundred paces, to eat or suck their fish oils."[104]

Most pervasive of all were the trees which never failed to draw comment. "Immense forests, formed of the tallest trees, the growth of ages, and reaching almost to the clouds, everywhere encumber and adorn the land," was how Hollingsworth put it in 1787. He, like many others, saw the uses those trees represented: "The pine forests... are not only valuable for furnishing masts, spars, lumbers for the sugar plantations and timber for building, but for yielding tar, pitch, and turpentine commodities."[105] LesCarbot, thinking the same way in 1604, had even more applications in mind, taking balsam sap resin back to Paris churches where it was used as incense.[106] Like codfish, Nova Scotia's trees had the makings of an international commodity. This meant knowing what trees were where.

Back at the colonial homestead, though, wood had a more immediate meaning. Warmth. Since wood had been scarce in Europe since the end of the 1500s only the wealthy could afford to have good roaring fires in household hearths. In 1608 things worsened as the Great Frost in England made people in the country fear they would die of cold "'for want of wood".[107] By contrast, anyone could be warm in the winter in these heavily wooded lands. As Diereville wrote of the Acadians: "If winter reigns, the wood's his own, He piles it at his will; A cheerful blaze around is thrown and he is

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[103] Maillard, Pierre Antoine Simon. An Account of the Customs and Manners of the Mikmakis and Maricheet, Savage Nations, Now Dependent on the Government at Cape Breton. London: S. Hooper & A. Marely, 1758: 79

[104] Lescarbot Vol.3: 227

[105] Hollingsworth 31, 41

[106] Lescarbot Vol3: 261

[107] Perlin, John. A Forest Journey, The Role of Wood in the Development of Civilization. London: Harvard University Press,1989: 191

happy still. . .he keeps himself quite warm without a farthing spent on wood; where else could such advantages be found?"[108] British traveller, Lady Hunter commenting on the paradox of British versus North American winters remarked that "the intense cold has taught the people here to keep their houses much more comfortable than you do in England".[109] Harsher Nova Scotia winters could be more comfortable than mild, damp British winters due to different house construction and, above all else, the abundance of firewood. There were no shortages of forest lands.

Straddling 45 degrees north, Nova Scotia is part of the Acadian Forest Region - the meeting ground for the temperate hardwoods from the south (maple, ash and beech) and boreal softwoods from the north (spruce, fir and pine).[110] Each tree species is adapted to specific ecosystem characteristics such as the nature of the soil, drainage, topography and climate as was noted by colonists. The northern tree species predominated along the outer coasts of Nova Scotia and highlands of Cape Breton, but south facing slopes and sheltered valleys everywhere included trees of the temperate forest. And in many places the hardwoods and softwoods were mixed.

Particularly impressive were the forests growing on the slopes of river valleys -- the Shubenacadie, La Have, Avon, Gaspereau, Stewiake, St. Mary's and many others. Of the La Have, Denys wrote: "All along this river...on both banks.. are fine and good lands, with abundance of good woods... the oaks and elms are most abundant. [111] Likewise, the Shubenacadie was described as having the finest oak and elm.[112] Bordering the St. Mary's were found a large number of maples, elms, oaks, and yellow birches indicative of good land.[113]

Along the coast were mainly 'firs' (white and black spruce, balsam fir and white pine) which are able to thrive in thin soils and cooler seaside temperatures. The price

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108 Diereville, Sieur de. Voyage to Port Royal1708:90 See also Murdoch's History of Nova Scotia.v1:540

109 Hunter, Sir Martin and some letters of his wife Lady Hunter, 1894. Cited in Wallace Brown's article "First Impressions: Through Colonial Canada With Our Pioneer Tourists." The Beaver, April/May 1988:7-8

110 Nova Scotia Resource Atlas. Halifax: Gov't of N.S. 1986:8

111 Denys 149

112 Governor Lawrence's Survey, see Murdoch's History of Nova Scotia.V2: 231

113 Clark, Andrew. "Titus Smith, Junior and the Geography of Nova Scotia in 1801 and 1802." Annals of the Assoc. of American Geographers. Dec.1954:302

though was often small growth and early descriptions of these forests ranged from 'low shrubby trees' to 'dwarf woods and bushes' in various areas. As Denys noted "those [woods] of the coasts are as nothing in comparison with those which are inland and on the upper parts of the rivers. The trees [there] are very much more beautiful in height and thickness, and stand more open and less confused. One could chase a Moose on horseback."[114] Riding on horseback through a forest was a common way of describing the spacious quality of mature woodlands.

Certainly these more open, parkland-like forests with large trees, often Beech, were frequently preferred by the Micmac as they told Denys "there were no little trees [there] which hinder. . . the hunting of the Moose."[115] "Only the old trees there which are fallen in one place or another could offer any hindrance," observed Denys, adding " [these are there] through lack of people to remove them, as do poor people in the forests of Europe." Open woodlands , so described, with little undergrowth were the old growth forests of Nova Scotia -- the mature, climax forests.

The evolution of Nova Scotia's woodlands lead to a coniferous forest climax of White Pine, Eastern Hemlock and Red Spruce in lowlands and to a tolerant hardwood forest of Sugar Maple, Yellow Birch and Beech on well-drained uplands. Intermediate sites typically have a mixed wood climax of Eastern Hemlock, White Pine, Sugar Maple, Yellow Birch and Beech.[116]

These large trees impressed all. Holland's 1769 survey of Cape Breton described Yellow Birch that were "commonly nine to twelve feet in girth, the main stock grows generally from twenty to thirty feet before it branches".[117] White Pine, called 'the monarch of the wilderness', were the tallest trees, 'reaching to the clouds' and the most highly valued. White pine, it was frequently noted, rose to a height of 200 feet, with a trunk five feet in diameter in Nova Scotia and in some areas of Maine eighteen feet in diameter. Elm were seen in the province which were 24 feet in circumference,

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114 Denys 377

115 Denys198

116 Natural History of Nova Scotia. Halifax: N.S. Museum, 1989. Vol.1:221

117 Holland, Samuel. "Hollands Descriptions of Cape Breton."1769:29. In a report from Charles Morris, Surveyor General to his excellency Francis Legge Esq. (PANS MFM 15234 letter #32)

although normally these elegant 90 foot trees had a diameter of four feet. The 'noble, lofty' hemlock, at its largest, had a diameter of four feet at the base. And the abundant Balsam fir, which filled the woods with its "healthy aromatic balsamic effluvia", were when full grown, ordinarily fifty feet tall with a diameter of 15 inches. [118]

The nature of the forest, and how traversable it was, depended on which type you were talking about. In 1869, military officer, sportsman and nature enthusiast, Captain Campbell Hardy wrote *Forest Life in Acadie* which described the range of Nova Scotia's forest. This account details the ease or difficulty of foot travel through different types of woodlands:

> On entering the [depths of the] woods, the first feature which naturally strikes us is the continual occurence of dense copses of young trees. . . The foliage predominates at the tree top; the stems throw a profusion of spikes and dead branchlets from the base up. Unhealthy situations, such as cold swamps, are marked by the utmost confusion. Everywhere, and at every variety of angle, trees lean and creek against their comrades, drawing a few more years of existence through their support. The foot is being perpetually lifted to stride over dead stems, sometimes so intricately interwoven that the traveller becomes fairly pounded for the nonce. This tangled appearance however is an attribute of the spruce woods; there is much more orderly arrangement under hemlocks. These grand old trees, which grow in large groves on woodland slopes, seem to bury their dead decently, and long hillocks in the mossy carpet alone mark their ancestor's graves. . . Pine woods are peculiarly open and easy to traverse. Bracken [fern] and but little else grows beneath. . ."[119]

There were exceptions to the band of small evergreen trees dominated by white spruce along the open Atlantic and Fundy coasts. Sheltered bays or harbours often provided variations in the pattern. Jeddore was distinguished by stout, tall pines as were other areas.[120] The southwestern shore around Port Negro featured forests described in 1623 as "of a very pleasant character, not very thick, and [for] the most part oak, the rest are Fir, Spruce, Birch...and some Sycamores [maples]." [121] Pictou,

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118 Gesner 82,94,96

119 Hardy, Campbell. Forest Life in Acadie. London: Chapman and Hall, 1869:25,26,29

120 Denys 156

121 Alexander, Sir William. "An Account of Voyage to Acadia,1623." Citation in Richard Brown's History of the Island of Cape Breton. 1869: 70

on the more sheltered Northumberland coast featured "very fine and large oaks, maples, cedars, pines, firs and every kind of wood".[122] Atlantic coastal areas featuring drumlins (soil-rich hills left by glaciers) were distinguished by more luxuriant forest growth. Around Halifax Harbour this accounted for trees described by John Wilson in 1749 as "much taller than any ever I saw, either in England or Scotland, both of which I have traversed; they are generally Pine, Birch, White Beach, Black Beach. . .Hemlock. . . but of all of them Pine is the tallest, and at the same time thick, being 16 Inches Diameter, very fit for making masts. . ."[123] These taller trees most likely grew on drumlins such as Citadel Hill or on woodland slopes such as those found in Point Pleasant Park or lands around the North West Arm. Other areas of Halifax featured trees described as 'small and stunted' probably growing in the predominate thin stony soils of this locality.

Soils very much influenced forest patterns. In Nova Scotia the main soil distinctions are between the soft rock(Carboniferous to Triassic, younger rocks) and hard rock areas (Pre-Cambrian to Devonian older rocks). The soft (sedimentary) rock areas form the lowlands of the province -- the Annapolis valley, Minas Basin lands, Northumberland shore and parts of Cape Breton -- and feature fertile soils underlain by eroded shales and sandstones. The rugged hardrock areas form the upland zone -- covering two thirds of the Atlantic side of mainland Nova Scotia and Cape Breton -- and feature poorly drained, thin, sterile soils underlain by granite, slate or quartzite that is frequently glacially scoured. Exceptions to this pattern in the hardrock uplands are the glacially deposited soils of the dome shaped drumlins. They form the smooth rolling hills that are predominately scattered over Lunenburg and Queen's counties. Drumlins averaged 20 acres in area and stood like fertile islands in a sea of granite boulders and poor soils.

Marking the difference between the trees of the softrock and hardrock areas, geologist Abraham Gesner noted in 1849: "The fertile valley of Kings and Annapolis counties, the sandy soils of Hants, Colchester, Cumberland and Pictou were formerly occupied by majestic oaks and pines. The enormous size and durability of the latter, are attested

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122 Denys189-90

123 Wilson, John. A Narrative of Transactions in Nova Scotia, since 1749. London: A. Henderson: 12

by the stumps that still remain in the soil." [124] In contrast, the (hardrock) land extending from Yarmouth running through the middle portion of the province to Canso, was in Gesner's words:

> "unsparingly condemned as being rocky, barren and worthless -- unfit for anything but the abode of untamed animals, or forsooth the unfortunate Indians, who have been driven away from the more fertile grounds of the low country. When compared to the mellow alluviums of the northern counties, this division of the province certainly holds inferior rank. The naked rocks often protrude from the earth, and scarcely afford a foothold for the stunted spruces and lichens that cling to them for support. The rocky character of the land is determined by the presence of granitic boulders, or loose stones, scattered over the whole surface. Some tracts are completely covered with them in masses that defy removal. In Nova Scotia, this boulder district has been the terror of the ignorant settler -- its reputed sterility has turned away many respectable immigrants to seek their fortunes elsewhere." [125]

Not all the hardrock uplands featured such a bleak ecological picture, but enough did to create this general impression. For many colonists this sterile wasteland could only be suffered by savouring the prospects of the fertile soils to be found beyond them. In 1828 Joseph Howe spoke of the dicotomy between the forest cover of the hard rock uplands and the fertility of Nova Scotia's softrock areas in this way: "The road [from Halifax] to Truro, like the road to Windsor, is generally speaking dull, dreary and monotonous; and it requires no ordinary stretch of credulity to believe, as you are passing along, that there is either rural beauty or extensive cultivation at the end of it."[126]

Ecologists (Rowe and Loucks) have identified four principal forest types in Nova Scotia. In a narrow band along much of the coast is 'the cool conifer' zone, well adapted to withstand cooler temperatures, salt spray and winds. The interior of the province features Upland Mixed Forest including those of the hardrock zone that were so disappointing to colonists. Along the northern Northumberland shore is the

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[124] Gesner 97

[125] Gesner 63

[126] Parks, M.G. ed. Joseph Howe: Western and Eastern Rambles. 1828 Toronto: Univ. of Toronto Press,1973:124

sedimentary lowland mixed forest. On the Cobequid highlands, skirting Minas Basin, and running for nearly 100 miles due east and west, is a hardwood dominated forest[127] which in the mid-1800s was described as "clothed with a tall, luxuriant forest with a predominance of beech and sugar maple."[128] Over-all, these forest categories are broad generalisations, sometimes obscuring as much as they reveal. Variations within these forest zones created the complex pattern reflected by early accounts of the land.

Trees were absent on a variety of common habitats -- shrublands, wetlands, barrens, and meadows. Of the latter Denys wrote in 1672: "Throughout the country is found a great number of meadows and ponds."[129] The fertile meadows along rivers or lakes, or spring flood plains, were one of the favourite resorts of the Micmacs and later colonists, who called them intervale lands. Lescarbot wrote of the Annapolis river in 1608 : "We found almost continuous meadows for more than twelve leagues, among which flow numerous brooks, arising in the neighbouring hills... In several districts the whole land is level and the finest in the world. And on the top of the mountains are fair meadows where I have seen lakes and brook [meadows] neither more or less than in the valleys. [130] Hollingsworth in 1787 also noted that very large tracks of meadow-land bordered lakes, brooks and rivers.[131] Sir William Alexander on his 1633 trip, described land along a river near Port Mouton (possibly the Mersey) which featured "very delicate meadows, having roses white and red growing thereon with a kind of white lily, which had a dainty smell." Proceeding further west by two leagues they found another meadow at Port Joli where "all the ground between the two rivers [there] was without wood, and very good flat earth, having several sorts of berries growing thereon as Gooseberries, Strawberries, Hindberries, Raspberries.."[132]

"In all the places deprived of their woods... There are Raspberries," wrote Denys. "The

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127 Erskine, Tony. Atlas of Breeding Birds of the Maritime Provinces. Halifax: Nimbus,1991:6-7

128 Hardy, Campbell. Forest Life in Acadie. 1869: 6

129 Denys 377

130 Lescarbot Vol. 2: 314, 316, 317

131 Hollingsworth 33

132 Alexander, Sir William. "An Account of Voyage to Acadia".1623. Citation in Richard Brown's History of the Island of Cape Breton. 1869: 70

raspberries are very large, of a very good taste, and better than those of France. It is troublesome to clear the land of them."[133] Diereville would also speak of woods (in early successional stages) being filled with raspberries and blackberries having a more delicate taste then those of France.[134] The fruits of the land were plentiful and well documented - currant bushes, gooseberries, creeping beech plum, cherry trees, juneberry trees, hazelnut bushes, beechnuts, blueberries and others. Strawberries growing in meadows were described as one of the great pleasures of the countryside (along with maple syrup) and although much smaller than those of Europe they were noted to have a 'sweet wild taste that is never found in its cultivated state'.

Not only did meadows, or intervales, provide an important habitat by providing colonists with fertile pastureland, they also delighted the eye. Hardy wrote:

> "Almost the whole charm of these intervales is due to the groups of graceful elms by which they are [naturally] adorned. The [intervale] banks are [filled] with orange lilies; and the meadows, which extend between the water and the uplands, are shaded by clumps of elm. We have but one elm in this part of America; yet no one at first sight would ever connect the tall trunk and twisted top branches of the forest-growing tree with the elegant form of the dweller in the [intervale] pasture lands. Whether from appreciation of its beauty, or in view of the shade afforded their cattle, which always congregate in warm weather under its pendulous branches, the settlers agree in sparing the elm growing in such situations.[135]

As much as fertile intervale habitats were prized so were areas of sterile barren lands reviled. Intervales represented 'nature as habitat' whereas barrens symbolized 'nature as poverty'. Titus Smith observed the contrast between the two in 1834: "During the season of vegetation, a very fertile soil, whether in a state of nature or of cultivation strikes every eye as a beautiful object; but a rusty slate soil where the spaces between the stunted spruces and hacmetacs are occupied by trailing Juniper, Kalmia, Mayflower, and a little starved grass, is so associated in our minds with the ideas of sterility and poverty, that the first sensation it produces is far from pleasing."

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[133] Denys 396,397

[134] Diereville, Sieur de. Voyage to Port Royal. 1709: 117

[135] Hardy, Campbell. Forest Life in Acadie. 1855:44

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By the time of British colonization efforts in the mid-1700s, many colonists and visiting Europeans were entering Nova Scotia by sailing ships bound for Halifax, the new capital. An excellent harbour was the resource that resulted in Halifax's establishment as a naval and fishery base. As was noted "The town is situated on one of the finest harbours in the universe, easy of access, the channel deep enough for capital ships and capricious enough to hold all the Navy of England."[137] For colonists coming to Nova Scotia though, the haven that Halifax might initially offer was tempered by first impressions of the barren landscape approaching Halifax harbour. John Robinson and Thomas Rispin's description is typical of the many such accounts where 'nature as poverty' is the dominant response to the land : "Before our landing at Halifax, the prospect appeared very discouraging and disagreeable: nothing but barren rocks and hills presented themselves to our view along the coast. This unfavourable appearance greatly damped the spirits of most of the passengers, and several of them begun to wish themselves in Old England, before they had set foot in Nova Scotia." [138]

Others like, Titus Smith, pointed out the ecological significance of rocky, barren coastal lands:

> In traversing the dreary barren shore which extends from the mouth of the northwest Arm nearly to [St.] Margaret's Bay, some persons of good sense who thought little upon the subject, are tempted to exclaim 'Why were those barren wastes created?" This question will be answered by referring them to the quantities of fish caught on the barren shore of Newfoundland and Labrador while on the shores of the ocean no place is found where the fish are caught in abundance upon the coast of a very fertile district; and the inhabitants of Halifax would be poorly compensated for the loss of their fish market by having their township covered with a fertile soil.[139]

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136 Smith, Titus. Lecture on Minerology delivered on March 5, 1834 before the Halifax Mechanic's Institute (PANS VF v.183.#9: 20)

137 1762 Description of Halifax among the collection of historical documents in the collection of Dr. Andrew Brown (1720-91) at The British Museum Library , Manuscript Collections: (19-071)

138 Robinson, John & Rispin, Thomas. Journey Through Nova Scotia containing A Particular Account of the Country and its Inhabitants. 1774:3

139 Smith, Titus. "Lecture on Minerology." 1834: 20

Equally sterile were the poorly drained, wet bogland habitats. In Nova Scotia they were also called Caribou bogs "by reason of this deer frequenting them in search of the lichen, Cladonia rangiferinus". Hardy remarked that the "miniature trees in bogs where the sphagnum [moss] perpetually bathes their roots with chilling moisture, have a very similar appearance to Brussel sprouts on a large scale." This same black spruce growing in mixed forests reached a great height giving it a "proud position in the forests" but living on the edge of bogs, the black spruce tree was "stunted, throwing out its arms in the most torturous state, suddenly terminating in a dense mass of innumerable branchlets of a rounded contour like a bee hive. The tree summit terminates in another bunch. The stems and arms are profusely covered with lichens and usnea."[140]

Above all, marshlands were one of the most important habitats for colonists. Silt deposition from the 40 foot high Bay of Fundy tides had created extensive tracts of marshlands called "the gifts from tides". The French preference for the most easily farmed land was one of the reasons Port Royal was the site of the first colonial settlement. As Champlain noted of the area: "The soil is one of the best I have seen."[141] Since the Annapolis valley had both marshlands and meadows colonists could avoid the arduous work of cutting down dense forests to create farms. At the Upper reaches of the Bay of Fundy, where the tidal range is greatest, the largest tracts of marshland were found. This was where most Acadian settlement was focused -- around Minas Basin and Beaubassin. Robert Hale wrote in 1731: "Where there are no marshes the people don't pretend to settle."[142] Coming from an area of France with a history of dykelands, the Acadians knew the technology of dyking marshlands into farmlands and made good use of it. Their use of marshlands, and avoidance of clearing upland forests for pasture, meant that their land-use patterns did not interfere with those of the Micmac. This made for more harmonious relations. With mainland Nova Scotia under English control in 1713 and the possibility of Acadians moving to French-controlled Cape Breton, the Micmac declared their land preferences... "the Queen of England could have the meadows [dyked marshlands] of Acadie and they,

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140 Hardy, Campbell. Forest Life in Acadie, 1855: 33-36

141 Champlain, Samuel. Citation in Beamish Murdoch's History of Nova Scotia. Vol1., Halifax, 1865:82

142 Hale, Robert. "Journal of a Voyage to Nova Scotia made in 1731", 230

the Indians had the woods, out of which no one could ever dislodge them.[143] Events would prove otherwise as most of the Micmac's choice lands would soon become the choice lands of the colonists. Likewise the choice lands of the Acadians were the choice lands of the English, who felt their campaign to encourage English immigration was impeded without the promise of these fertile lands. The Acadian deportation would make this possible.

Fertile soils, were seen as the key to colonization. They consequently received paramount attention. As Robert Rogers noted in 1765: "The soil of this province [Nova Scotia] is various, being in some parts very rough and barren; in others exceeding pleasant and fertile, as it is in particular round the Bay of Fundy, and on the rivers which fall into it, where are large tracts of marsh that extend on the sides of these rivers for fifty or sixty miles into the country, and several miles from the bay which, being dyked, is improved to great advantage." [144] Determining what other areas had the best soils was a matter of trial and error with many false starts.

Understanding the types of soils meant understanding the underlying bedrock geology of the land. The types of vegetation covering the land often served as clues to soil fertility and therefore were carefully noted by colonists. However, the actual geology of the land was poorly known until mid-19th century and later. Speaking on this problem Thomas Haliburton wrote in 1829: "Until within a few years, the obstacles presented by the impenetrable forest, with which the surface of the country is covered, prevented any attempts being made to examine [the geology of] it. The only [geology] examined are the sea shores and the banks of rivers which generally exhibit sections of strata."[145]

Although geology was poorly known, enough land patterns were identified to determine a mid-1700s British strategy for township sites. Of the thirteen townships initially planned, four were designated as fishing settlements -- Barrington, Liverpool,

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143 Letter from Felix Paim, missionary, Recollet, to M. de Costabelle, Aux Mines, 23 Sept. 1713. Citation in Beamish Murdoch's History of Nova Scotia. Vol 1, 1865:337

144 Rogers, Roberts. A Concise Account of North America. London, 1765. Citation in Dave McIntosh's When the Works All Done This Fall. Stoddart Publishing,1989:17

145 Haliburton, Thomas. History of Nova Scotia. Halifax, 1829: 390,414

Yarmouth and New Dublin situated to take advantage of the inshore fishery and nearby fishing banks. Canso and Louisbourg had been long established as fishing centres. The other nine new townships -- Annapolis, Cornwallis, Newport, Horton, Onslow, Truro, Granville, Falmouth, Amherst -- were designated as farming settlements positioned to take advantage of the fertile lands vacated by the Acadians. Lunenburg's fertile drumlin lands attracted German colonists who farmed, fished and developed a thriving fishery. Halifax was formed as a result of its excellent harbour. Pictou grew due to the intense exploitation of timber in that area; Sydney because of coal deposits and similarly it went for many other settlements. Natural history resources were the initial 'raison d'etre' for many of the communities which dot Nova Scotia's map.

Ecological patterns of the land were also reflected in Nova Scotia's placenames. Most Micmac placenames, due to the structure of the Micmac language, revealed detailed information on plants, animals, fish and land or water features peculiar to specific localities. As a few examples: Shubenacadie was derived from the Micmac 'Segunbun-akade' and meant 'the place where the groundnut grows'; Antigonish from 'Nalegitkooneech' meant 'where the branches are torn off by the bears gathering beechnuts'; Eskasoni from 'Eskasoognig' meant 'green boughs'; Aspotagan meant 'where the seals go in and out'; Stewiacke from 'Siktaweak' meant 'it oozed slowly out from still water'; Tusket River from 'Neketaouksit' meant 'great forked tidal river'; Musquodoboit River meant 'suddenly widening out after a narrow entrance at the mouth'; Canso from 'Cansok' meant 'opposite the lofty cliffs'; and Chebucto (Halifax Harbour) meant 'the greatest harbour or haven'.[146]

The English and French also used natural history indicators in their place names for specific localities. These names appear over and over again, in varying forms and various areas of the province. Rivers, lakes, ponds, brooks, creeks, springs, harbours, coves, bays, points, capes, hills, vales, dales, valleys, fields, bogs and barrens are named after, and assume the prefix of: Bass, Bear, Beaver, Beech, Birch, Caribou, Clam, Capelin, Cranberry, Duck, Eel, Fox, Goose, Gull, Gaspereau, Halibut, Herring, Hemlock, Maple, Marsh, Meadow, Moose, Oak, Otters, Oyster, Pine, Poplar, Pollock,

146 See Place Names and Places of Nova Scotia. Public Archives of N.S. 1967

Porcupine, Salmon, Shad, Seals, Spruce and Trout. The repetition is extraordinary. Nova Scotia has 27 placenames prefixed with Salmon, 50 with Beaver, 35 with Bear, 41 with Cranberry, 53 with Moose, 27 with Pine, 38 with Birch and on it goes. The ecology of the land which colonists encountered is stamped all over the map of Nova Scotia, although many, if not most, of these natural history indicators don't apply to these places today. Amazingly cod is absent from any place name -- not one bay, cape, harbour or cove -- although it was the most powerful natural history symbol of European interest in Nova Scotia and remained, until the collapse of the codstocks in 1990's, the most important fishery of the province for over four hundred years. Baccaro in southwestern Nova Scotia, derived from Baccallo, the Portuguese word for codfish, is the only place name reference, obscure as it is, to this great fishery. Climatic indicators were also reflected in place names. Cape Smoky is derived from Cape Enfume, the name 17th-century French cod fishermen bestowed on this favourite fishing area due to its frequent smoke-like fogs. Blomidon became the contracted form of 'Cape Blow Me Down', a common name for the cape referring to the gusts which blow from it when the wind is west to south-west.

Figuring out Nova Scotia's climatic patterns and their ecological ramifications played a crucial role in European discussion of this land and reflected both the 'nature as enemy' and 'nature as wonder' relationship to a new environment. This depended on whether climate was seen as a foe or a mystery to unravel. Since cod fishermen on the Grand Banks were the most frequent visitors to the Northwest Atlantic in the 1500s, their views of this area spread by word of mouth creating a widespread European mindset on the unbearable climatic conditions to be found in these 'mysterious new lands'. As Lescarbot noted: "the saying that it is cold in Canada has originated because the poor mariners suffer from the cold among the fogs, especially the most hasty, who set out in February. . . How unfairly then has the country of Canada, under which name is comprised the whole of this land, been continually discredited by thoses who know not what it is, upon the reports of some sailors who only go to fish for cod in the northern parts. . . So many people and in such great numbers go every year in quest of cod from all parts of Europe that I know not whence such a swarm [of ships] can come. [147] According to Denys , "The fishermen on the

[147] Lescarbot, Marc. History of New France, 1609.Vol111 239, 248, 238

Banks have nearly six months when the ice freezes upon their lines whilst they draw them up. This causes them much suffering and fatigue. . . Further it is necessary to know that the Grand Banks is rarely without a mist or fog which is sometimes so thick one cannot see from one end of the ship to another. The three months of summer are nearly always filled with a thick and rather cold fog."[148]

Contact between warm humid air and cooler air over cold waters produces fog. On the Grand Banks the cool Arctic currents meeting the warm waters of the Gulf Stream produced the notorious fogs reviled by mariners who spread distorted climatic impressions of the entire area of the Maritimes and Canada. This was further amplified by the fact that the important fishery base at Louisbourg also tended to be foggy, particularly in the spring -- when the land warms up faster than the cool ocean waters thereby producing fog. Spring, of course, was the time European fishermen arrived on their annual fishing expeditions.

As Robert M'Patrick stated in 1774 after visiting Nova Scotia: "I have heard it said, that this country is buried in fogs for most part of the year; this is a great mistake; for no country has a clearer air than this, tho' the seas along the coast are often covered with a very thick fog. [149] In 1849 Gesner stressed this as well: "[Because] of the gloomy appearance of the Atlantic shore -- a part of which is wrapt in drizzling fogs during the spring -- the climate has been unsparingly condemned by strangers and hasty visitors, who never breathed the serene atmosphere of the interior."[150]

Since almost all travel was by sea until the late 1800s, coastal conditions made dramatic first impressions so the focus on sea fog is not so surprising. Spring coastal fogs were infamous, but the 'silver lining in the cloud' was, as Gesner noted, the fact that "air over the interior land soon acquired the temperature necessary to dispel these fogs, and therefore while some of the shores are obscured by them, the inland districts enjoy a clear sky."[151] indeed, although Nova Scotia is still known for its cold, cloudy and foggy weather, it is actually considered by scientists to be one of the best

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148 Denys 265, 262

149 M'Patrick, Robert. A Tour Through Part of the North Provinces of America, 1774:22

150 Gesner 152

151 Gesner152-155

areas in Canada for taking advantage of solar energy since areas like Halifax have a yearly average of five hours of bright sunlight per day.[152] Interest in weather has always generated discussion, but in the past determining the climatic framework of this newly settled land was crucial for agriculture and that meant sorting out the peculiarities of seasonal patterns. As Haliburton noted in 1829: "It is difficult to mark with precision the commencement of the seasons as in other countries. Winter is not infrequently found "lingering in the lap of May", and the spring consequently late and irregular in its approach. But when the vegetation commences, it is very rapid, and in a few days alters the whole face of nature."[153] Gesner gives an overall account:

> The climate is somewhat dissimilar at different places and the spring is earlier and warmer in the interior than on the sea coasts. The heat of summer is, in general, regular and moderate, and there are only a few days of extreme temperature. The autumns are delightful, and the air, clear, elastic and healthy. This season is peculiar on account of a calm and pleasant period called the Indian summer, when the fading leaves of the forest present brilliant tints of every colour. About the first of December the nights become cold, and bracing westerly winds begin to blow. The winter commences by the first of January, and may be said to continue until the latter part of March, and sometimes into April. At this season the atmosphere is frequently loaded with frosty vapour. Driving storms pile up the snow, half burying the farm houses, obstructing the roads, and mantling the earth in white. The hardest woods crack with the frost, and the thickened ice of the rivers and lakes send out bellowing sounds like distant thunder. In March the atmosphere becomes clear. The frosty nights that succeed the warm sunny days form a crust upon the snow, and the Indian traverses the forest upon snow shoes in quest of Moose and Carriboo. By the first of April the scene is greatly changed. The robin, blackbird, sparrow and other migratory birds, begin to return, and large flocks of wild geese, in columns resembling the Queen's broad arrow, singing their only song the loud *coo-hoonk*, are seen pushing onward to the northeast for summer quarters. Summer soon commences. The woods and coppices are filled with sweet songsters, and every animated being rejoices in the plenitude of existence. [154]

Nova Scotia's climate has a variety of factors affecting it. Its position halfway between the equator and the north pole produces a temperate climate. Its maritime (seacoast)

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[152] Natural History of Nova Scotia. Climate and Resouces section

[153] Haliburton, Thomas. History of Nova Scotia. 1829: 350-351

[154] Gesner 156-159

location results in a high humidity. And being on the east coat of a continent where prevailing winds are from the west, the province experiences a modified continental climate. However the wide temperature range of a continental climate is moderated by the ocean giving Nova Scotia cooler summers and milder winters than the continental interior.[155] These we know, today, to be the factors affecting the province's climate, yet for centuries these weather patterns were a subject of considerable confusion and inquiry. In these early accounts of Nova Scotia's climate 'nature as wonder' is a dominant response to the land fed by both curiosity and confusion.

European explorers and colonists were baffled by the fact that winters in Nova Scotia, and indeed Canada in general, were significantly colder than those of European countries of the same latitude or higher. Winters began later -- in December or early January -- and spring arrived later, unlike in Europe where the lengthening days of February mark the end of winter. The icebergs, which ships encountered on their spring voyages to the Nova Scotia and Newfoundland, were widely acknowledged to be part of the reason. "The icebergs are the cause in part why Canada is believed to be so cold," wrote Denys in 1672.[156] Other proposed theories incorporated ecological factors.

As Lescarbot noted in 1606 after spending a year at Port Royal: "I am not yet fully satisfied in my research into the cause of the [winter] season here being a month later than [France], though, they are on the same parallel, and why the leaves do not appear upon the trees till toward the end of the month of May; unless we attribute it to the thickness of the woods and the size of the forests; which prevent the sun from warming the earth."[157] This too was the conclusion of Nicholas Denys in the mid-1600s :

> "I maintain that the quantity of snow which is found results from the fact that all the country is covered in woods. . .This duration of snow comes also from this, that in the spring the force of the sun has not heat enough to melt it in the woods. . .I have observed that snow in the woods never

[155] Nova Scotia Resource Atlas, Gov't of N.S. Publication, 1986:22

[156] Denys 265

[157] Lescarbot Vol.2: 346

> melts through the force of the sun, but by heat of the earth, which warms up as soon as spring arrives, and this makes the snow melt faster underneath than on top. Further, I affirm that in cleared places the snow melts five to six weeks sooner than in the woods, despite the fact that the neighbouring woods still communicate to them much of their frost. This is seen commonly enough in France. . . And it can be proven yet better by the case of Kebec [Quebec], which has two months of winter less that it had before the lands there were cleared. . .If once the woods are farther removed they will have no more winter than in Paris. Consequently there is no longer any reason to decry this country for its great cold and deep snows . . . It is not necessary to repeat. . . all these incidents of cold and snow will be no more. . . once the country is cleared. . .I am disabused of the opinion which has long been held, that the excessive cold render this great country uninhabitable."[158]

Frequently accounts of the land, from the early writings of Lescarbot and Denys to those of the late-19th century, spoke of the climatic improvements which would result from the clearing of the forests. Noted were the ecological dynamics of microclimate changes that take place once woodlands are cut down and the cleared land heats up. By the early 1800s Nova Scotians had attributed milder winters to this, but as Thomas Haliburton wrote: "the natural cause of cold still remains, and from the configuration of the continent must always continue, despite being partially counteracted by the progress of cultivation. We must confess that though our climate may be changed, it is not improved."[159]

This however remained a topic of hot debate with many others, from the 1600s to the 1800s, making the more dramatic assertion that clearing the forest would have the effect of making Nova Scotia's climate more like that of Europe's, which was considered the 'climatic norm' for all lands at corresponding latitudes. By the mid-1800s some Nova Scotians would refute this, after research and investigation had lead them to believe that "[Europe] has proved to be a variation from the general rule [on latitudes]"[160] as Gesner wrote.

Today, however, we know that the east coast of Canada, like the east coasts of Asia at

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158 Denys 250, 251, 254, 90

159 Haliburton 349-350

160 Gesner 153

similar latitudes, have cooler climates than those of western Europe and western America. This relative coolness derives partly from cool oceans nearby, as the northern east-facing coasts of America and Asia are washed by south-flowing cold currents whereas the northern west coasts of these continents are influenced by currents flowing from the tropics. The Nova Scotian Current, moving along shore from northeast to southwest, passes on the cooling effects of the ice-laden Labrador Current as well as carrying (in spring) ice originating in the Gulf of St. Lawrence. This cools Nova Scotia somewhat, but especially a rather narrow strip along its outer (Atlantic) coasts. [161] Meanwhile the sub-tropical Gulf Stream is deflected by oceanic forces off this coast to Northern Europe melting spring icebergs in the process. Off Halifax, the Gulf Stream's northern edge may be within 250 to 500 miles proximity to the coast,[162] whereas it bathes the coasts of Europe. It took some time before the Gulf Stream factor became general knowledge, consequently at mid-19th century Europe's climate was still the basis of comparison for Nova Scotia and indeed, Canada.

Despite the claims that Nova Scotia's climate would change with the clearing of the forests, it was observed that the climate in the mid-1800s was more or less the same as that described by the French 200 years earlier.The French were more accommodating to Nova Scotia's cold, sunny winters, which they observed to be occasionally mild and rainy. As Denys noted: "When one goes in winter to sleep outside, he has less trouble then in France, although it is said the country is so cold. I have suffered from cold less [here] than in Paris, especially when one is in the woods under shelter from the wind." [163] Generally speaking the British were more intolerant. Travelling missionary Joshua Marsden's 1816 account is typical: "Those who are accustomed only to the cold of England, cannot conceive the intense severity of the winters in Nova Scotia: the snow is often from four to six feet deep; the ice upon the rivers is two feet thick; the cold penetrates the warmest rooms, the warmest clothes and will render torpid the warmest constitutions; it often freezes to death those who lose their way in the woods or get bewildered in the thick and blinding fury of a snow

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161 Erskine, Anthony. Atlas of Breeding Birds of the Maritime Provinces. Halifax: Nimbus,1991: 5

162 Natural History of Nova Scotia. Halifax: N.S. Museum , Vol.1,1989:110

163 Denys 360

drift." [164] The scathing British descriptions of the severe winters, fogs and barrenness of Louisbourg -- as told by Admiral Knowles stationed in Louisbourg after the British took it in 1744 -- were believed to contribute to Britain restoring Louisbourg to France by the treaty of 1748.[165]

Though for some the snow was intolerable, for others its important ecological role was recognized. Lescarbot noted: "snow in moderation is very useful to the fruits of the earth, to preserve them against the frost, and to serve them as a cloak of fur.[166] As for its human relevance, snow was essential to the Micmac for winter hunting. During mild winters with little snow, hunger and hardship was experienced. For colonists, Gesner summed up snow's crucial role: "The snow formerly much dreaded by Europeans, is decidedly advantageous. Upon it timber is cheaply transported to the saw mills; hay is removed from marshes and intervales; and poles for fencing, with wood for fuel, are obtained for summer supplies. The most fruitful seasons have been proceeded by winters of deep snows, which are supposed to keep the earth warm. In April the grass begins to grow beneath the deepest drifts. Excepting the fodder that it requires for livestock, the winter is no material drawback upon the labc :r of the farmer."[167]

Most importantly, climate was seen as a key factor in the success of agriculture. Distance from the coast, and elevation determine the local variation in Nova Scotia's climate. Coastal areas have the longest frost-free period, but the ac'vantage of a longer growing season is offset by the cooler temperatures. Agriculture then is best suited to sheltered areas of the province such as the Annapolis valley, the Northumberland lowlands and river valleys which also feature the most fertile soils. The overall pattern of climate is best reflected in the eight climatic regions climatolgists have identiifed for Nova Scotia:

> The **Northumberland Shore** has a delayed spring, a warm summer and fall, a cold winter, and the lowest precipitation in the province, being sheltered from southerly and easterly storm winds. Because the

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164 Marsden, Joshua. The Narrative of a Mission to Nova Scotia, New Brunswick, and the Somers Islands, 1816:23

165 Murdock,Beamish. History of Nova Scotia, Volume 11: 96-99

166 Lescarbot Vol2: 345

167 Gesner 159

Northumberland Strait is a shallow, sheltered body of water, warming quickly in summer and freezing in winter, it produces a less moderating effect than other coastal waters.

In **Northern Nova Scotia** the (Cobequid) highlands receive heavy snowfall and have the coldest winter temperatures, but enjoy quite warm summer temperatures.

The **Cape Breton Highlands** receive the highest total precipitation in the province, and have cool temperatures both winter and summer.

Eastern Nova Scotia, a diverse geographic area, has high rainfall and generally cool temperatures influenced by the Labrador current.

Western Nova Scotia, gradually sloping upwards from the Atlantic coast, has high rainfall and warmer temperatures than eastern Nova Scotia.

The **Annapolis Valley,** a sheltered lowland, has the warmest temperatures and the second lowest precipitation in the province.

The **Bay of Fundy Region** is a narrow strip of coastal, cliff-lined headlands stretching from New Brunswick to Yarmouth. It has a strong coastal influence producing a long, cool summer and a mild winter. There is frequent fog and moderate precipitation.

The **Atlantic Coastal Region** has a strong coastal influence which produces the coolest summers and warmest winters in the province. This effect extends only a few kilometres inland. The moderating influence is strongest in the extreme southwest. Rainfall amounts are high, and there is frequent, heavy sea fog.

Sable Island , unsheltered and exposed to high winds, has a marine climate characterized by a narrow temperature range. [168]

Weather differences in these areas were keenly noted by colonists. The effect of climate on health also received much attention. Until the 20th century, it was widely believed that certain morbid properties in different atmospheres were capable of 'deranging' health. Scurvy, initially, was attributed to this, resulting in cod fishermen further condemning Canadian climate. However, generally Nova Scotia's climate was considered particularly healthy. As was noted: "From its excessive rigour, great

[168] Nova Scotia Resource Atlas. N.S. Gov'tPublication, 1986:22

extremes and sudden changes, it might have been expected that the climate of Nova would would soon undermine the human constitution; but experience has proved [otherwise]."[169] The fact that malaria fevers didn't occur in Nova Scotia was considered a real bonus as the disease plagued settlements in many areas of the States and Canada. Inhabitants reaching an old age, commonly ninety or more, was also considered indicative of a healthy climate in Nova Scotia. Only pockets of smallpox outbreaks cast a cloud on the health and vigour of the province and they were communicated by visiting foreign passenger ships. All the major smallpox epidemics in colonial Nova Scotia occured in the last half of the eighteenth century, soon after the arrival of Royal Navy ships and regiments from Europe [170] -- temporarily based in Halifax to fight the American Revolution or the French at Louisbourg. But long before this, European fishermen had brought the diseases of Europe to the Micmac.

To sum up the European reaction to Nova Scotia's patterns of the land -- its soils, vegetation, wildlife and climate -- is to consider two trains of thought. On the one hand are the accounts of ecological abundance which inadvertently or consciously acted as favourable enticements to settlement. On the other hand, there were divided impressions on Nova Scotia's natural features which created shades of uncertainty about its settlement potential. Books written to provide information on Nova Scotia to prospective settlers always addressed this disparity as Montgomery Martin wrote in 1837:

> "Nova Scotia has been so long and so unjustly considered in England a bleak, marshy, and almost uninhabitable country. . .a region of snow and fog. . . that I may be excused entering into some detail as to its inhabitants and localities, for as has been truly observed by a native of the colony, the extended and well cultivated valley of the Annapolis, the diversified and picturesque country of Horton and Cornwallis, the richness and extent of views in the vicinity of Windsor, the unrivalled beauty of Mahone Bay, with its numerous verdant islets, the whole country bordering on the Shubenacadie, very many spots in the eastern parts of the province and the extensive townships of Newport and Yarmouth, cannot fail to excite the wonder of strangers, that they exist in a territory which has always been represented as the most uninteresting part of the continent of North

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169 Gesner159

170 Marble, Allan Everret. Surgeons, Smallpox and the Poor. Montrea: McGill-Queens University Press, 1993:3

America."[171]

Given the mixed reviews on Nova Scotia, the accounts of fertile land and ecological abundance were tempered. Narratives indicate that Nova Scotia was never perceived as 'a land of milk and honey' like other areas of North America such as New England. It was certainly the land of codfish, furs and trees 'for the taking' -- all in amazing plenitude and described in terms of 'nature as wealth'. But underlying this were doubts about the ecological attractivenes of this terra incognita. Attitudes towards the province's climate -- its snow and fog -- generated a 'nature as enemy' response to land while the barrens along parts of Atlantic coast symbolized 'nature as poverty'. To counteract these 'wayward' perceptions, many colonists and travel writers expended considerable effort to present a more favourable view of the climate and the land clarifying the fact that fogs were only coastal in range and that fertile soils were found inland. This discourse began in the 1600s and continued through the 1800s. The Micmac had long learned to use the ecology of the land for their year-round sustenance. So did the Acadians. Yet word-of-mouth in Europe and New England painted a picture of an inhospitable environment in Nova Scotia. By the mid-1700s the English felt this had to be counteracted. As a result, advertisement campaigns were launched to entice immigrants to come which brought waves of English-speaking colonists. Thus, began a new round of discourse over the land -- one where survival was of prime importance and gaining sustenance from the wilderness became the focus.

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171 Montgomery, Martin. History of Nova Scotia, Cape Breton, the Salbe Islands, New Brunswick, Prince Edward Island, the Bermudas, Newfoundland. London: Whitaker & Co. 1837.23,17

Chapter Three

WILDERNESS SURVIVAL
Settlers versus Micmacs

Proclamation
Nova Scotia, October 12, 1759

> The governor declares his readiness to receive any proposals for effectually settling the vacant lands or any other in the province. Upwards of one hundred thousand acres of intervale plow lands, producing wheat, rye, barley, oats, hemp, flax etc. These have been cultivated for more than a hundred years past, and never fail of crops, nor need manuring. Also, more than one hundred thousand acres of upland, cleared and stocked with English grass, planted with orchards, gardens etc. These lands with good husbandry, produce often two loads of hay per acre. The wild and unimproved lands adjoining to the above are well timbered and wooded with beech, black birch, ash, oak, pine, fir etc. All these lands are so intermixed, that every single farmer may have a proportionate quantity of plow land, grass land and wood land; and are all situated above the Bay of Fundy upon rivers navigable for ships of burden. Proposals will be received by Mr. Hancock, at Boston, and by Mssrs. Delancie and Watts, at New York, to be transmitted to the governor, or, in his absence, to the lieutenant governor or president of the council at Halifax.

Governor Lawrence's proclamation of 1759 posted in Boston's *Gazette* newspaper says a lot about the lands left by the deported Acadians. Since the Acadians left no written accounts of their land and their life, what others wrote of them had to suffice for the historical record. French priests, travellers, English colonial militia and administrators all penned descriptions of the Acadian's ingenious use of the land and their ability to thrive in a simple, agrarian society.

One hundred years later, the legacy of these Acadian efforts were obvious as Lawrence's proclamation attests. Marshlands had been turned into fertile farmlands. English grasses had been introduced producing 'good English hay' which was better for domestic animals than the native salt marsh grass that was also employed as pasture. Apple orchards had been planted. And yet just outside of these fertile dykelands lay the 'unimproved' forests filled with valuable trees -- more promising

lands which could be transformation into farms.

The response to Lawrence's proclamation was as positive as the depiction of the land. Settlers known as 'Planters' came from New England in 1760 expecting to find a continuity of their past pioneer experience. Cleared lands would offer the basis to set up a similar life to the one they had left. But to their dismay they found a different environment than the one they had known -- one more hostile than depicted by Lawrence. Many of the dykelands, left unattended since the 1755 Acadian deportation, had deteriorated from lack of management. With the Great Gale of 1759, which blew down thousands of trees and raised tides six feet perpendicular above the highest tide level, the dykes along the Bay of Fundy were overflown, broken and damaged by salt blight.[172]Since the management of dykes and dykelands was unfamiliar to the New England Planters, there was confusion about how to deal with this until the few Acadians that remained in hiding in the countryside could be employed to manage the dykes-- with their sluices, ditches and waterways -- and restore the fertility of these productive soils. Lawrence's proclamation on Nova Scotia's Fundy lands painted a picture of easy settlement. But, in many ways, harnessing the ecology of the land turned out to be more difficult than anticipated. Uplands had to be cleared, undyked marshes dyked and flooded meadows (dykelands) repaired for the planting of crops.

For the Loyalists who followed in the 1780's and for many of the other cultural groups which also came to settle -- the English, Scots, Irish, Germans, Blacks -- the experience was similar. If anything, the Planters would have the easiest time of it since they were first in line to take some of Nova Scotia most productive soils -- proven good farmland. Others colonists who followed had no cleared lands to choose from. Forests had to be cut down to create cleared plots. Whether or not it was fertile was often only determined with time.The hardships they encountered stood in stark contrast to their perceptions of what the land would be like. Many felt they had been sold a bill of goods and, disappointed, a considerable number left. Englishmen, Robinson and Rispin, among others, took note of this, writing at the time of the Loyalist migration:

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[172] Murdoch Vol. 2 :375-6

> It is, indeed, surprising what chimerical notions many persons entertained of Nova Scotia, previous to their leaving this country [England], with a view of settling at that place. They imagined that they should find lands cultivated, fields sown, and houses built ready to their hands; and that they would have nothing to do, but to take possession, and reap. Not finding things in quite so favourable a situation as they foolishly expected, and having no inclination, by diligence and industry, to render them so, they return, and by way of excuse for themselves, represent it as a miserable country, and the inhabitants in a starving condition.[173]

In reality, the first two years of settlement for colonists were particularly trying and without government rations most would have starved. The primary task was to ensure the newcomers' survival through the first winter by furnishing sufficient provisions and shelter. The secondary task was to give them roots in the country, to get them onto the land and into the economy as quickly as possible, while provisions lasted and could cushion them.[174] Winter rations provided food and sometimes animal feed, if needed, while summer rations provided more food supplies and the seed necessary to start a viable farm which generally took two years to become self-sustaining.

It was not easy. Loyalist Rev. George Gillmore wrote "Three winters I have bought Hay at a great price and carried it on my back four miles through the woods, where there was no path, or road, to keep alive two cows, which were the support of my family, with the help of potatoes." [175] Four miles was a short portage compared to other treks where bags of seeds or millstones had to be hauled through trackless terrain. Pictou colonists recounted making three day walks through the forest to get to Truro for bags of seed potatoes which they carried on their backs on the long return trip. Cutting out the eyes of the potatoes the following year made the same return trip more gainful allowing a larger supply of seeds to be carried and a bigger crop to be grown.[176] Small and many were the lessons in survival.

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[173] Robinson and Rispin, "Journey Through Nova Scotia Containing A Particular Account of the Country and its Inhabitants," 1774:23

[174] MacKinnon, Neil. This Unfriendly Soil: The Loyalist Experience in Nova Scotia, 1783-1791. Montreal: McGill-Queens University Press, 1986: 21

[175] Ibid 47

[176] Patterson, George. A History of the County of Pictou. 1877. Pictou: Pictou Advocate, 1916: 43

Despite initial government rations, people still commonly suffered and community records showed some dying of malnutrition. Even in the first half of the 1800s this occurred as at this time Cape Breton was being intensively settled by the Scots. In 1834, a missionary at West Bay, Inverness County reported that he lived on nothing but alewives and potatoes for a week, but considered himself fortunate, for a week earlier the family he was staying with "could only offer me milk". Elsewhere, the missionary had seen dwellings where six or eight of a family lived for five weeks on the milk of a cow, without any other food. Crop failures created destitute families, and even with relief supplies, James Frazer, a missionary who had spent time in some of the most congested crofting townships in Cape Breton, reckoned he had "never witnessed such destitution in any part of Scotland."[177]

This, in a land described by many to have 'prolific fish, fowl and beast'. Ecological abundance is the theme that runs through many early writings on Nova Scotia yet newcomers struggled to ward off starvation in their first few years.

It was a phenomenon that drew comment from Lescarbot writing in 1606. Many of the first attempts at establishing European colonies in North America resulted in death from starvation. Lescarbot, puzzling over how this could have happened in a Florida colony remarked that, if winter hunger had been a problem at Port Royal, he and his fellow visitors could have collected mussels by digging a hole in the shore ice, or similarly they could have gone ice fishing.[178] Often though they relied on what meat the Micmac brought them, or on the meat they could hunt on their own, sometimes with Micmac assistance.

Among the settlers who followed were those who never suffered from the want of food in winter partially because they, similar to Lescarbot , were more attuned to the cycles of the ecology around them. As George Patterson noted the coasts abounded, particularly in spring and fall, with fowl so little disturbed by humans, that they were shot or even snared with little trouble and in great numbers. Numerous colonists went

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177 Hornsby, Stephen. Nineteenth Century Cape Breton : A Historical Geography. Montreal: McGill-Queens University Press, 1992:74

178 Lescarbot Vol.3:172

to the beaches in the month of March with guns, and after being away a day or two, sent home for horse and sled which was loaded with wild geese to be salted down for summer provisions. Fish were abundant, the most valuable of which was the salmon which then came into the rivers in great numbers, "as thick as the smelt do now ", recalled one Pictou resident in 1877,[179] indicating that by that time salmon populations had already declined.

Adjusting to a new land and its ecology took a great deal of skill. Europeans coming from a populated agrarian society knew one way of gaining subsistence from the land -- growing crops, raising domestic animals and supplementing this food with fish and occasional game. European subsistence patterns needed time to be reproduced in the wilderness that was Nova Scotia. They also contrasted sharply with the subsistence patterns of the Micmac who as hunters and gatherers followed the cycles of nature's seasonal abundance -- moving to those places that offered the best supplies of food.

Cadie, meaning place of abundance, was after all the word the Micmac used to describe their homeland to Europeans. The Micmac, whose way of life required an intimate knowledge of ecosystems, were well aware that this ecological abundance was seasonal in nature. It was not found throughout all the land but rather in particular places. That meant moving to those places where the abundance was found. Previous to regular contact with Europeans in the mid-1500s, the Micmac traditional subsistence patterns were based on these ecological rhythms of the land. The 17th century French writings on the Micmac were documenting a way of life that already had undergone substantial change as archeological studies of 16th century Micmac reveal.

It was along the shores of the bays, coves and rivers that the Micmac found the greatest amount of food and other materials for their needs. French 17th century writings indicate that the Indians lived in encampments in these areas from the month of May up to the middle of September, free from concern about food as this was a time of plenitude. In the shallow waters they took shellfish: clams, mussels, whelks, periwinkles, squid, crabs and lobsters; and fish: flounder, smelt, shad, skate, salmon

179 Patterson. History of Pictou County, 1877:43

and eels. Geese, ducks and other water birds fed and nested close by. In deeper water the Micmac fished for porpoise, sturgeon, swordfish and the smaller whales. They hunted seals and collected bird's eggs on nearby islands. Edible plants used included Labrador Tea, Bear berries, Service Berries, Blueberries, Cranberries, Raspberry, Strawberries, Gooseberries and others. On land, the Micmac could find most of the plants and animals they needed without having to go very far from the sea.[180]

In other seasons the timing to obtain specific foods was precise. The autumn cycle of subsistence began in the middle of September when the Micmac withdrew from the sea, beyond the reach of the tides, to the little rivers, where the spawning eel and the migrating salmon could be trapped. In October and November came the hunt for caribou, moose and beavers fattened by the summer season. Later in December and early January came a fish they called ponamo (tomcod) which spawns under the ice. January was a time of seal hunting as during this month seals took ashore to mate in certain areas, particularly the Seal Islands off Cape Sable. The Micmac made from its fat an oil which served as a tonic throughout the year. Reserves of the oil were kept in moose-bladders. In the month of February through to the middle of March, when fresh food was scarce on the coast, the Micmac moved inland to hunt for beavers, otters, moose, bears and caribou. By Mid-March the fish began to spawn. Since every fish had its particular place, this was a time of moving to those specific rivers and streams. Among these spawning runs of fish the smelt were first, followed by herring at the end of April and then the sturgeon and salmon. At the same time waterfowl came from the south making their nests upon islands where Indians would gather eggs. Hordes of migratory birds heading north were also a source of meat. And so began the summer cycle again where most of the food needs of the Micmac were met at their coastal and river estuary encampments. As Pierre Biard, a Jesuit living in Acadie from 1611-1613, said: "These then, but in still greater number, are the revenues and incomes of our Savages; their table and living, all prepared and assigned, everything to its proper place and quarter."[181]

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180 Whitehead & McGee. The Micmac: How Their Ancestors Lived Five Hundred Years Ago. Halifax: Nimbus,1983:6

181 Pierre Biard (a Jesuit living in Acadie 1611-1613), In Jesuit Relations and Allied Documents, edited by R. G. Thwaites. 1896. Vol.111:77-83.

The importance of ecological patterns in the seasonal subsistence cycle was reflected in the Micmac calendar. They counted by moons and put thirteen in a year. Month [moon] names signified where key food sources would come from -- the spawning fish, bird's egg-laying time, the moose calling or hunting time, the berry and fruit ripening month. Seasonal cycles of weather were denoted in these month names. Every aspect of Micmac language was embedded with a deep sense of the ecology of the land. Or as Biard stated "their provisions are like fixed rations assigned to every moon":

Punamujuiku's (January) -- Frost Fish moon or time of tom cod.
Apiknajit (February) - The snow-blinder
Siwkewiku's (March) - Spawning Moon
Penatmuiku's (April) -- Egg laying moon
Tqoljewiku's (May) -- Frog-croaking moon
Nipniku's (June) -- Summer moon
Peskewiku's (July) -- Feather-shedding moon
Kisikwekewiku's (August) -- Fruit and berry-ripening moon
Wikumkewiku's (September) -- Moose-calling moon
Wikkewiku's (October) -- Animal- fattening moon
Keptekewiku's (November) - River freezing moon
Kjiku's (December) - The great month.[182]

The sea and its products were of first importance to the Micmac. The sea provided at least 90 percent of the food consumed keeping them adequately supplied for ten of the twelve months of the year. From the Micmac point of view, however, fishing seems to have been a low prestige occupation. Their attitude, undoubtedly was that anyone could fish, but that only an individual with power and skill could be a hunter. The fact remains, however, that the aboriginal Micmac economy seems to have been based upon water resources. Hunting activities often required special conditions and was capable of supporting the population for only a short period of time.[183]

When the Micmac men did hunt they took caribou, bear, beaver, rabbits, geese, ducks and many other creatures, but the moose was perhaps their most important game animal, partly because it represented such a very great deal of meat and fat on the hoof, and partly because it afforded a Micmac family such a wide variety of raw

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[182] Christmas, Peter. "Wejkwapniaq." Micmac Association of Cultural Studies, 1977:22

[183] Julien, Don. "Historical Perspective of the Micmac Indians." A Paper of the Confederacy of Mainland Micmac, PANS 4 : O/S V/F V.16 #10

material besides food. Moose hides provided robes, blankets and floor coverings for cold weather; moose leather provided the bulk of Micmac clothing and footwear before the arrival of the ubiquitous trade cloth; and moose sinew provided the thread with which they were sewn. Moose bones provided an almost infinite array of tools, from awls and needles to hide scrapers; moose-hair provided decorative thread for embroidery. Marrow bones were rendered into that Micmac delicacy, moose butter, a rich, white lard -- and even the skin of the dewlap provided ready-made knife sheaths and pouches. Without such raw materials, a Micmac family, in pre-contact times, would have subsisted with a greatly reduced standard of living. Although moose hunting generally only took place for a period in the fall and later again in winter, a need for more hide and sinew for clothes --or perhaps more bones for new tools -- would always be enough to send hunters into the woods at any season of the year. Continuous full-time, hunting among the Micmac only developed later as a function of the encroachment of European culture.[184]

Hunting was an arduous task. Because the moose was a powerful and mobile prey, and because stone and bone pointed arrows and lances are not exceptionally lethal (at a great distance) the native hunter generally stalked in small groups of up to six hunters. During the rut, moose, particularly males who would be in prime condition at that time, were lured to swampy ground by moose calls made by blowing through a birch bark funnel. In mud and water, a moose's mobility would be somewhat impaired. Sometimes hunters in canoes attracted male moose at night by pouring water out of a bowl to imitate the sound of a female moose urinating. Both strategies were designed to bring an animal into bow-shot on terrain where a fast escape would be difficult. Once a moose was shot with arrows it was repeatedly pursued and shot again until it collapsed from loss of blood, when it was killed with lances. Depending on the hunter's skills and luck, this process might take an hour or two, or several days, but in the course of the pursuit the hunters would make every effort to herd the animal back towards their camps, so that the carcass would not have to be brought too far. Hunting was a dangerous task as cornered moose and other animals fought back sometimes injuring members of the hunting party.[185]

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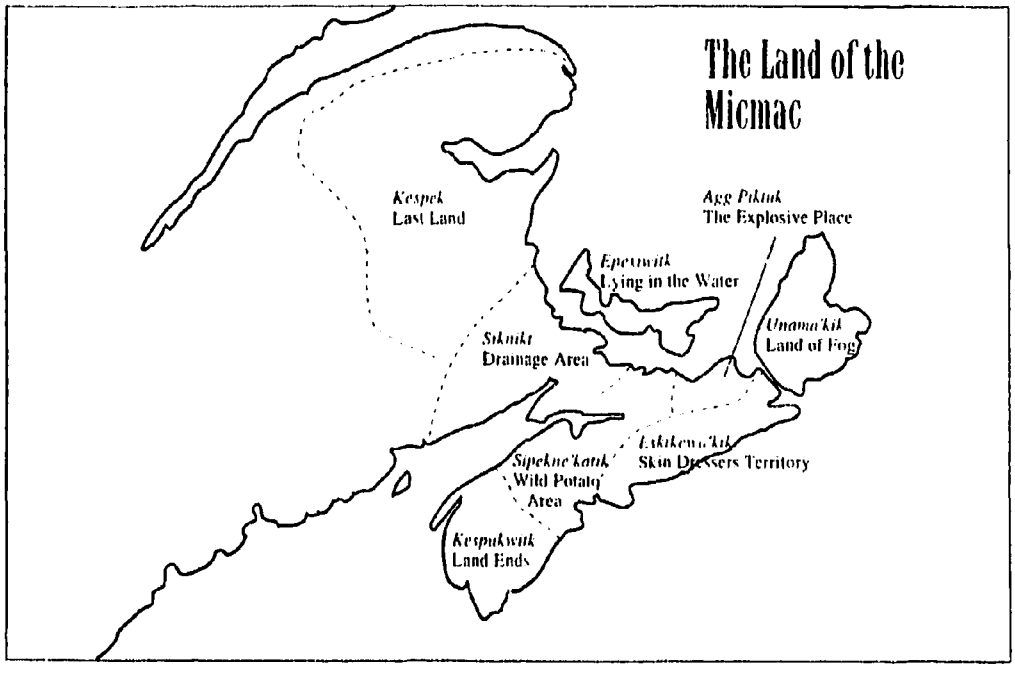
[184] Ray Whitley, "Of Moose and Micmac." N.S. Conservation. Halifax: Dept. of Natural Resources, September, 1981: 2

[185] Ibid 3-4

Movement from place to place following the seasonal cycles was not arbitrary. Families and groups had particular areas they were accustomed to resort to within the territorial boundaries of their band's district. The Micmac lived within seven distinct districts that were both political units and ecological zones of sustenance. Each district had a District Chief and a governing council of elders or village chiefs that had the power to make war or peace, settle disputes and apportion hunting, fishing and berry picking areas to families. Making up the greater 'Grand Council' were the seven district chiefs and a Grand Chief who functioned as a dispute mediator of last resort.[186] So although they were semi-nomadic to harvest the land's ecology, the Micmac did have a political and environmental division of territory and within them specific encampment areas.



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The names of the seven Micmac Districts, which covered the Maritimes and Gaspe Peninsula, were: Kespukwitk , Sipekne'kaatik , Eskikewa"kikx , Unama'kik, Epekwitk Aqq Piktuk, Siknikt, and Kespek. Citizens of these districts lived in small gatherings or transitory villages that contained, according to contemporary Micmac sources,[188] fifty

186 Paul, Daniel. We Were Not The Savages. Halifax: Nimbus,1993: 5
187 Map Source: Daniel Paul's We Were Not The Savages. Halifax: Nimbus,1993: 6
188 Ibid 5

to five hundred people. Large gatherings came together at certain times of the year for ceremonial purposes -- feasts, celebration etc. LeClercq, a Jesuit missionary who lived among the Micmac in the 1680s could only view Micmac villages through Eurocentric eyes. "Since these people live without society and without commerce, they have neither cities, towns, nor villages," he said. " unless, indeed, one is willing to call by these names certain collections of wigwams having the form of tents, very badly kept, and just as badly arranged. . .They follow the ancient custom of our first fathers, who remained encamped in a place only so long as they found there the means of subsistence for their families. . ." [189]

It was all a matter of point of view. To the Micmac such encampments were villages. Their traditional use and occupancy of the land of Nova Scotia involved semi and permanent settlements; summer villages usually located on the banks of streams and or in salt water coves near the mouths of streams or rivers. The most important factor in the choice of site was the proximity of the site to a navigable body of water. Such sites as the mouths of large rivers with heavy spawning runs were highly favoured or alternatively smaller rivers running back into a system of lakes. Also favoured were sites situated on salt lagoons or ponds in shallow bays having large shellfish beds and some protection for the full force of the ocean and the winds. Other influences in the selection of summer camps included such features as level sandy terrain with good drainage and sites easily reached in spring.[190]

The places where the Micmac camped were, in part, determined by ecological advantage and also, in part, by the convenience of cooking kettles. Before the arrival of Europeans, the Micmac did not have metal kettles. Instead they had kettles of wood made from large, hollowed out tree logs or stumps which held water that was brought to a boil by placing hot rocks in it.[191] These kettles were not movable yet campsites had to have them. So the presence of wooden kettles would have been a factor in Indians regularly frequenting the same encampments or village sites -- particularly inland winter camps were large kettles would have been especially necessary to cook

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189 LeClercq, Chrestien. New Relations of Gaspesia. 1691, Toronto: Champlain Society, 1968:100

190 Julien, Don." Historical Perspective of the Micmac Indians, A Paper of the Confederacy of Mainland Micmac", PANS 4 : O/S V/F V.16 #10

191 Denys 406

the tremendous amount of meat generated from moose. What camp life was like for the Micmac before the arrival of Europeans was recounted by Micmac Shaman-Chief Argiumaut speaking to Abbe Maillard around 1740:

> Father, before your arrival in these parts where God decreed we should be born and where we have grown like the grasses and the trees you see around you, our most constant occupation was to hunt all sorts of animals so as to eat their flesh and to cover ourselves with their skins. We hunted both small and large game birds, and chose the best and most beautifully feathered birds to make ornaments for our heads. We killed only enough animals and birds to sustain us for one day, and then the next day, we set out again. But never think that our hunting was as arduous as it is today. All we needed to do in those times was to leave our wigwams, sometimes with our arrows and spears, and sometimes without, and at a very short distance from our village we would find all we needed. If at any time we did not wish to eat meat we would go to the lakes or rivers nearest our village, or to the nearest sea shore, and there we would catch all sorts of fish to eat.[192]

Such tribal accounts of life before European influence indicates the population of the Micmac didn't exceed the environment's capacity to sustain them as hunter and gatherers. In southern regions of North America, below Maine's Penobscot River, denser Indian populations and a warmer climate resulted in tribes adopting agriculture to supplement hunting and fishing pursuits. But this was not the case with the Micmac. Before contact, their populations are estimated to have been anywhere from 25,000 (by geographer Andrew Clark) to as high as 100,000 (by Micmac historian and activist Daniel Paul) [193] ··· whatever the case, it was a relatively low population covering a large territorial land mass now known as the Maritimes. By contrast, today nearly two million people inhabit the former aboriginal Micmac lands and much of the terrain still appears sparsely settled.

How did the pre-contact Micmac maintain equilibrium with the environment's capacity to sustain them as hunters and gatherers?

For one thing, before the introduction of the European fur trade, the Micmac, with a

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[192] Arguimaut to Abbe Maillard, circa 1740. Excerpted in Ruth Whitehead's The Old Man Told Us: 10

[193] Paul 5

relatively small population, only killed enough wildlife for their own immediate needs and therefore rarely would have depleted food resources. Food relationships revolved around the wheel of the seasons. Ecological diversity and a regular supply of edibles provided sustenance and no single species became overused.

For another, living a hunting and gathering way of life had the effect of exerting population control. Being on the move to gain sustenance meant that Micmac women, could not nourish two infants at the same time and consequently birth control measures were used to space the timing of births. Mothers nursed their children for two, three or sometimes five years, and any pregnancy in that time was terminated by an abortion-producing drug obtained from plants. [194]

Certain other child-rearing practises also acted to limit population increases.The infant was carried everywhere by its mother on a board swaddled in furs supported by a strap across the forehead, a device that left both her arms free for work while at the same time protected the baby from twigs and overhead branches. Inside the wigwam, the board was propped up so that the child could still observe the life round him. The boards had their hazards, particularly for the male sex in freezing weather.[195] Denys noted: "If it is a boy, they pass his penis through a hole, from which issues the urine; if a girl, they place a little gutter of bark between their legs, which carries the urine outside. Under their backsides they place dry rotten wood reduced to powder, to receive the other excrements, so that they only unswathe them each twenty-four hours. But since they leave in the air during freezing weather the most sensitive part of the body, this part freezes, which causes much mortality among them, principally among the boys, who are more exposed to the air in that part than the girls."[196] Denys also noted that the Micmac would have multiplied more "were it not that the women, as soon as they are delivered, wash the infant [in cold water], no matter how cold [the weather] may be." As soon as the baby was born it was given a sip of animal oil to drink - a factor that Denys and other French sources thought may have also contributed to mortality rates.

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194 Denys 404

195 Upton, L. Micmacs and Colonists. Vancouver: Univ. of British Colombia Press, 1979: 6

196 Denys 403

But perhaps the biggest contributor to keeping the Micmac population relatively low was an ecological reason rather than a cultural one. It was the effect of the Maritime climate itself. The amount of snow fall was directly related to periodic winter shortages of food during which times the old and the weak suffered and sometimes died.

At this time of year the tribe relied on meat for subsistence. If snows were heavy and animals could be easily tracked, hunting provided an adequate food supply; if the snow failed to stay on the ground, on the other hand, it was easy to starve. The Micmac accepted as a matter of course that the months of February and March could be times of little food.

This phenomenon, known as Leibig's "law of minimum", dictates that what is most influential on biological populations are not factors that are present in excess, but those which are present in minimal quantity. In this case, the Micmac food sources for a two month winter period. [197]

What confounded Europeans was this Indian acceptance of scarcity and refusal to store more than a small amount of summer's plenty for winter use. Stored provisions consisted of smoked meat, fish, shelled acorns, berries and the dried peas, bean, and prunes acquired through trade. These preserved foods were placed in sacks suspended from trees,[198] but as LeClercq describes they soon ran out:

> They are convinced that fifteen to twenty lumps of meat or of fish dried or cured in the smoke, are more than enough to support them for the space of five to six months. Since, however, they are a people of good appetite, they consume their provisions very much sooner than they expect. This exposes them to the danger of dying from hunger, through lack of the provision which they could easily possess in abundance if they would only take the trouble to gather it. [199]

French sources (Biard, Denys, Lescarbot and LeClercq) all emphasize the hardships

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[197] Hoffman, B. "Historical Ethnology of the Micmac of the 16th and 17th Centuries." Phd. Th. .NS Microfilm H713: 228)

[198] Pierre, Biard. 1616:107. Citation in Ellice Gonzalez's: Changing Economic Roles for Micmac Men and Women. Ottawa: National Museum of Man Series #72, 1981: 17

[199] LeClercq 110

of the Indians during winters. Lescarbot wrote: ". . .when the winter is too mild, or at its end;. . . they can get neither venison nor fish, save with extreme difficulty. . .but for want of it they are sometimes famished. . . and are constrained to feed upon the bark of trees, and on the parings of skins. . .[200] To LeClercq it seemed "as if as if the abundance the Micmac find in spring, summer and autumn makes them forget the misfortunes they have suffered during the winter.[201] For the Micmac winter food shortages were part of their way of life. Food was not stored in great amounts because it would interfere with mobility and because their experience dictated that some food would be available even if certain items were occasionally in short supply.

Undoubtedly, they were better able to handle this scarcity than visiting Europeans or new colonists. LeClercq noted that it took only four or five good meals to restore [the Micmac] from the fatigues and the weaknesses of several months' illness [caused by winter famine].[202] Biologically, the Indian metabolism had adapted to cycles of feasting and fasting. In times of abundance this pattern was also practised. As Lescarbot wrote: "Although they sometimes commit excesses in their feasts, they diet themselves very thoroughly afterward, living sometimes for a week or more or less on tobacco smoke and not returning to the hunt till they begin to hunger."[203]

Indian death from periodic winter shortages of food was relatively low as long as hunting and fishing grounds remained intact and the tribe was healthy and disease-free -- conditions which had existed for centuries until the arrival of Europeans. Although, the hunter-gatherer way of life included brief winter periods of food shortages, they appeared to have no overall effect on Micmac health. Always noted was the exuberance of Micmac health -- good physiques, erect posture, excellent eyesight, fine teeth, healthy hair, clear minds and freedom from deformity or disabilities. It was an impressive list for Europeans coming from countries where ill health was common and many people only lived to forty. What never ceased to amaze the French were the long lives of Micmac. "I have seen Indians of a hundred and twenty to a hundred and forty years of age [they count by moons: 130 Micmac years =

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200 Lescarbot Vol.3: 172
201 LeClercq 116
202 LeClercq116
203 Lescarbot Vol.3:191

120 years] who still went to hunt the Moose," said Denys.[204] This testimony to the great age attained by the Micmac was given by all the other early French writers. Such health served as a form of proof that the Indian way of life had its benefits. As LeClercq commented "This is either because they are begotten by parents who are healthy and active. . .or else because they live. . .in perfect harmony and concord, without lawsuits and without quarrelling for the goods of this world." [205] The French also considered the Micmac use of sweat-houses to contribute to their longevity.

Typical of hunter-gatherer tribes worldwide, the traditional Micmac, with low populations numbers, had relatively little impact on the ecology of the land. However they were very adept at manipulating both the environment and wildlife to suit their needs.

For a period of time the Micmac were limited agriculturalists. They grew tobacco -- a plant not native to the Maritime region and therefore one which the Micmac would have introduced, having acquired it through trade with more southern tribes where tobacco naturally grew. As Lescarbot wrote in 1606:

> Our savages [the Micmac] plant great store of tobacco, a thing most precious with them, and universally [done] among all those [Indian] nations. After they have gathered this herb, they dry it in the shade, and have certain small leather bags, hanging about their necks or at their girdles, wherein they always have some, with a.. tobacco-pipe... out of which they suck the smoke of the tobacco...after lighting it with a coal... They will endure hunger for five or six days with the aid of that smoke. And our Frenchmen who have frequented them are for the most part so bewitched with this drunkenness of tobacco, that they can no more be without it than without meat or drink. . .But it is the more excusable in the savages, because they have no other great delicacy in their banquets, and can make no greater cheer to a visitor than with this, as in [France] one presents his friend with some good wine.[206]

No doubt the Micmacs who planted tobacco were those living in the warmest, sunniest areas of the Maritimes since tobacco is a plant that needs much heat and a

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[204] Denys 400

[205] LeClercq 296

[206] Lescarbot Vol.3: 252-3

long growing season. Only the Micmac inhabiting the Annapolis Valley or southern New Brunswick territories would have been able to cultivate it -- most likely growing small plots in meadow lands close to summer camps. Unlike corn, animals don't eat tobacco plants -- so garden plots could be left alone and later returned to for harvesting.

Nevertheless, by all accounts the Micmac were reluctant planters. Growing tobacco was given up once it was easily secured through trade with Europeans. This happened by the mid-1600s when European tobacco plantations in Brazil and the southern states of America supplied the growing market demand for this exotic new stimulant. Once the French had a steady supply of imported tobacco they traded it with the Micmac. Because of this, Denys' 1672 account of the Micmac made no mention of Micmac cultivation of tobacco as by then it has stopped. The preference of hunting over planting was summed up by a Micmac confiding to LeClercq: "In truth my brother, the beaver does everything to perfection. He makes fur for us, axes, swords, knives, and gives us drink and food without the trouble of cultivating the ground".[207]

Tobacco cultivation ceased for the Micmac in the early 1600s and it appears that long before this, planting of corn was abandoned as well. Speaking of the lands where Indians planted beans, corn and squashes Lescarbot wrote: "Our Souriquois [Micmac] formerly did the same, and tilled the ground; but since the French bring them kettles, beans, peas, biscuit, and other food, they are become slothful, and make no more account of those exercises."[208] Both Lescarbot and LeClercq present statements to the effect that the Micmac once had practised the cultivation of corn, before they had encountered the tribe. There is no other evidence to substantiate the Micmac as horticulturists.

Certainly the Micmac had a great attraction to the foods reaped from agriculture. Lescarbot noted that "the best method of attracting the Micmac is to give them bread"[209] and that they were eager to trade furs for biscuits, peas, beans and meal.

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[207] Le Clercq 277

[208] Lescarbot Vol.1 1994-5

[209] Lescarbot Vol.3. 40

Speaking on the French courtship of Micmac friendship, Lescarbot used the symbolism of food, love and marriage as great importance was placed on the sharing of food and feasting to cement political relations between the two groups:

> The ancients have said that 'without corn and wine, love is cold' and we say in French 'Long live love, but love with a dinner'. Having then married our savages, we must prepare dinner, and treat them after their own manner. To do this we must consider the times of marriage; for if it be in winter they will have venison [moose] from the woods, if in the springtime or in summer they will make provision of fish. . .The chief defect in their manner of life is, that they have no bread. Indeed bread is a food very natural to man, but it is easier to live on flesh, or fish, than on bread alone.[210]

Cultural misunderstandings around food existed initially between the French and Micmac. The Micmac first encountering the bread of the French mistook it for a piece of Birch Bark tinder. Likewise, the red wine so enjoyed by the French was first interpreted to be blood and an indication to the Micmac that these were a cruel and inhuman people.[211] Although Indians appreciated bread as a delectable food, it wasn't considered worth the bother to cultivate wheat to produce it. The French noted that they had no patience for grinding wheat kernels into flour. This was the food of agriculture which required a far greater workload, especially in the Maritime's climate, and the labour involved to produce it had little appeal. However to facilitate hunting and fishing, the Micmac practised the domestification of animals to a limited extent.

In 1593 mariner Richard Strong stopped in western Cape Breton to go inland for fresh water and described finding "certain round pondes [ponds] artificially made by the Savages to keepe fish in, with certaine weares in them to take fish."[212] This could be interpreted as a form of aquaculture designed to keep fish alive until they were needed for food.

But it was domesticated dogs that were the greatest boon to the Micmac. Described as

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[210] Lescarbot Vol. 3: 165, 171

[211] LeClercq 108

[212] Strong, Richard. (Master of the *Marigold*, out of Falmouth). Citation in Richard Brown's History of Cape Breton: 41

a kind of mastiff but more lightly built, Micmac dogs had the head of a fox, and howled rather than yelped. . .They served for hunting moose in the spring, summer, autumn and also winter when the snows would still bear them. Denys wrote that "There is no hunter who had not from seven to eight of them. They cherish them greatly. If they have little ones which the mother cannot nourish, the women suckle them; when they are large enough they are given soup. When they are in a condition to be serviceable, they are given nothing but the offal of the beasts which are killed. . .It is this which makes the beasts keen on the chase.[213]

Efforts to manage wildlife were made by the Micmac in specific situations. This was particularly the case with porcupine. Unlike moose, beaver and other game that were common throughout the province, porcupine only lived on mainland Nova Scotia. Then as now, porcupines were not found on Cape Breton Island. This meant that Cape Breton Micmac did not have close access to a supply of quills which were widely used for decorative designs. To solve this problem, the Micmac made various attempts at transporting porcupines across the Strait of Canso hoping that the newcomers would establish porcupine populations on the island. But these experiments in wildlife management failed as the porcupines invariably died.[214]

The Micmac also captured and confined eagles for designated purposes. As Lescarbot relates: "The savages of Canso had six of them [Bald Eagles] perched near their cabins. . .they had pulled off their tails to feather their arrows." [215] Eagle tail feathers were highly valued for use on the ends of arrows as their firmness was unmatched in making arrows carry well in the air.

All of these measures -- a limited cultivation practise, the use of domesticated dogs and the detainment of wildlife for specific purposes -- served to give the Micmac greater control over securing sustenance from their environment. Their ability to live off the ecology of the land -- its flora and fauna -- was dependent on the use of weapons, tools and objects which were fabricated from found materials.

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213 Denys 429-431

214 Uniacke, Richard. Sketches of Cape Breton and Other Papers Relating to Cape Breton Island 1856 Halifax: Public Archives of Nova Scotia, 1958: 93

215 Lescarbot Vol.3-232

Bows and lances were made of maple polished with oyster shells. Arrows were of cedar split strait. Arrowheads were formed of bone, stone and later iron. Snowshoes frames were constructed of beech corded with moose skin. Reeds were woven together to make mats and baskets. Sewing needles were made of bone. The birch tree was particularly important. Canoes, wigwams, dishes and baskets were crafted from birch bark, sewn together with thread derived from the root of the Black Spruce tree. Chewed balsam fir gum was applied to ensure seams had a water tight seal when needed. The Micmac sought the largest Birch trees to gain wide and long strips of bark for their canoes and wigwams.[216]

If families were large, long wigwams were made which could house two fires. Otherwise wigwams were round with the fire in the middle. Women set up camps by finding poles in the woods to form the structure of the wigwam. Branches of fir were broken off trees to provide a soft lining for the floor. Large pieces of birch bark were placed through the poles and sewn together in such a way as to form a watertight dwelling. Seven or eight barks were used to make a circular wigwam which could hold fifteen to twenty persons. The barks were ornamented with many different pictures of birds, moose, otters and beavers which the women sketched with their paints. When moving on to another site the wigwam was disassembled and the light -weight, large birch bark pieces rolled up. Rolled up birch bark was either carried on someone's shoulder en route to another campsite or transported in canoes, which Lescarbot likened to having the role of a horse enabling Indians to use waterways to easily traverse the land. [217]

To the Micmac their portable wigwam dwellings were vastly superior to the buildings of the French. As LeClercq noted the Micmac were enamoured with their way of living and often disdained that of Europeans. This Micmac conversation with a French fishing captain illustrates the point:

> " I am greatly astonished that the French have so little cleverness . . .in the effort to persuade us to convert our poles, our barks, and our

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[216] Denys 419

[217] Lescarbot Vol.2:334

> wigwams into those houses of stone and of wood which are tall and lofty, according to their account, as these trees. Very well! But why now do men of five to six feet in height need houses which are sixty to eighty? For, in fact, as thou knowest very well thyself. . . -- do we not find in our own all the conveniences and the advantages that you have with yours, such as reposing, drinking, sleeping, eating, and amusing ourselves with our friends when we wish? This is not all. . .my brother, hast thou as much ingenuity and cleverness as the Indians, who carry their houses and their wigwams with them so that they may lodge wheresoever they please, independently of any seignior whatsoever? . . .it is necessary that thou preparest as many lodgings as thou makest changes of residence, or else thou lodgest in a hired house which does not belong to thee. As for us, we find ourselves secure from all these inconveniences, and we can always say, more truly than thou, that we are at home everywhere, because we set up our wigwams with ease wheresoever we go, and without asking permission of anybody."[218]

Traditionally hunter-gather societies provided a way of life that offered more freedom and leisure than that of the cultivator. Obtaining food and other forms of work generally took up only a small proportion of the day leaving large amounts of time free for repose. In terms of work, the tasks of the individuals within the Micmac tribe was determined by sex. The men did the hunting and made bows, arrows, lances, shields, fish traps and wiers, made frames for the snowshoes and canoes and also manufactured the cradle board and all other articles of wood and the tobacco pipes. The women hauled game back to the camp (given a verbal description of its whereabouts by the men), prepared and preserved the food and made birch bark dishes, plaited bags of flattened rushes, dressed the skins, made the robes, the sleeves, the stockings and mocassins, corded the snowshoes, moved and set up the wigwam, fetched the water, firewood, helped in the building of birch bark canoes, took care of the children and transported all the camp equipment during moves.

This switching of camps was described by Denys. "After they have lived for some time in one place, which they have beaten [for game] all around their camp, they go and camp fifteen or twenty leagues away." [219] Fleeing fleas was another reason to move on. The longer a campsite was inhabited the more the pests increased. "The [Indian] is

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[218] LeClercq 103

[219] Denys 405

never permitted to reside long in an unwholesome habitation." wrote Titus Smith on the Micmac. "Insects attack him. . .and he is soon compelled by these "officers of health" to remove to another thicket, where he again breathes the fresh air of the woods untainted. . ."[220]

The effect of Micmac camps on the land's ecology depended where the camp was located. Camps by bays and river estuaries would have experienced a culling of the wildlife -- mainly fish and fowl. Populations remained stable as long as the numbers killed didn't exceed the species' reproductive rate of renewal. Garbage (shells, bones, arrowheads, entrails, old tools) around campsites were often placed in piles or mounds known today as middens which archaeologists have found beneath small hillocks at various sites. From Denys' account it would appear that game became depleted around woodland camps occupied for a period of time. Also removed were fallen trees and rotten wood that was used as firewood. If camps consisted of several hundred people then specific types of fuelwood most likely became scarcer close to village sites. Denys noted that women travelled a great distance from campsites through the forest to find dry rotten wood[221]-- a valued fuel because when burnt it produced very little smoke resulting its its use for campfires inside wigwams. For campfires outside wigwams various woods were used.

The Micmac carefully avoided setting the woods on fire.[222] No early French accounts mention the use of fires by the Micmac to drive game or clear underbrush. But their enemies the Mohawks deliberately set fires to Micmac hunting grounds for hundreds of years before Europeans arrived and this practice accelerated during the first century of English colonization. According to Micmac Joe Cope, this was Mohawk vengeance, along with killing and scalping, because in the past -- thousands of years ago -- the Micmacs, migrating from what is now the United States, had driven the Mohawks out of the Maritime region.

"Mohawk Indian spies, about 100 men, divided into parties of 6 or 7, would come down

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220Smith, Titus. "Natural History of Nova Scotia ." London: The Magazine of Natural History. December1853: 660

221 Lescarbot v3:200

222 Smith, Titus. "Natural History of Nova Scotia ." London: Magazine of Natural History 1835: 651

to Nova Scotia every summer, as soon as the leaves and other green stuff grew large enough to hide in," said Joe Cope. "The first few hundred years these [Mohawk] spies were very cruel. Murdering innocent women and children, setting fires to all the Micmacs best hunting grounds. . .[Some Indians say that] all the old Barrens, all through this country are the works of Mohawks." [223]

It is impossible to know how frequently the Mohawk used fire to destroy Micmac hunting grounds or the extent to which this practice created barren lands. However, it accelerated in the 1700s when the English paid Mohawk rangers to intimidate the warring Micmac who were hostile to the English takeover of their lands.[224] Resorting to past harassment tactics, the Mohawk again set fire to Micmac hunting grounds. This excessive use of fire, over time -- especially in areas with poorly drained, thin soils -- would have created turf so sterile that it could no longer support forests and became barren lands of blueberries, rhodoro, kalmia , stunted black spruce and other shrubby plants found in areas of the province today.

In the short term, this Mohawk practice of destroying Micmac hunting grounds would have been effective but in the long run it may have backfired. Depending on the site, within three to six years many newly burnt areas recovering from fire attract more game. Open clearings created by fire grow up in a profusion of herbage -- hardwood saplings, grasses, raspberries, strawberries -- that are frequented by food-seeking moose, rabbits, bears and other animals whose response to abundant food is often to produce more offspring. Small woodland fires -- by altering the habitat, recycling nutrients and spawning new plant growth -- often have the effect of increasing game. It is this 'edge habitat' that attracts wildlife as on edge of such food-filled clearings animals seek shelter in the surrounding woods. But with successive Mohawk firings on the same land, the soil would have become less productive, featuring less diversity in plant life and only supporting herbage common to barren lands. The barrens, however, could later become the home of caribou herds who fed exclusively on the

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223 Joseph C. Cope to Harry Piers, 21 January 1924. Nova Scotia Museum Printed Matter File. Excerpt in Ruth Whitehead's The Old Man Told Us: 325

224 See Document: Governor Paul Mascarene to Governor Shirley of Massachusetts, Annapolis Royal, December 1744. In Selections from the Public Documents of the Province of Nova Scotia, edited by Thomas Akins, 1869: 146,149. Or see passage in Ruth Whitehead's The Old Man Told Us:103

reindeer moss that eventually grows in this habitat. This adaptation of wildlife to the effects of fire could have been beneficial to the Micmac as long as the burning was random, limited and not widespread -- a situation which would change in the 1700's with English colonization. Though the Micmac did not use fire to modify the environment to increase wildlife populations, the effect of Mohawk-Micmac hostilities may have had the same effect, albeit haphazardly, in certain areas. Indirectly the Mohawks contributed to the mosaic pattern of Nova Scotia's ecosystem, creating forests in different stages of succession. But more likely, thunderbolts of lightening had as much effect on setting forests on fires.

Indians throughout the world have characteristically used fire to increase their food supply from the environment either by increasing the growth of plants that attract game or by encouraging the growth of plants that were key food sources. However it is more typical of Indians living in areas such as grasslands and warmer temperate regions, a closeby example being Indians living south of Maine's Penobscot River. Here inland Indians living in denser fixed settlements annually burnt forests to clear out underbrush which obstructed easy passage through the woods to hunt or travel. This changed the species composition favouring hardwoods that regenerate after fires by sprouting from their roots (chestnut, oaks, hickories) and destroying trees that lacked this ability (hemlock , beech and juniper). By removing underwood by fire, Indians reduced the combustible material at ground level. Consequently only small non-woody plants grew which burnt at low temperatures and extinguished themselves soon. They were essentially ground fires that sometimes charred the base of trees but otherwise left the forest intact and served to clear fields, drive game and encourage the growth of herbage to attract wildlife to certain areas.[225]

For Indians living in more northern lands like Nova Scotia, burning forests to create better hunting was a riskier endeavour and one which was not necessary. First of all the Micmac obtained most of their food from the coast. Their travel was by canoe on the region's many waterways so they didn't need to make forests more traversable by using fire to clear out underbrush. In winter, when waterways were frozen, travel

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225 Cronon, William. Changes in the Land: Indian, Colonists and the Ecology of New England. New York: Hill and Wang,1983:50

through the woods was over snow accomplished with toboggans and snowshoes. Many woodlands were easily traversable as the mature stands of the region's hemlocks, pines and hardwoods often had little underbrush to begin with. In contrast, the dense coniferous forests common along the coast or in thinly soiled areas, had such thick undergrowth that when a fire got started this abundance of combustible material would quickly burn at high temperatures, fuelled in part by the tree's resin, and soon reach the canopy blazing out of control. In the long run such fires could have had the ecological effect of attracting wildlife with the new growth of herbage. But there appeared to be plenty of wildlife in pre-contact times for the relatively low Micmac population. And the siltation in rivers, lakes and estuaries that results from the rainwater runoff on burnt forest lands could have had the effect of reducing fish populations -- which provided much of the food in the Micmac diet. So for many good reasons, the Micmac were not in the practice of burning forests like many other Indian tribes did.

In general, the Micmac found their needs adequately met from their environment. Sufficient food could be extracted from what would have been much more productive ecosystems than those today. Agriculture with its greater workload was generally avoided since ecosystems provided for all their wants -- with rights to hunting, fishing and berry picking habitats delineated between tribal band territories. Leisure time was highly valued and preferred to increasing food supplies (which were generally more than adequate) or producing more material goods (which would be a hindrance to mobility). Within the group there was no concept of food ownership and food was treated as available to all. From this sprang a great sense of generosity, partly inspired by the Micmac belief that sharing meat among all, and especially those less fortunate, made for lucky hunting. This great sense of Micmac generosity deeply struck Europeans: "They are so generous and liberal towards one another that they seem not to have any attachment to the little they possess, for they deprive themselves thereof very willingly and in very good spirit the very moment when they know that their friends have need of it," wrote LeClercq.[226]

For the Micmac the chief problem in their way of life were the periodic winter shortages

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[226] LeClercq 245

of food, a fact which the French attributed to sheer indolence, "exposing themselves every year by their laziness, and by the little care that they take to accumulate in summer enough to enable them to avoid and prevent a thousand ills which very often overwhelm them in winter". [227] A gradually warming climate could explain the evidently greater number of mild winters which sabotaged the long-standing Micmac tradition of relying on snow for successful winter hunting to tide them through this season. It is now known that a cool period, known as the Little Ice Age, existed from 1300 to 1800 which began to wane around 1600,[228] the time when the French first wrote about the Micmac. The slightly warmer winters that resulted could have contributed to Micmac winter food shortages. But for Europeans this willingness to go hungry was attributed to slothfulness, especially on the part of the men. As Jacques Cartier commented "The women labour more than the men, whether it be fishing, or at tilling or at something else." "Our Souriquois [Micmac men] are in no way laborious save in hunting," noted Lescarbot.[229] French missionary Pierre Biard also noted that: "If they are by themselves and where they may safely listen to their wives (for women are everywhere better managers), they will sometimes make storehouses for winter." [230]

Always, the contrast between the European agrarian-trader culture and native North American hunter-gatherer culture was one that fascinated both the French and the Micmac. Both sides had their specific points of view. The Micmac thought their way of life better as likewise many French thought European life superior, although this wasn't always the case.

LeClercq who lived as a missionary with the Micmac for six years wrote: "I admit frankly that [a Frenchmen living in the Indian manner] experiences very fully the vexations of this life, especially at first, when these are always trying. But one soon overcomes all repugnance towards it when one has such good and succulent meats as those of moose, of beaver, of seal, of porcupine, of partridge, of wild goose, of teal, of ducks, of snipes, of cod , of salmon, of bass, of trout, and of plenty of other fish and

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227 LeClercq 116

228 Erskine, Anthony.Altas of Breeding Birds of the Maritime Provinces. Halifax: Nova Scotia Museum Publication, 1992: 15

229 Lescarbot Vol.3: 195

230 Biard 1616:107. Citation in Gonzalez's Changing Economic Roles for Micmac Men and Women:17

waterfowl which serve as the usual food of the Indians. . ."[231]

The general abundance of foods that the land had to offer made Indian life more attractive to some Europeans since in agrarian Europe having such access to a wide range of meats was often the privilege of the wealthy. Agriculture-based society is, of course, a relative newcomer in humanity's long history. For all but the last few thousand years of the human race's two million years of existence, people have obtained their subsistence by a combination of gathering foodstuffs and hunting animals and in almost every case they lived in small, mobile groups as the Micmac did. It was without doubt the most successful and flexible way of life adopted by humans and one that caused the least damage to natural ecosystems and it existed for ninety-nine percent of human history.[232] The Roman poet Ovid, writing around 10 AD on the four ages of humanity, was the first European to speak of the golden age being the pre-agricultural way of living. And French visitors such as LeClercq, being informed by European thought, referred to the pre- and early-contact Micmac culture as that of 'the golden age' -- reflecting an earlier time throughout the world characterized by the absence of individual property and commerce that came with the development of settled societies:

> I consider these Indians incomparably more fortunate than ourselves...after all, their lives are not vexed by a thousand annoyances as are ours. They have not among them those situations or offices, whether in the judiciary or in war, which are sought among us with so much ambition. Possessing nothing of their own, they are consequently free from trickery and legal proceedings in connection with inheritances from their relatives. The names of sergeant, of attorney, of clerk, of judge, or president are unknown to them. All their ambition centres in surprising and killing quantities of beavers, moose, seals and other wild beasts in order to obtain their flesh for food and their skins for clothing. They live in very great harmony, never quarrelling and never beating one another except in drunkenness. On the contrary, they mutually aid one another in their needs with much charity and without self seeking.[233]

The liberty of the native Micmac way of life had great appeal to some Europeans and

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231 LeClercq 109

232 Ponting, Clive. A Green History of the World. London: Penguin, 1993:18

233 LeClercq 106,107

it was not uncommon for visitors to 'go native'. Addressing this, Pierre Anton Maillard, a French priest who worked among Cape Breton Micmac in the mid-1700s, wrote:

> What is most amazing is, that though the savage life has all the appearance of being far from eligible, considering the fatigues, the exposure to weather, the dearth of those articles which custom has made a kind of necessity of life to Europeans and many other inconveniences to be met with in their vagabond course; yet it has such charms for some of your native French, and even for some of those who have been delicately bred that, once they have betaken to it young there is hardly any reclaiming them from it, or inducing them to return to a more civilised life. They prefer roving in the woods . . . for their game which is their chief support and lying all night in a little temporary hut, patched up of a few branches, to all the commodiousness they might find in towns, or habitations among their own countrymen. By degrees they lose all relish for the European luxuries of life, and would not exchange for them the enjoyments of that liberty and faculty of wandering about, for which in the forests, they contract an invincible taste. They pretend that even this savage life itself is not without peculiar sweets and pleasures; that it is most adapted, and most natural to man. Liberty, they say, is nowhere more perfectly enjoyed, than where no subordination is known, but what is recommended by natural reason, the veneration of old age or the respect of personal merit.[234]

If living in an ecosystem the way the Micmac did, as semi-nomadic hunters and gatherers, provided great liberty, it also provided Europeans with a sense of freedom to take from the land's ecological abundance that which was needed for European markets. Since the mid-1500s European cod-fishing fleets had been coming in great numbers to the shores and banks of Newfoundland, Nova Scotia and New Brunswick. Most of the early written accounts of the Micmacs and the natural attributes of this land were written by French missionaries and explorers who lived here for a period of time in the 1600s and 1700s. But, by far, the greatest source of early contact with European culture that the Micmac would encounter, being largely a coastal people, were the annual fleets of cod-fishermen. It was a relationship imbued with tension and need. Both Indians and fishermen held each other in contempt seeing themselves superior to the other. Needs drew them together: the Micmac desire for European trade goods and the European need to exploit the ecological abundance of this

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[234] Maillard, Pierre Antoine Simon. An Account of the Customs and Manners of the Mikmakis and Maricheets, Savage Nations, Now Dependent on the Government of Cape Breton. London:S. Hooper & A. Marely, 1758:90

distant land. Just which group was 'poorer' was a matter of perspective. Revealing these underlying tensions, LeClercq recorded this conversation of a Micmac speaking to the captain of a cod-fishing ship in 1691:

> Thou reproachest us, very inappropriately, that our country is a little hell in contrast with France, which thou comparest to a terrestrial paradise, inasmuch as it yields thee, so thou sayest, every kind of provision in abundance. Thou sayest of us also that we are the most miserable and most unhappy of all men, living without religion, without manners, without honour, without social order, and, in a word, without any rules, like the beasts in our woods and our forests, lacking bread, wine, and a thousand other comforts which thou hast in superfluity in Europe. Well, my brother, if thou dost not yet know the real feelings which our Indians have towards thy country and towards all thy nations, it is proper that I inform thee at once. I beg thee now to believe that, miserable as we seem in thine eyes, we consider ourselves nevertheless much happier than thou in this, that we are very content with the little that we have; and believe also... that thou deceivest thyself greatly if thou thinkest to persuade us that thy country is better than ours. For if France, as thou sayest, is a little terrestrial paradise, art thou sensible to leave it? And why abandon wives, children, relatives and friends? Why risk thy life and thy property every year, and why venture thy self with such risk, in any season whatsoever, to the storms and tempests of the sea in order to come to a strange and barbarous country which thou considerest the poorest and least fortunate in the world? Besides, since we are wholly convinced of the contrary, we scarcely take the trouble to go to France, because we fear, with good reason, lest we find little satisfaction there, seeing, in our own experience, that those who are natives thereof leave it every year in order to enrich themselves on our shores. We believe further, that you are also incomparably poorer that we, and that you are only simple journeymen, valets, servants, and slaves, all masters and grand captains though you may appear, seeing that you glory in our old rags and in our miserable suits of beaver which can no longer be of use to us, and that you find among us, in the fishery for cod which you make in these parts, the wherewithal to comfort your misery and the poverty which oppresses you.[235]

Many Europeans could not comprehend that Indians could be content with the little that they had; that, in fact, Indians would view Europeans as being poorer than themselves with less liberty and more need of food -- otherwise why did they need to constantly fish in such distant waters. Moreover, the cod-fishermen's great interest in

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[235] LeClercq 103-105

obtaining fur and hides acquired by Micmac hunters could only indicate a European poverty in other material needs. From the Indian perspective ecological scarcity plagued Europeans. Although Europeans criticised Indians for their vagabond existence, to Micmac the Europeans were the true nomads travelling half way around the world to fish. But once exposed to the convenience of European goods -- kettles, guns, blankets, biscuits -- the Micmac too became needy and keen on maintaining trade with fishermen despite their contempt of them. By the latter half of the 1500s, the force of the European marketplace soon took hold of the land without any settlement taking place at all. It all began when cod-fishermen realized they could make a profit in Europe on the furs and skins obtained in trade from Indians. Starting as a lucrative spinoff of the fishing industry, the ensuing fur trade was a development that would change both Micmac culture and wildlife populations. It generated more discourse over the land -- one where creatures turned into commodities and 'nature as wealth' was represented by the thousands of skins and hides shipped back to Europe each year.

Chapter Four

WILDLIFE AS COMMODITY

> "We fell with the land near to Cape Briton, where we ran into a fresh-water river. . .and tooke in wood, water and ballast. . .Here the people of the countrey came unto us. . .and brought with them furres of sundry sorts to sell, besides great store of wild ducks. . .[with] some small beads [we] bought some of their ducks. . .Here we stayed not above foure houres, and so departed. This should seeme to be a very good countrey. And we saw very fine champion ground and woods."
>
> ------Henry May
> May 20th,1594[236]

When Jacques Cartier first encountered Micmacs in 1534, he noted how eager and joyous they were to trade skins for European knives and ironware. Forty to fifty Micmac canoes pursued Cartier's ship, held up furs offering to trade and relentlessly persisted for two days until it happened.[237] To the Micmac it may have been just another foreign ship sailing by, but to Cartier it indicated that this type of trade had been taking place for some time. Since Cartier, Champlain and other French explorers were relatively infrequent visitors on this coast, the early fur trade was largely conducted with European fishermen on their annual harvesting trips -- men who left very few written accounts of their encounters. Yet there is no doubt that dealings between Indians and fishermen had been taking place. Proof of this long-standing contact was demonstrated by the fact that much of the language the Micmac used to converse with early French explorers was in Basque[238] acquired through their regular dealings with Basque fishermen.

From the mid-16th century onwards this contact with fishermen accelerated when fishing techniques changed from wet-salting cod in saline solution on boats to dry-

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236 From Hakluyt, Richard. Diverse Voyages touching the Discouverie of America . Citation in Richard Brown's History of The Island of Cape Breton,1869: 53

237 Jacques Cartier's account in Lescarbot's History of New France.1608: Vol.11:45-46

238 Lescarbot, History of New France.1608: Vol.111 :125. Lescarbot noted that the Micmac spoke amongst themselves in their own language, but for for the sake of convenience spoke to the French in a more familiar language using Basque words.

salting cod on scaffolding built on land. It was a shift from fishing only on the banks to fishing inshore waters as well with stationary shoreline crews to dry the fish. This Euro-North Atlantic fishing economy was concentrated in Nova Scotia on the southern shore from Cape Sable to Canso and on Cape Breton's eastern shores. Canso functioned as the primary fishing port from the mid-1500s as later did Louisbourg. Seeing the effort that went into these fishing operations, the Micmacs were struck by the risks European fishermen undertook to catch a fish which was so abundant in their waters:

> . .we find all our riches and all our conveniences among ourselves, without trouble and without exposing our lives to the dangers in which you find yourselves constantly through your long voyages. And, whilst feeling compassion for you in the sweetness of our repose, we wonder at the anxieties and cares which you give yourselves night and day in order to load your ship. We see also that all your people live, as a rule, only upon cod which you catch among us. It is everlastingly nothing but cod -- cod in the morning, cod at midday, cod at evening and always cod, until things come to such a pass that if you wish some good morsels, it is at our expense; and you are obliged to have recourse to the Indians, whom you despise so much, and beg them to go a-hunting that you may be regaled. Now tell me this one little thing, if thou hast any sense: Which of these two is the wisest and happiest -- he who labours without ceasing and only obtains, and that with great trouble, enough to live on, or he who rests in comfort and finds all that he needs in the pleasure of hunting and fishing?[239]

The relationship between the Micmac and cod fishermen was precarious much of the time as this statement would suggest. But the goods exchanged between both parties served to maintain cooperation and contact. It was an association that brought about a dramatic ecological change for the Micmac as the diseases of Europe collided with Indian populations that had no immunity to them. Living as hunter-gatherers the

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239 Micmac elder of the Merimichi band, speaking to a group of Frenchmen, with Chrestien LeClercq interpreting. In New Relations of Gaspesia, by Chrestien Le Clercq. 1691: 105

Micmac had a much lower exposure to germs than visiting Europeans, with tougher immune systems developed from living in densely populated, agricultural lands rife with disease-causing microbes.

Old World agriculture, through the centuries, had brought all manner of viruses, fungi and bacteria together when humans began to break up the soil for cultivation and tame herds of cattle, goats and other animals. With the cow came tuberculosis and diphtheria. Rhinoviruses (the common cold) probably came from horses. Anthrax from the soil. Measles from dogs. Cholera, dysentery, and smallpox too were generated from old world pollution, agriculture developments and cities.[240] It was a deadly list for aboriginals first coming into contact with Europeans. Devastation to southern Indian tribes living in dense populations was quick and dramatic killing off 80 to 90% of their population swiftly. For northern Indians like the Micmac, whose low populations lived more sparsely over a large land area, it appears that the devastation was less quick with the effects of diseases spread over a longer period of time.

By 1611 Micmac numbers had already been substantially reduced. At this time the French missionary Biard would write that Micmac chiefs often complained to the French on this account. In one such communication Membertou is quoted as having assured the French that:

> In his youth he had seen chimonutz, that is to say savages as thickly planted there as the hairs upon his head. It is maintained that they have thus diminished since the French have begun to frequent this country.[241]

The overall effects of disease introduced by European contact were diverse, extending to all aspects of Micmac life, and as Biard indicated it worried the tribe:

> They are astonished and often complain that since the French mingle with and carry on trade with them, they are fast dying, and the population is thinning out. For they assert that, before this association and intercourse all their countries were populous, and they tell how one by one the different coasts, according as they have begun to traffic with us, have

[240] Nikiforuk, Andrew. The Fourth Horseman: A Short History of Epidemics, Famine and Other Scourges. Toronto: Penquin Books,1992: 8-9

[241] Biard, 1611b; Jesuit Relations, Vol.1:177 See Bernard Hoffman's PHD Thesis "Historical Ethnology of the Micmac of the 16th and 17th Centuries." 1958 (PANS Microfilm H713: 227-228)

> been more reduced by disease;. . . They. . . sometimes think that the French poison. . .others complain that the merchandise is often counterfeited and adulterated, and that peas, beans, prunes, bread and other things that are spoiled are sold to them; and that it is that which corrupts the body and gives rise to the dysentery and other diseases which always attack them in autumn. This theory likewise is not offered without citing instances, for which they have often been upon the point of breaking with us and making war upon us. . .[242]

Anthropologist Bernard Hoffman argues that -- from our knowledge of the Micmac and the effects of European disease on New World aboriginals -- we may suspect that the Micmac population underwent drastic reduction between about 1520 and 1600 before many of the French explorers and missionaries arrived. It was believed that a precontact population of 6,000 Micmacs was reduced to 3000 by 1611.[243] Today, it is thought that precontact populations were much larger than that -- more like 25,000 or possibly as high as 150,000.[244] Whatever the case, the decline of the Micmac continued. In 1612, Biard would write that during that year alone sixty Micmac died at Cape de la Have, which was the greater part of those who lived there[245] -- a story that was repeated many times as European diseases ravaged Micmac villages over the centuries. In 1746 a French epidemic near Halifax, then a fishing port, resulted in the spread of the disease to Micmac who traditionally set up camp in the shelter of Birch Cove. The memory of this tragic encounter with European disease is revealed in this Micmac story:

> Al-e-soo-a-way-ga-deek, which means 'At the place of measles', is the Micmac Indian name for the place near the old tannery, Fairview, where the Indians who were camped there took 'measles' (or some fatal disease) from the French; and then the Indians died like flies...[246]

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242 Biard, 1616. Jesuit Relations., Vol.3:105-107

243 Hoffman, Bernard. "Historical Ethnography of the Micmac in the Sixteenth and Seventeenth Centuries." Ph.D. thesis, University of California, Berkely. (PANS Microfilm H713: 227-232)

244 25,000 is the figure estimated by historical geographer Andrew Hill Clark author of Acadia: The Geography of Early Nova Scotia to 1760, and Micmac historian Daniel Paul gives a figure of 100,000 in his book We Are Not the Savages :39,40. Also see Harold McGee's "The Micmac Indians: The Earliest Migrants" in the book Banked Fires:18

245 Biard, Pierre. In Jesuit Relations and Allied Documents. Vol1:77

246 Harry Piers related the story as passed down through several Micmac generations. Excerpted in Ruth Whitehead's The Old Man Told Us :107

Not only did the slow attrition of the Indian population result in new Micmac place names to memorialise the devastation of disease, it also resulted in an appreciation for Micmac placenames by colonists who considered them stark but exotic reminders of a race on the verge of extinction. Marking the demise of the Micmac and their legacy of place names, the following poem was anonymously written:

The Indian Names of Acadia

The memory of the Red Man
How can it pass away
While their names of music linger
On each mount, stream and bay?
While *Musquodoboit's* waters
Roll sparkling to the main;
While falls the laughing sunbeam
On *Chegogin's* fields of grain.

While floats our country's banner
O'er *Chebucto's* glorious waves;
And the frowning cliffs of *Scatarie*
The trembling surges brave;
While breezy *Aspotogon*
Lifts high its summit blue,
And sparkles on its winding way
The gentle *Sissibou.*

While *Escasoni's* fountains
Pour down their crystal tide;
While *Inganish's* mountains
Lift high their forms of pride;
Or while on *Mabou's* river
The boatmen plies his oar,
Or the billows burst in thunder
On *Chickaben's* rock-girt shore.

The memory of the Red Man,
It lingers like a spell
On many a storm-swept headland,
On many a leafy dell;
Where *Tusket's* thousands islets
Like emeralds stud the deep;
Where *Blomidon*, a sentry grim,
His endless watch doth keep.

It dwells round *Catalone's* blue lake,
Mid leafy forests hid--
Round fair *Descousse*, and the rushing tides
of the turbid *Pisiquid*,
And it lends, *Chebogue*, a touching grace,

To they softly flowing river,
As we sadly think of the gentle race
That has passed away forever. [247]

The poem was, of course, premature in writing of the extinction of the Micmac. But it was part of a general climate of 19th century thought that felt the Micmac were close to vanishing from the face of the earth. As Thomas Haliburton wrote in 1829: "The tribe of Cape Breton Micmacs is dwindled, as already observed, to the number of about three hundred; thus following the invariable law, which the ancient inhabitants of the new world seem doomed to obey, wherever Europeans have fixed their ominous residence."[248] "Devastation caused by smallpox was so great," wrote Hollingsworth, "as to impress [Indian] minds with an idea of its being the worst evil that can befall mankind having reduced their populations which had once been numerous and even esteemed powerful."[249] Martin Montgomery writing in 1837 expanded on this: "The wars between the rival contenders for the possession of Nova Scotia, the introduction of the small pox, and above all (strange to say) the maddening use of spirituous liquors, have swept off nearly every Indian from the face of the country where he was once master, but few (not one thousand) of the Micmac still exist...and within a few more years the remnant of this extraordinary specimen of the human race will have entirely passed away."[250] To colonists and visiting Europeans, the die was cast -- the miserable state of the Micmac in the 19th century could only point to the fact that they would probably not exist in the 20th century.

There were many causes for the decimation of the Micmac tribe but disease, altered ecology, and changes in traditional subsistence patterns were at the top of the list. These developments took off when the fur trade took hold by the end of the 1500s. It was not solely the increased contact between the fishermen and the Micmac that resulted in the fur trade. In the late 16th century beaver hats became extremely fashionable in Europe which resulted in a rigorous demand for pelts.

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247 Anonymous, "The Indian Names of Acadia." Fergusson, B. ed. Uniacke's Sketches of Cape Breton [1865] and Other Papers Relating to Cape Breton Island Halifax: Public Archives of Nova Scotia Publication, 1958:116

248 Haliburton 250

249 Hollingsworth 73-74

250 Montgomery 19-20

Throughout the European Middle Ages, furs were status symbols worn almost exclusively by men of the nobility, sometimes as badges of office -- ermine for judges and kings, sabie for great lords --and in some instances their use was regulated by law. Commoners might not wear them at all, nobles might wear only furs prescribed for their various ranks. Most furs were rare and expensive. They came from Russia and Poland, Scandinavia and the forests of Germany. The demand was small. The only fur in common use was beaver (a shorter haired, smaller animal from Russia) made into felt for the hat trade. Hatters on the continent were using fur felt by 1465. Its first known use in England was in 1510, but by 1528 the word "beaver" was already a synonym for a hat, and beaver fur was also being used in London to make felt for boots. Since beaver was in some demand, the fishermen of the sixteenth century were mildly interested when they discovered the Indians would exchange pelts for cheap cloth and cheaper hardware. However by the end of the 1500s the popularity of the beaver hat had so rapidly increased that fishermen and entrepreneurs alike were keen to profit from the trade. Lynx, fox, otter, marten and muskrat were added gradually as the market for these dressed furs rose with the rise of the middle class, and trades and businessmen began copying the fashion of the nobility. [251]

Excitement over the availability of pelts in the New World continued for the next century. The earliest records of French ships dispatched to the St. Lawrence to get furs date to 1581 and during this period Prince Edward Island experienced as many as two hundred ships per year.[252] Basque accounts tallied 6,000 skins from Port Royal alone in 1606.[253] Despite monopolies set up, the trade continued to be a free-for-all with many parties involved. The French condemned the practise of some fishermen who went so far as to rob Micmac graves where as many as 2000 pounds of fur pelts were placed for the dead Indian's afterlife.[254] Fear of war and jeopardising trade prevented the French from stooping this low. Father Bertrand, writing on Acadia in 1610, gives a sense of the gold rush mentality that ensued over furs:

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[251] Horwood, Harold. The Colonial Dream. 1978: 59

[252] Hoffman, Bernard 1955b:40. Citation in Gonzalez's Changing Economic Roles For Micmac Men and Women:12

[253] Lescarbot 310

[254] Lescarbot V.2:352. Also Denys 439

> As to the country, I have never seen anything so beautiful, better, or more fertile; and I can say to you, truly and honestly, that if I had three or four labourers with me now, and the means of supporting them for one year, and some wheat to sow in the ground tilled by their labour alone, I should expect to have a yearly trade in Beaver and other skins amounting to seven or eight thousand livres, with the surplus which would remain to me after their support. . .I assure you it is delightful to engage in trade over here and to make such handsome profits.[255]

Once the word was out on the money to be made, fur-trading posts were fast to follow making the lively trade, that had already been taking place, even brisker. Port Royal was originally colonised as a centre for fur trading. The Company of New France was established in 1627 with the intention of assuring crown revenues from the fur trade. The main fur trading posts in the mid-17th century were located on the St. John River (New Brunswick), the Maine costs, Cape Sable, Port Royal, Port Rossignol (Liverpool) La Have, and St. Peters in Cape Breton. Furs were exchanged between the Micmac and fur traders at these posts; trade between the Indians and the Acadian settlers also occurred later. These furs would then be exported to New England or to France in exchange for manufactured goods. When the British controlled Nova Scotia, furs were shipped, sometimes clandestinely, to Cape Breton and then exported to France. The English attempted to regulate and control the fur trade by operating truckhouses or trading posts in 1760 at Pisiquid, Lunenburg, Chignecto and Annapolis. Beaver, otter, marten, fisher, mink, bear, muskrat, moose, deer, ermine and red, black and silver fox were sent in the first year to these truckhouses in exchange for European goods.[256]

Soon wildlife felt the effect of the fur trade. Areas that were important in the fishing industry, such as Prince Edward island, the Gaspe Peninsula, and Cape Breton Island, were cleaned out of moose and other furbearers by the mid-1600s. Denys observed that game was less abundant in his time than formerly; Cape Breton had been particularly esteemed for the hunting of moose. "They were found formerly in great numbers," wrote Denys, " but at present there are no more. The Indians have

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255 Bertrand, Father. A letter missive in regard to the conversion and baptism of the grand sagamore of New France...in Jesuit Relations and Allied Documents. Vol.11. 1610. Reprinted 1959. Citation in Gonzalez's Changing Economic Roles For Micmac Men and Women. 1981:13

256 Gonzalez 30

destroyed everything, and abandoned the island, finding there no longer the wherewithal for living. It is not that the chase of small game is not good and abundant there, but this does not suffice for their support." As for the beaver, "few in a house are saved; they [the Micmac] would take all. The disposition of the Indians is not to spare the little ones any more than the big ones. They killed all of each kind of animal that there was when they could capture it." [257]

Micmac animal relations were drastically changed by the introduction of the fur trade as were their traditional subsistence patterns. Formerly as Denys noted "hunting by the Indians in old times was easier for them. They killed only in proportion as they had need of them. When they tired of eating one sort, they killed some of another. If they did not wish longer to eat meat, they caught some fish. They never made an accumulation of skins of Moose, Beaver, Otter, or others, but only so far as they needed them for personal use."[258]

Traditional Micmac ecological relations with their environment were backed by an elaborate system of beliefs. Beaver, for example, were greatly admired by the Micmac for their industry and "abounding genius"; for them, beaver had "sense" and formed a "separate nation". Hence there were various regulations associated with the disposal of their remains; trapped beaver were drawn and made into soup, extreme care being taken to prevent the soup from spilling into the fire; beaver bones were carefully preserved, never being given to the dogs -- lest they lose their sense of smell for the animal -- or thrown into rivers -- "because the Indians fear lest the spirit of the bones. . would promptly carry the news to the other beavers, which would desert the country in order to escape misfortune." Taboos similarly governed the disposal of the remains of the moose. The bones of a moose fawn (and of the marten) were never given to the dogs nor were they burned, "for they [the Micmac] would not be able any longer to capture any of these animals...." Dependent on hunting animals, the Micmac believed these taboos served to appease animal populations. They signified a cautious reverence for a conscious fellow-member of the same ecosystem, who, in the view of

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257 Denys 187, 432,450

258 Denys 426

the Indian, allowed itself to be taken for food and clothing.[259] If taboos weren't practised it was thought animals would be scared, offended and flee, thereby jeopardising future Micmac hunting.

Shamans, having the role of medicine men and sorcerers, ensured that hunting taboos were properly respected. With the onset of European diseases in the 16th century, however, the considerable power of shamans diminished since they had no herbs or other remedies which could counteract the devastation of death caused from typhoid, measles and smallpox. Historian Calvin Martin argues that the resulting weakening of the shaman's powers laid the way for traditional Micmac spiritual beliefs to unravel. The former reverential regard (taboos) for the careful hunting of animals was altered and replaced with a disregard for ecological over-exploitation. As Martin states: "within his ecosystem the Indian changed from conservator to exploiter." This was justified, Martin asserts, because Indians believed that game animals, rather than Europeans, had brought the epidemics upon them -- thus they rationalised their slaughter of animals. Deteriorating relations between Micmacs and wildlife was reflected by their assertion that they "would cease to make war upon these animals if these would speak, howsoever little, in order that they might learn whether the Beavers are among their friends or their enemies."[260]

There is not a lot of support for this theory. By focusing solely on spiritual changes caused by disease as the primary reason Indians so willingly over hunted the game on which their subsistence depended is to overlook the power of material needs on cultures and the appeal of convenience goods. As Denys noted: " The use of things which come from us has become for them an indispensable necessity. They have abandoned all their own utensils, whether because of the trouble they had as well to make as to use them, or because of the facility of obtaining from us, in exchange for skins which cost them almost nothing, the things which seemed to them invaluable, not so much for their novelty as for the convenience they derived therefrom." [261]

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259 Martin,Calvin. "The European Impact on the Culture of a Northeastern Algonquin Tribe: An Ecological Interpretation." William and Mary Quarterly, 1974:13 . Primary Source: LeClercq 225-228

260 LeClercq 276-277

261 Denys 440-1

Above all the kettle was considered the most valuable article of trade. "..[it] is much more portable than those which they had in former times, when they were obliged to go camp near their grotesque [wooden] kettles in place of which they are free to go camp where they wish," wrote Denys, adding that "One could say that in those times the immovable kettles [hollowed out logs] were the chief regulators of their lives."[262]

With the introduction of portable kettles the Micmac could cover more territory in their hunting pursuits. And if hunting for the fur-trade diminished wildlife, those animals remaining could be more easily killed with the use of muskets which were used more than all other weapons. As Denys noted: "With an arrow they killed only one Wild Goose; but with the shot of a gun they kill [several] of them. With the arrow it was necessary to approach an animal closely; with the gun they kill the animal from a distance with a bullet or two." The use of guns also changed the type of wildlife killed. As it took the same amount of shot to kill a bird as a moose, Indians avoided killing smaller game as "it cost too much in powder and ball" and concentrated instead on larger game to support them and their families.[263]

The overall effect was a definite change in subsistence patterns. The Micmac's early contact with fishermen meant that trade was sporadic, and therefore didn't interfere much with subsistence activities. This changed with the establishment of fur trading posts. In the steady trade that followed, Europeans offered Indians a supply of goods that they would find desirable -- food, tools, guns, kettles and liquor. Fabric was also desired as hides diverted to the fur trade meant clothing replacements were needed. Increasing the dependence upon the fur trade and European trade goods served as an alternative to the traditional aboriginal subsistence cycle of gathering and storing. Thus long-standing patterns of ecological sustenance changed.

Formerly, hunting played a significant but not a major part in the food procurement activities. To amass furs for European goods this shifted. Micmac now expended their maximum effort on hunting; to do so meant spending less time on the coast living off the produce of the sea and more time inland, particularly in winter tracking down

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262 Denys 443

263 Denys 187

animals when their fur was the thickest and most luxuriant. By the 18th century the Micmac were described as being "addicted to hunting."[264] As Diereville noted: "Their chief occupation is the chase; they must engage in it or die".[265] This was the result of the fur trade. Previously Micmacs spent most of their time in coastal villages, since fish were present even in December, dried provisions (meat, fish and nuts) were stored nearby, and hunting could be done solely when the weather was favourable or for briefs period in the fall and winter when little else was available.

Certainly the use of more efficient technology -- guns and kettles -- helped turn around Indian ecological relations with their environment. But it was the lure of trade with the European economy that changed Indian views of animals from one of fellow ecosystem member to one of commodity. Wildlife had become a form of currency. And Europeans, bringing both trade and disease, ultimately influenced the onset of complicated shifts in Indian ecological circumstances.

A reduced population, caused by disease, ecological change and drinking bouts, brought about social disruption among natives, upsetting the networks of kinship and authority that had previously organized Indian lives. Renegade leaders were more likely to gain control, as the best leaders died off and tribe members were frightened and traumatised by epidemics. Key cycles in subsistence patterns were missed, by both disease and alcohol use, paving the way for future hunger. Since exposure to disease weakened health, Micmacs were less able to successfully endure periodic winter fasts when no food was available, thereby increasing death from hunger. Likewise, depletion of wildlife from intensive hunting for furs made it harder to find and kill animals during the worst times of winter food deprivation. These developments, as well as a warming climate, most likely accounted for the constant reference the French made to winter starvation. They stand in stark contrast to Micmac accounts of earlier times: "Never think our hunting was as arduous as it is today. All we needed to do in those times was to leave our wigwam..and at a very short distance from our village we would find all we needed." [266]

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[264] Maillard 80

[265] Dierdeville 127

[266] Micmac Shaman-Chief Arguimauat, interviewed by Abbe Maillard circa 1740. Excerpted in Ruth Whitehead's The Old Man Told Me:11

Disease and poor hunting also undermined spiritual and religious practises. This was amplified by the fact that Europeans successfully persuaded Micmacs that many of their spiritual practices were ridiculously superstitious -- particularly their offerings to the dead and belief that all objects were alive (in terms of being animate with a life force) as long as they were useful, including canoes and kettles. Suspension of some traditional beliefs happened as much through a spirit of self interest as for any other reason wrote Denys, since previously Micmac offerings to their dead cost them dearly as they had included their most beautiful and rarest objects in graves."[267] Although the French pushed Christianity and many Indians embraced Catholicism, not all natives wholeheartedly accepted it, particularly when it didn't counteract disease. Nevertheless, Micmacs -- although they considered themselves superior to Europeans in many ways -- felt Europeans had a stronger god force (or "Manitou") behind them evidenced by their greater technologies and more sophisticated goods.[268] Before contact, everything that they needed was supplied by their environment. Nature had provided for all, but with European acquaintance this belief weakened. As Denys noted: "Since they have realized the guns and other things were not found in their woods or in their rivers, they have become less devout."[269] Still, they were very clever at making the stocks of guns as well as it could be done in France as they were industrious in all that they undertook commented LeClercq.[270] But entering the iron and bronze age came with the commerce in European goods and the dilution of traditional spiritual practises.

Of course it was the great hunting skills of the Micmac that made the fur trade possible. Although Indian men were generally characterized as indolent -- "laborious in no way save for hunting"[271] -- it was these talents in the chase that were the engine behind the traffic in animal hides. Unfamiliar with Indian technology and the difficulties of hunting in this terrain, Europeans at first underestimated the efforts required by Micmac men to achieve a successful chase. This lesson was sometimes learned the

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267 Denys 440-442
268 Martin, Calvin. 22
269 Denys 442
270 LeClercq 250
271 Lescarbot194

hard way. In 1708 Parisian writer, Diereville, after accompanying Micmac in the forest on a three day moose hunt vowed never again to undertake such a gruelling task.[272] Pursuing an animal in the bush that runs faster than a horse was a fatiguing endeavour. Hunting also diverted Indian women from their regular tasks as they were responsible for skinning game and preparing hides.Time spent on this activity reduced time spent gathering food including the drying and storing of foods to be used in winter. Efforts involved in the stockpiling of furs were considerable.

To wipe out beaver populations from over hunting took enormous work as hunting them was not an easy task. Various techniques were used. LeCiercq describes the process:

> In spring and summer [beavers] are taken in traps; when one of these is sprung a large piece of wood falls across their backs and kills them. But there is nothing so interesting as the hunting in winter, which is, nevertheless, very wearisome and laborious. For the following is necessary; one must break the ice in more than fifty places; must cut the dams; must shatter the houses; and must cause the waters to run off, in order to see and more easily discover the beavers . These animals make sport of the hunter, scorn him, and very often escape his pursuit by slipping from their pond through a secret outlet, which they have the instinct to leave in their dam in communication with another neighbouring pond.[273]

Destruction of beaver populations also had considerable ecological effects. Built on streams and rivers, beaver dams created ponds so considerable that they often flooded a large extent of country. Denys attributed most big ponds and many lakes found in New France to the work of the beaver [274]. Obstructed rivers often halted Indians while canoeing. But by cutting dams and smashing beaver houses as part of the hunt , Indians indirectly created wild meadows. Almost all the wild meadows of the country were created this way and were often written about in 18th and 19th century accounts of Nova Scotia:

> Wild meadows are a frequent occurrence in the backwoods and from which the settler draws plentiful supplies for feeding his stock. Whenever a brook trickled through a valley, the beaver would bar its course by its

[272] Diereville 129

[273] LeClercq 279-80

[274] Denys 363

> strong compact dam, thus securing sufficient backwater to form a pond, on the edge of which to build its dome-shaped house. Large spaces in the woods thus became inundated, the drowned trees fell and decayed, and freshlets brought accessions of soil from the hills. At length the pond filled up, and the colony migrated, or were exterminated. The water drained through the unrepaired dam; and on the fine alluvial soil exposed, sprang up those rich waving fields of wild grass, monuments to the former industry of the beaver....[275]

Since not all dams were broken to kill beavers the legacy of the fur trade resulted in many abandoned beaver houses in addition to innumerable wild meadows. These vacant lodges served as concrete reminders of their former abundance after the beaver had long since been exterminated. Their presence explains the origins of many place names --- Beaverbank, Beaver Harbour, Beaver Lakes, Beaver Rivers --- created at a time when many 18th and 19th colonists named sites by the presence of abandoned beaver houses at a time when beaver were scarce.

Titus Smith, in his 1802 provincial survey of Nova Scotia, wrote: "The beaver are almost all destroyed, although there is perhaps no country where they have been more numerous heretofore than in the barren part of this Province, as appears from the remains of their old houses, canals etc. which are to be found upon almost every one of the innumerable lakes in the Rocky part of the Province. I have not seen more than half a dozen inhabited Beaver houses in the whole course of my tour."[276]

This was the legacy of the European rage for beaver felt hats. Dependent on the fur trade, the Micmacs' weakest economic links were diminishing wildlife populations and the fluctuating worth and popularity of fur. By the 1672, Denys wrote beaver was no longer as fashionable, most fur were not as abundant as formerly and their "skins were not worth so much as they had been".[277] As the French observed the Micmac now had to go further to seek them.[278] By the mid-1700s the active fur trade permanently declined in the Maritimes. Beaver, which had previously been the most prized fur, lost its market command. Moose hides replaced beaver as the most lucrative fur

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[275] Campbell, Hardy. Forest Life in Acadie:165

[276] Titus, Smith. "A Natural Resources Survey of Nova Scotia." 1801-1802: 39.

[277] Denys 450

[278] LeClercq 316

commodity valued for its leather. But the end was in sight by 1762 when furs had become much scarcer and English fur trading posts began to lose money.[279] The trade in skins, particularly moose, would continue into the 19th century, but it would be a much smaller activity than formerly.

However it was not just the Micmac pursuit of furs that was responsible for the decline in wildlife. English colonization in the the 1700s had a major impact. With the influx of immigrants fleeing the American Revolution, the demand on wildlife escalated -- both for meat and furs. Though the fur trade had significantly declined, pelts were still used as a currency of exchange in colonial shops. With 40,000 settlers in the province by 1800, traplines were set everywhere.[280]

This development was wholly unacceptable to the Micmac and it precipitated a further change in their relations with wildlife. Previous to the fur trade the Micmac had killed animals only as was necessary for their own needs. This changed with the onset of the fur trade and the concept of animals as commodity. As a result, the division of Indian lands became more exacting with the development of strict property rights concerning fur bearers. Since hunting grounds were such an important source of wealth to Micmac families, their exploitation had to be protected. It wasn't so much a form of conservation (since obviously it didn't work with the beaver) as it was a protection of a Micmac sense of property -- although it may have acted to preserve wildlife for a longer period of time. However, with the arrival of colonists the Indian system of respecting hunting territories no longer worked. Titus Smith recounts:

> ...the Indians had divided all the Hunting grounds among their families, they did not kill more moose than was necessary to supply themselves with provisions as they considered them as their own property. An Indian travelling through the Hunting ground of another might kill any game he met with, if he was in want of provisions, but he usually informed the proprietor of what he had done and offered him the skin, which the proprietor usually refused of this acknowledgement of his right. If an Indian found a trap set on his land he put a stone in it and sprung it, and if he found any Indian (not travelling) who were camped upon his land, without his permission, he took away all the undried skins he found in

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279 Gonzalez 31-32

280 Robertson, Marion. King's Bounty, A History of Early Shelbourne, 1978: 213

> their camp whilst they said not a word to oppose his right. Upon the great influx of inhabitants into the Province after the American War many new settlements being formed and great numbers of moose killed by white hunters, the Indians in general seem to have resolved to destroy the game rather than share them with the whites; In many places they killed ten times as many as they could make use of, and in the course of three or four winters almost entirely destroyed the Moose and greatly diminished the Caribou.[281]

If the destruction of wildlife by Indians was bad during this period, the slaughter caused by colonists was worse. This Micmac act of retaliation gives a sense of the outrage Indians felt about 'sharing' their lands and losing most of their livelihood to the English. They were far outnumbered by the surge of new colonists by 1780. Accustomed to roaming at will over an extensive country to live off on the products of the chase, they now faced the certainty of constrained movement inflicted by the property rights of colonists. Their old allies the Acadians had by then been deported. It had been a more harmonious relationship. Dyking marshlands to create farmland, the Acadians had not greatly infringed on Micmac hunting territories nor did they destroy forests as the English did to settle the land. Furthermore the French government, unlike that of the English, never ceased courting Micmac allegiance regularly supplying provisions and gifts as political acknowledgement of their interests in this land. French missionaries had lived among the Micmac for well over a century instilling an Indian attachment to Catholicism (without entirely dismantling traditional Micmac spiritual beliefs) and a dislike of their English enemies. The French government also encouraged intermarriage between Micmac and Acadians giving small pensions to Acadians marrying Indians. This, though never had the expected effect of making the Micmac one people with the French. As Titus Smith relates: "The Frenchmen who married Indian women brought up their children to the same employment that they followed themselves; but the French women who married Indian men were obliged to become squaws, nor did the mixture of French blood seem to affect any change in the manners of their children, who possessed the same gravity and reserve as the other Indians."[282]

When the English regained political control over Nova Scotia in 1713, the Micmac

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281 Titus, Smith. "A Natural Resources Survey of Nova Scotia." 1801-2:40

282 Ibid

were more than willing to fight to defend French as well as their own interests. During the mid-1700s Indian guerrilla attacks terrorised English colonists. This Micmac strategy of sabotage, encouraged by French missionaries in Cape Breton hoping for the restoration of French power, ceased by 1761 following the defeat of Louisbourg and the banishment of the French from these lands. But in the end both the Micmac and the French suffered great losses -- the French forfeiting a colonial empire, the Micmac displaced by the arrival of land-hungry colonists. Never though, were the Micmac passive victims of history, except in the ravages caused by European disease. As an autonomous people, they had made choices and developed strategies to best accommodate European intruders and adjust to the challenges and opportunities they posed.[283] Thus the fur trade was made possible and the ecological aftermath that ensued as animals became commodities. 'Nature as wealth' had developed into a highly exploitative way of interacting with the land. Game animals, which had been much more numerous before 1780, rapidly declined in numbers with the arrival of colonists, who like the Indians went on reckless killing sprees. But by then, the biggest stress on wildlife was the widespread ecological changes that came with English colonization. The transformations taking place in the land generated a new round of discourse over Nova Scotia's natural history -- one in which the needs of agriculture dominated.

283 Patterson, Stephen. "Indian-White Relations in Nova Scotia, 1749-61: A Study in Political Interaction." Acadiensis Vol.23#1, Autumn 1993:23

Chapter Five

TAMING THE LAND WITH FIELDS AND FARMS

> "Who are the most independent men? Who are they that live most comfortably and enjoy the highest degrees of civilization? They are the farmers...."
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> ---Abraharn Gesner, 1849
> *The Industrial Resources of Nova Scotia* [284]

Agriculture offered Europeans a means of subsistence on the land and its importance was viewed as paramount to the viability of colonies and the sustenance of commerce and culture. However to be able to earn your living this way meant gaining access to the best possible soils. In Nova Scotia the Acadians had occupied the prime agricultural lands adjacent to the Bay of Fundy, dyking the extensive tracts of marshes growing along tidal rivers. It was an ingenious way of avoiding the sweat involved in clearing forests and in the process dyking created some of the most fertile farming areas in the province. Fertility was the measure with which all lands were valued by Europeans set on reproducing their way of life. In this regard, Nova Scotia had an image problem since there was a widespread belief that the province's soil and climate was unsuitable for cultivation. Ideas about Nova Scotia were reflected in a prevailing 'nature as poverty' perception of this land. As Joseph Outram maintained in *Nova Scotia, Its Conditions and Resources* the province had been stigmatized by "superficial observers" who looked at the rocky coast and never visited the interior "where there are large tracts of very superior soil, some of which cannot be surpassed by any country that I have seen."[285] By the time of Outram's writing though, all of this fertile land was already taken.

The pressure to find good land came with the arrival of the loyalists in the 1780s and continued with the settlers that followed. 'Nature as habitat' became the dominant

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[284] Gesner, Abraham. The Industrial Resources of Nova Scotia. 1849: 215

[285] Outram, Joseph. Nova Scotia, Its Conditions and Resources. Edinburgh and London: Blackwood & Sons, 1850. Citation in MacIntosh's When The Work's All Done This Fall: 30

response to the country as the newcomers staked out sites that would be most promising for cultivation. Most of the fertile dykelands of the deported Acadians had been taken by New England Planters coming in the 1760s. What was left were the alluvial banks of river valleys and bays -- good lands which were frequented by Micmacs to exploit their wealth of littoral resources. This created ecological conflicts of interest. The indented coastline and numerous rivers of the province ensured that white settlement intruded almost simultaneously into every part of the land, and meant that the Indian, in moving from forest to river to coast in their seasonal subsistence patterns, inevitably encountered the newcomers. Since Nova Scotia was small, there was nowhere the Indians could maintain even a semblance of the old life (as in Canada or New Brunswick) in ignorance of the whites. These changes had become apparent to all by 1783.[286]

Among settlers themselves there was strong competition for this land. Naturally occurring meadowlands along brooks, creeks and rivers were the gifts of spring overflow -- 'cleared by nature and ready for use'. Known as intervale lands, they were free of dense forests and featured native grasses growing several feet tall that provided grazing and hay. If a reason could be found to dislodge earlier settlers, Loyalists endeavoured to take their meadowlands from them. Such was the desire for this land.[287] Likewise the 'couch' or 'cord grass' (Spartinas) of salt marshes were also valued for the same reasons. In this scheme of ecological preferences, river estuaries, sheltered bays, and river valleys provided the sites of towns and farms, with adjacent woodlands for exploitation; nearby meadowlands or salt marshes for grazing and hay; rivers and streams as sights for sawmills, grist mills or fishing weirs; and coastal access for the fisheries, transport and communication with other areas.

As Abraham Gesner put it: "Between the parallel belts of wilderness, the valleys and the river mouths contain the best agricultural settlements and the finest villages of the province."[288]

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286 Upton, L.F.S. "Indian Policy in Colonial Nova Scotia 1783-1871." Acadiensis Reader V.1:91

287 Robertson 215

288 Gesner 66

Land grants were cheap or free. In the mid-1700s Britain sought to stimulate peopling the land with free grants to discharged soldiers -- 50 acres to privates, 80 to non-commissioned officers, 200 to ensigns, 300 to lieutenants, 400 for captains and 600 above captain. Many never took up their grants and became absentee owners of huge tracts of land. Of those who came, most knew nothing about how to survive in the wilderness that was Nova Scotia and did not prosper. This would be the task taken up by colonists which followed with some thriving and others living in extreme poverty.

In general 100 acres was considered sufficient to settle. It took an industrious settler 8 or 9 years to clear 50 acres. More commonly less than 25 acres was cleared for cultivation, 50 acres for pasturage and 25 acres left as woodland, although many colonists had much more than 100 acres. In 1838, costs of lands in a 'wild state' varied from 2 to 10 shillings per acre -- or in today's Canadian currency approximately $.48 to $4.80 an acre. It became an object of much speculation. From 1780 to 1820 land had doubled in price[289] and was treated like a commodity.

"People have false ideas and think land is worth more than it actually is," wrote Titus Smith. "Around 1800 when a new road was opened, or proposed to be opened through a good tract of land, a host of speculators applied for lots, often in such haste that they should lose the best land by waiting to explore it, they took it up as quickly as possible and often afterwards found that their lots were of no value. These speculations were not confined to the rich; business was brisk and money plenty and many tradesmen and others, who had no intentions of settling on farms, procured lots which they expected would rise in value. When permission was given again to grant lands, it seems to have been conceived that lowering the price of the grants would tend to a rapid increase in settling the wild lands. Permission was given to put several lots into one grant and a hundred acres could be procured for three pounds ($6.00) but the greater part of these cheap lands were taken up by those who had no intention of settling them and in many cases passed from the hand of the grantees to those of their creditors..[who held on to them waiting to get the highest price]."[290] With speculators 'sitting on' large tracks of land grants capable of cultivation, concern grew

289 Smith, Titus. Minutes of Evidence, Commission of Enquiry for Crown Lands and Emigration. March 5, 1834: 18-19

290 Smith, Titus.Crown Lands. Nova Scotian March 21, 1839

over the development of the colony being held in check.

Still land was cheap. And if people couldn't afford to pay they just squatted. Much of Cape Breton was settled by squatters on crown lands or land held by absentee landowners. Some squatters were evicted after they had cleared the land. Others were able to later pay for it or otherwise obtain rightful claim through the Squatters Act of 1859. Certain settlers, particularly some of the New England Planters, didn't value the free land they had received nor did they exercise the exertion needed for successful farming, preferring to hunt instead. In 1849, Abraham Gesner would write that:

> Tracts of land were sometimes given in barter for a gun. In King's County eight acres of dyked marsh, now worth 25 pounds an acre, were exchanged for a dog. . . To many of [the Planters'] descendants the sight of a fox or a bear's track is still a sufficient inducement for them to quit the plough and follow the chase.[291]

Like the Micmac, many colonists were not thrilled by the settled life of cultivating the ground. Farming was hard work, particularly for those who knew nothing about it which was the predicament of many colonists. Consequently, the lure of working in the woods or fishery was tempting to those who found 'taming the land' too arduous, unprofitable or otherwise distasteful. Colonial leaders considered this a problem as the 'jack of all trades' engaged in subsistence fishing, farming and lumbering had diverted their energy from the concentrated effort needed to create successful farms -- considered the backbone of a colony. To bolster the farming cause -- in a land known for its backward state of agriculture -- meant extolling the virtues of the farm life which all colonial leaders took up with great ardour. An article in Nova Scotia's Colonial Farmer (1842) is a case in point:

> There is something in the very name of Agriculture that bespeaks men's sympathies. The antiquities of the culture of the soil, and the cultivation of grain and fruits and flowers, is at once suggested. We think of Adam's amusement before his fall; and his labour after, when the "world was all before him where to choose." We see the patriarchs amid their fields and flocks--Boaz among his reapers, and the great Shepherd of Israel, and

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291 Gesner 6

> his disciples, walking by the ripe corn, plucking and eating as they went. We acknowledge the vast importance of the art -- the basis of manufacture and commerce and nobility -- the first essential to the existence of mankind, the mother of nations. We consider its haunts, amid the lovely solitude of nature; by streams and groves and surrounded by fragrant zephyrs; we behold it subduing the forest and the barren -- making gardens amid the swamps, and rearing cottages and mansions where the wild fox and the bear had their dens. This great humaniser and precursor of civilization, blends the essential and the picturesque, in its recommendation, and every man feels as if he had somewhat of the nature of a farmer in his own bosom. To keep his horse, and cow, and to till his garden, from the usual day dreams of the citizen, as he rises above dependence. . ."

The rhetoric in support of cultivation could be romantic or just plain practical since it was thought that 'in no other employment other than farming was the labouring man more comfortable'. Emphasising this point, Titus Smith remarked that: "In every part of the province where we have been [on tour] we generally found those that followed fishing complaining of poverty and a hard country; whilst those who depend entirely on farming generally hold an opposite language and appear well satisfied with their situation, and sensible that they are in a thriving condition." [292]

The cry to take up the plough applied to all -- even to the Micmac as there was a concentrated effort to dissuade Indians from following their traditional means of subsistence which was quickly threatened by the arrival of colonists in 1780s. Instead they were encouraged to settle down on farms and live in the manner of their white neighbours. it was a goal which guided all government attempts to deal with Indians until Confederation in 1867.[293]

Some Micmac would take up farming while others were resistant. It certainly was a way of life that created tensions within various Indian bands. In 1801 Titus Smith relates a story that reveals Indian conflict over the hunter versus the cultivator way of life:

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292 Smith, Titus. A Natural Resource Survey of Nova Scotia 1801-02. See also Andrew Hill Clark's article, "Titus Smith and the Geogrpahy of Nova Scotia in 1801 and 1802." Annals of the Assoc. of Amrican Geographers Vol.XL1V, Dec.1954, No.4:307

293 McGee, Harold. "The Micmac Indians: The Earliest Migrants." Banked Fires: The Ethnics of Nova Scotia Port Credit: The Scribbler's Press, 1978:26

> ...an Indian here who has been at Work this Season and raised a small Crop of Corn, Wheat & Potatoes, and who is very desirous of continuing to work at farming, but his Country men have taken as much Pains to divert him from the miserable Kind of Life which they fancy he must lead, as white Men could have done to prevent one of their Friends from living with the Indians. His Squaw was always uneasy and finally ran away from him into the Woods. . . most probably his Countrymen will finally persuade him to quit his new Occupation, as he will be accounted an Indian by the white Men, and if he follows farming, will be looked upon as a white Man by Indians.[294]

Despite such friction, cultivation was practised by Micmacs. The Indians Gardens, a 30 acre intervale bordering a lake on the Medway River, was a well known planting site as were others. Micmac concepts of farming were, however, different than those of Europeans. They might cultivate the land for plants but their "beef" would still be moose meat. Consequently Indian farm sites were often seasonal clearings that were not constantly occupied. Land thus cleared was most attractive to whites who moved in while the band was out hunting. One Chief told Walter Bromley that his father had cleared two hundred acres in various parts of the province as the whites discovered his clearings one by one. This didn't take place without objection. Micmac protested the loss of their small lots of land under cultivation in the Roseway area which were given to Welsh settlers in 1818 after Indians had laboured to clear and cultivate the land.[295] There were countless similar incidents. Micmac also objected to the fact that their burial grounds, generally situated on stone-free, hillocks by harbours (valuable fertile drumlin lands) were plowed up for fields. Indians who farmed in their customary locations outside reserves found that there were no obstacles to whites gaining legal title and forcing them to move on. With no hope of resisting the acquisitive white, it is little wonder that many Indians agreed to sell the lands they occupied for whatever they could get. If simple possession or purchase failed, there were other ways of expelling unwanted Indians; in a contest over river frontage, for example, a basic white tactic was to net all the fish at the mouth of the river so that the fishermen upstream got

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294 Journal, Western Tour. Titus Smith. 1801-02 . Citation in Andrew Hill's "Titus Smith, Junior, and the Geography of Nova Scotia in 1801 and 1802." Annals of Assoc. of Ameican Geographers, Dec.1954 :307

295 Robertson, Marion. Kings Bounty: A History of Early Shelburne County. :1983:2

none.[296] The Indian response to these harassments was almost inevitably to move to a less desirable location, without offering resistance beyond a petition to the government drawn by a local sympathiser. When the government did try to evict squatters (even those on reserves) it found that it could only bluster, for it had neither the money for the necessary court actions nor the force to remove undesirables.[297]

The result was that whites took the best lands and only poor lands were left for the 38 reserves created in the mid-1800s to finally provide an official place for the Micmac. As Indian Commissioner Joseph Howe observed in 1843, all the lands set aside for Micmac use were notably absent of good soils, woodland areas, game and fish.[298] There were exceptions - Bear River, the river frontage of Whycocamagh and others. But in general, in conflicts over 'nature as habitat', the European newcomers got the finest acreage with the ecology of the land dictating what areas were most desired.

Discovering where superior land was located was a source of much concern. After the best river estuaries, river valleys and pockets of land around bays were settled, the hunt was on to find what else was available. With this in mind the government commissioned Titus Smith to walk across the province in 1801 to survey the mainland for mercantile timber and stretches of good terrain as there was a growing suspicion that the interior was the rocky, lake strewn wilderness we now know it to have been.[299] Smith's findings, although helpful, did not constitute a comprehensive survey of the province's land. By the mid-1800s this was still lacking. It was a sore point as many believed that more good land could be found once the interior wilderness was better known. According to Gesner, this paucity of information on the province's back country was a great irritant:

> The inhabitants of the province in general have little knowledge of the remote and uninhabited inland tracts. The information brought in by the lumbermen and Indian hunters, who have no desire that the backlands shall be settled, is very imperfect, and no general survey has ever been authorised by the legislature. The result is that fine tracts have been

296 Wentworth to Michael Wallace, 23 September 1802, Doc. 177. Citation in Upton's "Indian Policy in Colonial Nova Scotia 1783-1871." Acadiensis Reader. Vol.1, 1985: 100-101

297 Upton. "Indian Policy....": 101

298 LANSJ (Legislative Assembly Nova Scotia Jounnals, Appendix 1:6) See also Gonzalez:57

299 Clark, Andrew Hill. 'Titus Smith, Jr. and the Geography of Nova Scotia', 1801-02: 296

> condemned, and opinions have gone abroad unfavourable to the agricultural character of the whole country. Millions of acres of land that have never been explored nor surveyed, have been gravely pronounced to be unworthy of the immigrant's notice, and by a kind of Provincial cupidity the industrious stranger has been intimidated against landing upon shores that abound in the common bounties of Providence. At the same time lands exactly similar in their geological and agricultural characters in the New England States, have been redeemed to the plough and sickle.[300]

Knowing the lay of the land was seen as critical to the settling of the wilderness. It was thought that Nova Scotia's poor, inaccurate maps and lack of proper surveys acted to discourage immigration. Potential immigrants could not determine the most necessary information in advance since the position and quality of the soil could not be determined except by actual inspection and expensive surveys. Because detailed geographic information was lacking, the sites of rivers, lakes, mountains, and tracts of wilderness lands were frequently determined by the opinion of lumbermen and moose-hunters. This resulted in a situation where, as Gesner lamented:

> Distances are computed by the time required to travel over them. The blaze of a sable hunter has been the approved site of a road. The geography of the country seems to be best known to the Indians, who determine locality and distance by the time required to drag a quarter of moose-meat from the forest, on a toboggan, or the soreness of their feet from the thong of the snow shoe. Nor are the observations of the cutters of broomsticks and the drivers of runaway pigs more satisfactory. Parcels of land have been lost, and cannot be found, others are reported to have changed their quarters, and the whole area of the waste lands are involved in a labyrinth that nothing but correct surveys can ever unravel. Titles to land are insecure. Many individuals do not know whether their habitations belong to themselves, their neighbours, or the Crown.[301]

Confusion ensued over inaccurate property boundaries and land grants of all sizes, shapes and angles that didn't account for the natural features of the wilderness such as lakes, rivers or hills. But since the quest for land was the key reason colonists emigrated to Nova Scotia, the urge to own 'good' property compelled many to resort to any measures to secure it. At least for a period of time the British gave gifts (a condition of the 1752 Micmac treaty) to the Micmac to smooth relations while settlers took up

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300 Gesner 57

301 Gesner 67-68

land grants. Charles Alexander of Cape Sable told of how generous the British had been until they had taken all the land they needed. Alexander's son took up the theme: "What country was left for the Indians now the English give no more provisions and clothes...What must the Indian do?"[302]

The European sense of personal individual property conflicted dramatically with the the Micmac's communal sense of belonging to the land where traditionally the Indian band, not the individual, had the rights to the animals and plants of a designated territory. 'Owning the land' was a foreign concept, although after hundreds of years of dealing with Europeans it was a well understood idea and by necessity eventually embraced as Indians too began petitioning for land grants. Despite this, Indians still attached to their traditional hunter-gatherer way of life, continued to view 'property' as rights to the ecological bounty of the many habitats they depended on. It was this need to range over a variety of territories that would conflict with widespread settlement and the Micmac foresaw the impending clash. This concern led to Micmac protests in 1749 when the first surges of settlers were just arriving in Halifax:

> The place where you are, where you are building dwellings, where you are now building a fort, where you want, as it were to enthrone yourself, this land of which you wish to make yourself now absolute master, this land belongs to me. I have come from it as certainly as the grass, it is the very place of my birth and of my dwelling, this land belongs to me, the Indian, yes I swear, it is God who has given it to me to be my country for ever. . .Show me where I the Indian will lodge? you drive me out; where do you want me to take refuge? you have taken almost all this land in all it extent. . .now you force me to speak out by the great theft you have perpetrated against me. . .[303]

For Indians the European drive to own land was a source of conflict but for newcomers gaining property was a source of harmony as it resulted in a greater sense of class equality. Land served as an important equalising force. The liberty and opportunities that it represented engendered the 'nature as freedom' response to the land. Europeans could caste aside the echelons of hierarchy that encumbered them

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302 Upton, 93

303 Micmac chiefs to the Governor at Halfiax. Quoted by Abbe Maillard in a letter to Abbe du Fau, 18 October 1749. English translation in *Micmac and Colonists* by L.F.S. Upton 1979: 210-202. Excerpted in Ruth Whitehead's The Old Man Told Us: 114

in the old country. And they did this because owning property, particularly under cultivation, gave them the chance to become independent , masters of their own house. As Beamish Murdoch put it:

> Relieved from moving from a life in the beaten track, the narrow grove which society permits - they [the settler] were placed in a situation where every kind of ability, mental or physical, has the utmost value. In the common brotherhood and sympathy awakened in those who have cast their lot together in forming a new community in the wilderness men feel little of the repulsions of caste and rank.[304]

Gesner reiterated: "No sooner does the "hired man" or the mechanic secure to himself the price of a hundred acres, than he becomes master instead of remaining a servant."[305] The result was that the cheap cost of land meant high costs of labour which many thought held back the colony's development. Some newcomers were shocked when they found that they had to build houses or do any number of tasks 'with their own hands'. Even if one could afford to hire others, these people were often too busy working on their own property to be recruited. The majority of people were in 'the same boat' - struggling to live off the land, carve out their niche and make 'a go of it'. Such factors congealed to form a much more classless society than that which people came from. Yet despite this freedom, hard labour still denoted poverty for certain colonists and the rigours that farming entailed was at times stigmatized by this. "Agriculture has been strangely neglected in Nova Scotia", wrote Joseph Outram in 1850, "not a little from the unfortunate idea that cultivation of the soil was a degrading employment."[306]

If the Micmac were resistant to the labours involved in cultivating the soil they certainly were not alone. Many Europeans themselves had similarly ambivalent attitudes about farming which simultaneously was hailed as the great civilising agent of their culture. Even LesCarbot writing in the early 1600s talked about this problem in France where people avoided working on farms if they could instead be involved in

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304 Murdoch v.2:233

305 Gesner 13

306 Outram, Joseph. Nova Scotia: Its Conditions and Resources. 1850 Citation in Dave MacIntosh's When the Work's All Done This Fall: The Settling of the Land. Toronto: Stoddard Publishing,1989: 30

the wheelings and dealings of city life.[307] But in Nova Scotia no one could paint a more graphic picture of this situation than John Young who ranks in the forefront of Canadian pioneer-writers in early agriculture. He had a great and quick impact on farm development. At his urging, for instance fourteen agricultural societies were formed in Nova Scotia, less than a year after he had begun his letters in the Acadian Recorder under the name of Agricola in 1818. In this account he reveals the other side of the agrarian ideal held up for settlers to embrace:

> The contempt in which rustic labour was held originated partly in the poverty, meanness and abject fortunes of the emigrants and settlers who were peopling the wilderness, and struggling hard for subsistence with the natural obstructions in the soil. Whenever any of these were so successful or so parsimonious as to amass a little wealth, they were sure to escape from the plough and betake themselves to something else.
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> The keeper of a tavern, the retailer of rum, sugar and tea, the travelling chapman, the constable of the district, were far more important personages, whether in their own estimation or that of the public, than the farmer who cultivated his own lands. He was of the lowest caste in society, and gave place to others who, according to the European standard of rank and consequence, are confessedly his inferiors. This sense of degradation was perceptible among husbandmen themselves. Such of them as were under the necessity of working set about it with great reluctance and always under a mortifying sense of shame. They would blush to be caught at the plough by their genteeler acquaintance, as much as if surprised in the commission of crime; and if they saw them approaching, many would skulk from the field, and plunge into the neighbouring thicket. The children were easily infected with this humbling sense of inferiority; and the labours of the farm were to the young men objects of aversion as those of the dairy were to women...
>
> When such views predominant among a people, it is easy to infer the state of their agriculture. The principles of vegetation were so grossly misconceived, that few even of the farmers imagined that plants, like animals, stood in need of food; and manures of all kinds were either disregarded, or shamefully wasted and thrown away. . .Further the agricultural machinery in use betrayed the same visible token of the degradation of the art...
>
> Agriculture is not an art which may be acquired, like other mechanic trades, by patient drudgery and plodding dullness. The ignorant and

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[307] LesCarbot v.2:284

> unlettered boor is not more capable of being an enterprising and successful farmer than the team which he drives. His ill-directed and unenlightened efforts may fell the forest and burn the timber, and in this way obtain a stunted and ungenerous crop; but he wants the talents and address to court vegetative nature in her coyer moods, to draw forth her latent beauties, and induce her to display the full luxuriance of her charms.[308]

Good soil certainly helped in the transformation of forest to fertile, productive farmland and eased the strain involved in making 'the wilderness blossom'. But the soil itself was difficult to judge with no soil surveys, soil augers or knowledge of soil chemistry. Therefore trees were used, as in all pioneer societies around the world at this time, as the gauge of soil quality.[309] The larger the tree and more luxuriant its growth the better the soil. More complex than that, specific trees species were commonly held to indicate good soils suitable for cultivation which meant that settlers, by necessity, observed the ecological characteristics of different types of forest growth.

In Nova Scotia, black and yellow birch, accompanied by either elm, ash, hemlock, or maple, were considered indications of a deep rich soil. A small growth of white birch or spruce denoted a 'thin, cold soil', while white and red pine preferring dry, sandy hummocks or ridges, indicated the presence of sandy soils. [310] Tamarack and black spruce, suited for surviving on wet soils, often revealed poor drainage while hills with beech stands indicated well drained, relatively fertile soils. In this manner, almost every variety of soil was distinguished and known by the nature of the forest with which it was clothed. However, as some people observed, forests caused soils as much as soils caused forests. The relative fertilities of various lands could be attributed to the inherent physical properties of the soil as well as processes maintained over long period of time by the forest itself. Fertile soils and the processes that created them were frequent topics Titus Smith wrote about:

> Upon the fertile soils the vegetation is composed of hardwood trees and succulent plants with annual leaves. Their growth is rapid and. . .the annual crop of leaves. . .furnish a large quantity of dead vegetable matter,

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308 Young, John. The Letters of Agricola on the Principles of Vegetation and Tillage.Halifax, 1822. Citation in Dave MacIntosh's When The Work's All Done This Fall: 23, 24

309 Williams, Michael. Americans and Their Forests: 60

310 Haliburton 361

> which, by the operations of the Fungi, insects, and succeeding process of putrefaction, is soon changed into mould which must continue to accumulate till the trees are fully grown, thus preparing a soil for the cultivator, by removing to the surface the most fertile part, from the greatest depth to which the roots of a tree can reach.[311]

Along with tree cover, soil colour was a clue to fertility. As Smith observed: the most fertile soils, occurring beneath hardwoods, were said to be dark in colour -- a result of the rich black humus formed beneath their fallen leaves. On limestone, soils were stated to be especially good, and chocolate-coloured. In contrast, on the poorest softwood hills the soils were often almost white; these were the podzols characterized by acidity and a paucity of nutrients and organic matter below the surface layer. Formed in moist climates under predominately coniferous trees whose needle litter decomposes slowly, these soils experience rainwater leaching of minerals from the thin organic-mineral top layer, through the ash-coloured leached layer below which Smith described.[312] Rusty coloured slate soils - pigmented by the presence of sulphurous iron pyrites-- typically produced stunted spruces, larches, trailing Juniper, Kalmia, Mayflower and 'a little starved grass' which indicated sterility.

Ultimately the depth of soil was a major factor in the type of forest cover and hence the inherent fertility of the loam. As settlers painfully discovered, a large portion of the province featured shallow, nutrient poor soils over hard bedrock. The most luxuriant forests were found in the deeper, more fertile soils over soft sedimentary bedrock concentrated on the North shore (parallel to the Northumberland Strait), the Minas Basin shore area and the Annapolis-Cornwallis valley. When most of these prime, mixed tracts of forests were cleared the next best choice were the beech hills which had " the best soil near the top of the hill, inferior quality soil further down and a barren spruce valley or plain found at the bottom." These were the fertile drumlin hills scattered amongst the dreaded sterile shallow soils of spruce forests bordering much of the Atlantic coast. Choosing Beech hills as sites for farms had other advantages. Sloping ground did not require draining, it was slightly easier to clear because of a less dense forest and there was no disadvantages due to machinery -- none was used

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311 Smith, Titus. 'Natural History of Nova Scotia." The Magazine of Natural History London. England, Dec.1835:643

312 Gorham, Eville. "Titus Smith, A Pioneer of Plant Ecology in North America." Ecology Jan.195:120

and sloping land could be worked as well as flat ground with the scythe and sickle. Beech, thereby, became synonymous with fertile soils. Commenting on the scarceness of ungranted land capable of supporting cultivation, Titus Smith noted in 1839: "I do not know more that three or four tracts of fifty acres of Crown land, within thirty miles of Halifax that is covered with beech."[313]

The stress laid on discovering fertile soils by the vegetation growing on it, also fooled colonists. Land written off as being sterile for featuring shrubs, raspberries, kalmia and ferns sometimes were found to be sufficiently productive. Kalmia,in particular, had become a symbol of sterility as it is especially adapted to thriving on poor soils. The trick was that kalmia, blueberries and other plants well suited to poor soils, also appeared in better soils amongst a host of other plants that were the first to grow on such soils cleared of their forest cover. When these plant species sprung up in soils that formerly supported old growth hardwood stands destroyed by fire, fertile loams were uncovered. As was noted: "There are frequent instances where the surface once occupied by large beeches, birches, and maples, is finally overrun with laurel and whortleberry bushes, which have been supposed to indicate extreme sterility. Farmers have been agreeably disappointed in finding such lands fertile. I have seen fine wheat, barley and oats growing upon laurel and fern lands and patches almost barren, are sometimes studded with close groves of hardwood saplings."[314]

Not surprisingly, the ecology of the land remained a grand mystery to the newcomers who depended on it. There were many delusions in discovering the nature of the soil beneath ground cover. As just one example: to encourage cultivation in Halifax during its initial settlement a bounty was given for cleared and enclosed acreage. In a short time one thousand acres were ready for cultivation but an accidental fire consumed the fences and ground moss cover revealing a sterile and stony soil beneath -- much to the disappointment to those keen on planting.[315]

Trying to understand the patterns of the land triggered curiosity and confusion

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313 Titus Smith, Crown Lands

314 Gesner 101

315 Halliburton 21

manifested as a 'nature as wonder' response to the environment. Nova Scotians were quick to admit that "the history of the ancient forest was not well understood"[316]. Forest succession remained an enigma although it was happening before the colonists' very eyes with the clearing of woodlands. The fact that beech trees were not the first to spring up after a grove of old beech trees was cut down was puzzling. As Gesner wrote: "Many are surprised that felled forests of hardwood are succeeded by spruce and fir; but nature evidently directs this rotation and only allows such trees to spring up as the surface of the earth is able to bring to perfection." [317] Figuring out the riddle of what grew after different types of forests were cut down remained a topic of rigorous debate in Nova Scotia that was solved by the mid-1800s. Experts with keener eyes had sorted it out. Titus Smith published detailed, correct observations on the stages of forest succession in his "Natural History of Nova Scotia" in 1835. In the United States, where forest succession was similarly a topic of inquiry, Henry Thoreau would do this in 1842 in his "Natural History of Massachusetts" followed up by his "Succession of Forest Trees" in 1860.[318] The stimulus for such thought -- which cumulated at the end of the 19th century with Frederic E. Clement's acclaimed theory on climax plant communities -- was the environmental change that came with the clearing of North American forests.

Clearing the woodlands was an arduous task. Most free land came with obligations to clear a portion of it or the land would be expropriated. In 1829 almost one third of Nova Scotia property grants were seized or 'escheated' by the crown because the land had been ignored or 'unimproved'. [319] The contractual stipulations that came with land grants typically varied but went something like this: "At least three of every fifty plantable acres of land was to be cleared within three years or three acres of swampy, sunken ground or marshland cleared or drained; on barren land, within three years there was to be three neat cattle or six hogs for every fifty acres."[320] Englishmen, John Robinson and Thomas Rispin, described the process of transforming forests into fields witnessed during their 1774 tour of Nova Scotia:

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316 Gesner 101

317 Gesner 177

318 Williams, Michael. Americans and Their Forests 1989:30

319 Halliburton 360

320 Robertson 12

> In clearing their woodland, they cut down the trees two or three feet from the ground, and let them lay until summer, about which time they are dry, and they set them on fire as they lay. At the back end of the year they sow the land down with rye, harrowing it amongst the ashes without any plowing; where the stumps are thick they hoe it in. The first year's crop generally pays them all the expense of cutting and burning; the next year they plant potatoes; and so continue three or four years, while the stumps are rotten, when they pull them up with a yoak of oxen. There are many men in the country who take the land to clear, and will cut down and burn it. . . Some let their ground lie, after the first crop, for pasturing, until all the stumps are decayed, which appears to be the best way. Where the trees are grown are little hills which take some time to level, and make ready for laying down; but when it is properly laid down, it makes excellent pasture, and naturally grows a fine white clover.[321]

Labour costs for clearing land varied from twenty shillings ($2.40) to 8 to 12 pounds ($16.-24.) an acre depending on if the ground was stony or if the felled wood was rolled and burned.[322] The progress of decomposition in the roots of tree stumps varied according to the species of wood. On hardwood land, the stumps might be taken out in 8 years, at little expense; in softwood land they would not decay under 20 years. Pine and hemlock resisted decay the longest, however spruce stumps decayed in 7 or 8 years.[323] Settlement beginnings were messy eyesores with burnt tree stumps in various states of decay as the predominate landscape markers. As was noted: "Every traveller in these provinces will be struck with the ragged appearance of the forest and field borders, fields half cleared and the slovenly appearance of new settlements".[324]

Nothing looked more ragged than the forests. Settlement's greatest ecological carnage came with the destruction of forests brought about by the uncontrollable spread of fires. These wild conflagrations occurred when colonists set fire to felled trees on their land reducing logs and stumps to ashes and future fields. In the process neighbouring thickets of trees were ignited and vast tracts of forests consumed. Titus

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321 Robinson, Rispin. 16

322 Robinson & Rispin. 4, 16, 17. Confirmed by Titus Smith in Commission of Enquiry for Crown Lands.1838. He notes that the average cost of cutting down the trees on an acre would be 35 shillings or 420 pence, roughly 4 pounds but it would cost as much more to roll and burn the wood . As Haliburton noted (p.364) prices varied in each county.

323 Smith, Titus. Commssion of Enquiry for Crown Lands. 1838:19

324 Gesner 192

Smith wrote on the ecological ramifications of such unmanageable blazes on spruce woods :

> The process of nature was favoured by the habits of the Indians, who carefully avoided setting the woods on fire. But the great influx of inhabitants in 1783 produced, in the course of a few years, a complete change in the appearance of the forest. A great number of new settlements were formed. The fires necessary for clearing the land were communicated to the spruce thickets, and spread frequently as far as they extended. The profusion of herbage which followed the fire, for a time furnished a pasture for cattle. This failed in three or four years. The next dry season the fire was rekindled, for the purpose of renewing it, which it would do in a less degree. Raspberries, French willow, and other vegetables, would appear upon part of the ground, but of inferior growth. The roots of the spruces and balsam fir spread horizontally, and take but slight hold of the ground. Being loosened by the sinking of the turf, they are overthrown by every wind, and furnish fuel for successive fires, which are usually rekindled every dry season by design or negligence, till, the combustible matter being consumed, with the exception of that portion which is washed by rains into the swamps, the ground becomes so much exhausted, that it produces only a growth of heathy shrubs, among which the kalmia predominates; and, in many places, it is necessary that this [growth] should continue long enough to form a few inches of turf, before the alder and other large shrubs can be reproduced, as a shelter for another growth of firs. When a wood of firs is consumed by a second fire, the ground becomes so bare that firs will not live upon it in exposed situations. [325]

A cascading series of other ecological changes followed. Forest fires created shortages of fuel wood near cultivated districts which instigated the passage of bylaws to protect closeby wood lots. Widespread fires also drove coastal dwelling moose and other wildlife into the interior. This meant that the Micmac had to range over wider territories for subsistence. Increased demand was placed upon inland wildlife populations, for colonists also desired fresh moose meat since fresh beef often wasn't obtainable. Game became scarce and Micmac protested the destruction of hunting grounds by settled harbours.

Woodland fires ignited in the making of fields and farmlands was part of an overall hatred of trees. 'Nature as enemy' embodied this response to the land. In new

[325] Smith, Titus. "Natural History of Nova Scotia."651

settlements forests were viewed as obstructions to cultivation and often wastefully destroyed. Few trees were spared. Remarking on this Pierce Stevens Hamilton wrote that: "Trees growing in situations where they were. . . perfectly harmless to agricultural crops, and which often added an exquisite charm to the landscape, were relentlessly cut down, just for the sheer delight of seeing them prostrated."[326] Often their destruction defied common sense. Consequently exposed areas, formerly wooded, offered no protective wind barriers to crops. Titus Smith, looking to nature for ecological guidance, made these astute observations:

> We see wherever the forest adjoins the open sea that there is not large timber near the shore even where the soil is good enough to produce it. Instead of this, the shore will be found fringed with a very close thicket of white spruce or fir, the trees directly on the shore not more than three feet high and the branches so crowded that a man may walk upon their tops - -farther from the shore the trees grow taller, but are still small and thick set. At the distance of a quarter of a mile back, a sprinkling of a short yellow birches a foot or more in thickness may be found, always midst a thicket of firs, and at a distance of a mile and a quarter back some large spruce and pine and perhaps a little beech may be found. The hemlock rarely finds sufficient shelter nearer to the sea than three miles. Notwithstanding that nature shows so distinctly that even our large forest trees cannot live without shelter from winds, the thoughtless coaster often clears a field upon the shore, cutting down every bush to the very edge of the bank, and then complains that this potatoes have the tops broken down by high winds. Whenever the shore is so much exposed that any stones or gravel are found to be rolled up above high water mark by the surf, an edging of wood should be always undisturbed along the bank, to protect the crops from wind...[327]

To keep crops growing on newly cleared land, meant fertilising it eventually. However as Haliburton noted: "In a new country the power of manure was not much regarded. The luxuriant power of vegetation in the virgin moulds was such that artificial aid was deemed unnecessary and it was not until after its fertility was either diminished or exhausted by repeated and judicious cropping that recourse was sought to restore its vigour." [328]

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[326] Hamilton, Pierce Stevens. "Forest Destruction." Canadian Monthly and National Review August 1879:137

[327] Smith, Titus. Colonial Farmer. August 16, 1842

[328] Haliburton 371

Some farmers preferred burning down more forest land to obtain fertile soils rather than manuring depleted soils in existing fields. A backwoodsmen told a story of how he raised wheat and potatoes upon a piece of ground until they would grow no longer then he "pitched it out for a rabbit pasture and cleared a new bit". Such rabbit pastures were seen in every part of Nova Scotia.[329] New fields came to the rescue since woodland ashes served to further fertilise the already nutrient-laden forest soil. However if the soil was not of extraordinary quality this fertility was depleted in seven years leaving the field mostly covered in Golden Maidenhair Moss with so little grass growing on it that 'it was not worth fencing.' Many natural meadow lands were ruined by burning. Persons unacquainted with farming, like many who settled in the province, observed that a great crop of grass was procured by the burning at the time of clearing, and continued to burn every spring if the weather permitted, until in the course of a few years the meadow ceased to produce its natural grass.[330]

Getting colonists to take action on restoring soil fertility was often met with resistance or obstructed by sheer ignorance of the dynamics of soil. The English had always criticised Acadian farming techniques precisely because they did not use manure to fertilise the soil. Acadians instead employed the fertilising power of tidal rivers on their dyke lands, allowing these lands to be flooded every seven or so years by the silt laden waters normally held back by sluices. This deliberate action left behind needed nutrients as well as unwelcome salts which meant that the lands could not be used for two or three years while the salt washed out.[331] Fertile land resulted. By rotating fields taken out of production for these purposes Acadians always had very productive soils although in English eyes they lacked ambition by avoiding manuring. Nevertheless in the mid-1700s , Acadian hamlets -- supporting a population of 10,000 on the upland fringe of marshes -- featured great fields of wheat, peas, oats, rye, barley and hay covering 13,000 to 20,000 acres of marshland. Acadian agricultural production far exceeded the meagre offering many Planters were first able to extract from the same,

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329 Haliburton177

330 Colonial Farmer, July 1, 1842

331 Clark, Andrew Hill. Acadia: The Geography of Early Nova Scotia to 1760. Madison: Univ. of Wisconsin Press, 1969:162

vacated Acadian lands much to the disgust of the English.[332] As it turned out English colonists often avoided manuring as well which was typical of pioneer societies in general. Rather than using the manure which accumulated around barns, new barns were built and old ones abandoned in order to obtain 'a clean place'. This had also been an Acadian practice. The principles of maintaining productive soils by using manures or other fertilizers were for the most part not known or practised. As for other other soil conserving techniques most farmers knew little of summer fallows and there was no systematic rotation of crops. In 19th century Nova Scotia and the world beyond the emerging agricultural revolution devoted enormous energy to encouraging the use of new scientific agriculture techniques such as crop rotation, selective livestock breeding, the use of labour-saving machinery and soil fertilising methods. The lessons in ecology were many and top-dressing the soil would be a favourite topic in Colonial Farmer and other papers:

> [Manure and compost] not only furnishes food to the roots of potatoes, root crops and hay, but serves to keep them warm, and to keep the soil loose and mellow. All naked ground is always found to become hard and compact in summer, but a covering of stones, leaves, straw or dead grass, always keeps it loose and light, like the soil of the forest covered with dead leaves and moss. Nature itself points out to us, that land which, like grass land, is not kept mellow by stirring it, should have the surface covered with half decayed vegetable matter to preserve its lightness, heat, and moisture; for land in the woods, which invariably has a covering of this kind, never grows less fertile...[333]

Ecological insights farmers could gain by looking at forests were constantly pointed out. In the agrarian quest for fertility, lessons could be learned from observing falling autumn leaves which give the woods an annual top-dressing -- returning organic matter to the earth for the restoration of rich soils.[334] Many types of top-dressing were advocated for use -- compost and dung were the most obvious and cheapest. In the County of Hants, and in other places bordering the Minas Basin, the alluvial deposits of the rivers (and marshes) were applied as superficial dressing to grass land. Sometimes it was incorporated with the soil by the plough and repaid by yielding two grain crops and afterwards a stout growth of grass for several years in succession.

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[332] Wynne, Graeme. 'Late Eighteenth-Century Agriculture on the Bay of Fundy Marshlands'.Acadiensis

[333] Colonial Farmer, September 1842

[334] Halliburton 177

Dead fish and fish offal was a contentious top-dressing. Whole catches of herring, smelts and capelin were sometimes taken on the coast and carted in great quantities to fields. It was considered reprehensible since it tended to destroy the young fry and the bait that attracted deep sea fish (cod) to the shores. It also wasn't good for soil in the long term unless composted. Like the application of any great quantity of topdressing -- seaweeds, urine, lime, potash -- too much fish produced an immense crop followed by sterility for many years as salts destroyed important microbial soil constituents. Rockweed and kelp were also employed. Coasters, especially fishermen, raked seaweed to piling places on the shore and later hauled it to gardens by ox and cart. Deeds for property with coastal frontage still show the piling places of old. People planted potatoes directly on seaweed, putting the eyes on the seaweed, covering them with more seaweed, and producing cleaner and tastier potatoes.[335] Gypsum on the banks of the Avon, and Shubenacadie rivers was also used as fertiliser as was lime to 'sweeten' Nova Scotia's acidic soils.[336]

The crusade to educate colonists on reversing the impoverishment of soils caused by cultivation was equalled by efforts to improve the survivability of livestock in new settlements. Domesticated animals were at first scarce. Some of the large herds of cattle and horses left by the deported Acadians were rounded up and driven to Lunenburg. But most perished, and English settlers arriving in Kings County found at the skirts of forests huge bone heaps of sheep and cattle that huddled together to die of cold and starvation after the hands that had taken care of them had been withdrawn.[337] With the surge of colonists the followed in the 1700s and 1800s livestock were introduced to newly settled areas resulting in dramatic changes in Nova Scotia's landscape -- endless miles of pasture and fences; fields of timothy, buttercup and clover; and woods featuring livestock rather than native wildlife.

Domesticated animals required more land than all the other agricultural activities put together. And specific habitats were highly prized -- namely those bearing grasses. Hay became one of the most important crops because it determined the number of

335 "Finding a Market for Sea Manure." Chronicle Herald, Dec.9.1994
336 Gesner,177-189; Halliburton 370
337 Murdoch Vol.11:121

animals that could be supported through the six month winter. This meant clearing more land for fields. At least two thirds of the improved land on farms was given over to pasture and grass for the support of livestock. Cut hay came from a variety of sources: timothy and red and white clovers sown on cleared land; wild meadow grasses and Spartina grass of salt marshes. Marshes, like meadows were scattered through the countryside, often at considerable distances from farms, which meant special two and three day trips were made to these areas to cut the grasses for hay. Many of these pockets of grasslands were known as 'beaver meadows' formed by the abandonment and break up of beaver houses and dams when the animal was over-hunted during the earlier fur trade. Such meadows retained an importance in Nova Scotia agriculture for many years since there were often hay shortages on upland farms and cultivated hay was frequently of poor quality until manure, fertiliser and lime were used. An acre of good, cultivated land produced three to four tons of hay, sufficient to feed three cattle during winter. Although many intervale farms produced enough hay to support their livestock, a late spring often lead to shortages and starved cows died before the grass had sprung up.[338] Agriculturalists advised that weak, starving cows be turned out into the woods in spring where they might have a chance of surviving on tree twigs and the roots of the common Sasparilla plant which cattle were known to dig up with their horns.[339]

What most distinguished the countryside, aside from the huge tracts of burnt forests, were the cows, pigs and sheep that roamed freely throughout it. Hay, grain and vegetable fields were fenced to keep livestock out. Cow, pigs, and sheep wandered about, munching their way through woodland herbage near settlements. Pigs could fend well for themselves and stayed in the woods until -- once fattened up on beechnuts -- they were rounded up in the fall and driven down paths still known locally in certain areas as 'piggy lanes or runs'. Sheep, considered particularly important since they clothed and fed families, were easily supported on forest herbage and acted as 'lawn mowers' destroying the saplings that sprung up when forest lands were cleared. In winter both swine and sheep often roamed the seashore areas living off rockweed, washed up kelp and other shore life. Cows required more care. They

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[338] Hornsby, Stephen. Nineteenth Century Cape Breton: A Historical Geography. Montreal: McGill-Queens University Press, 1992:67

[339] Colonial Farmer, March 1842,Vol.1. No.9

were milked early and turned out at sunrise to run in the woods. Milk cows returned to the barn at night but other cattle didn't. Titus Smith provides more details:

> Throughout the province cows are with few exceptions turned out to range over the waste lands and woods in the vicinity of the farm till the hay season is over. Then milk cows and cattle that are designed to be fattened are turned into the mowing ground to eat off the after grass. It is very rarely that we see cattle pastured through the summer upon land that has been formerly plowed and manured, except in cases where, from neglect of manuring, the grass had become so poor that it was not worth mowing. Early in the season cattle feed in the woods very much upon plants akin to the lily of the valley, upon the leaves of beech, maples, black berry, clintonia, sasparilla . . .This kind of feed keeps them in tolerable flesh, but they do not give more than two-thirds the milk they would if kept in a good grass field. After the middle of August the feed in the woods grows worse, yet dry cows and young cattle still can support themselves feeding upon violets, woodsorrel, French willow, with the young shoots of maple and blackberry. In many places cattle have a scanty allowance of hay in winter and support themselves partly by browsing upon the tops of the hardwoods trees which are cut for cordwood. I have seen at St. Margaret's Bay 14 head of small sized cattle in the month of April who [were maintained through winter mainly on this support]. They were poor, but the owner said they did not lose any, they having been brought up from calves upon browse, that they did not give half the milk that was given by cattle which were well fed, but that he gave to five only the quantity of hay that others gave to one, and that they would make as much butter as two cows that were well fed, and they they would fatten earlier than the cows that were well wintered and makes as much beef as any other five. When there is not land producing hardwood in reach, these cows generally learn to eat the Caribou [reindeer] moss upon the barrens.[340]

Forests used as winter and summer fodder for cows experienced significant ecological change. Whole plant communities were wiped out by the constant foraging of livestock in woods close to farms. The weight of livestock trampling about in the woods had the effect of compacting forest soils, hardening it and reducing the amount of oxygen it contained. This would have inhibited the growth of native woodlands plants and lowered the soil's water carrying capacity contributing to greater rain water run-off. One of the things that distinguished European clover and timothy grass from other plants was precisely their ability to live on severely compacted soil containing

[340] Colonial Farmer. vol 1 #1, 1841

little oxygen -- the conditions found in cow pastures. Livestock grazing on newly cleared forest land also aggravated soil erosion already taking place in these areas.[341] Their preference for eating the young shoots and leaves of hardwood saplings springing up after woodland clearing also would have increased the number of softwoods on the second growth forest that resulted -- much as using herbicides on clear-cut areas does today for forestry interests.

Roaming livestock were such a nuisance in various villages that rules to restrict their movement was enforced with fines and penalties. It was critical that fenced fields, crops and gardens weren't ruined by marauding domesticated animals. In Shelburne and other townships, hogs were to be yoked and ringed. Stray swine were impounded. Stray goats forfeited. Sheep were marked with tar or paint and owners fined a shilling for each sheep caught trespassing into fields lawfully fenced. Stallions and other horses were not allowed to run at large in the centre of the town nor were 'breachy' horses unless well and sufficiently yoked.[342] Regulations such as these were enacted since yoked animals were unable to squeeze through fences and those ringed through the nose, such as hogs, were prevented from rooting out growing plants.

Since fences were crucial in keeping animals out, colonists were keen to find good fencing wood which became scarcer as forests were burnt down to clear the land. The dense, zigzag snake fences of horizontally piled softwood poles that were self-supporting initially served to separate livestock from the crops but they required much timber. After 1800 and the invention of the spiral auger, post-hole fences became more common which required less wood but posts were more prone to rot. Tree species that were rot resistant were highly valued and for this reason black spruce and tamarack were particularly sought since their capacity to grow in wet soils gave them these qualities. The wet swamps and bogs where these trees grew were able to repel the flames of forests fires so in certain areas the stunted black spruces of bogs stood as green islands among burnt stubble. When wood, in time became scarce next to cultivated areas either through fire or cutting, the swamps were finaliy attacked by

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341 Cronon, William. Changes in the Land. Indians, Colonist and the Ecology of New England. 1983:147
342 Robertson 217

the axe for fencing. However farmers also petitioned the crown lands office to acquire barren lands for this purpose. As Titus Smith wrote in 1839: "The greater part of the land purchased from the Government for some years back, near Halifax, has been either some of the better part of the rocky land known by the term of "Barrens", taken up the the sake of the lumber it contained; a part of the more naked barrens applied for by farmers, who had exhausted their wood and were under the necessity of producing their fencing stuff and fuel from the fire-proof swamps in the open barrens.."[343]

Domesticated animals roaming through the woods frequently encountered wildlife predators. Bears in particular were considered ravenous as they often killed sheep, calves and swine and caused great uneasiness amongst farmers although they never attacked humans unless provoked. Campbell Hardy, while trout fishing in the neighbourhood of some small lakes and log houses, recalled seeing "cattle come rushing from the bush, panting, and in great terror, up to the door of the house, evidently pursued by a bear." [344] Similar stories abounded. Rispin wrote in 1774 that in the township of Granville "a bear killed thirty sheep in a night, eleven of which were together in a barn, and the property of one man."[345] Such setbacks to settlers resulted in the imposition of bounties on bears, wildcats and wolves which ended up reducing wildlife populations. This action aided in driving wolves, an intermittent inhabitant, out of the province by the early 1800s.[346] Long before this, wildlife predation of cattle had been a problem for the Acadians. Any inhabitant having oxen in the woods who needed them for purposes of labour, would not dare to expose himself in going for them without being prepared to defend himself with a gun. Acadians also noted in 1755 that, since Indians had "ceased frequenting our parts, wild beasts have greatly increased, and that our cattle are devoured by them almost every day."[347]

The Micmacs always saw European livestock as 'white man's meat'. By contrast, moose and other wildlife were the animals of the Indians and their frames of

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343 Smith, Titus. Crown Lands The Nova Scotian Thursday, March 21, 1839

344 Hardy, Campbell. Sporting Adventures In The New World. London: Hurst and Blackett 1855:48

345 Robinson and Rispin :d

346 Johnson, Ralph. Forests of Nova Scotia. 1986:86

347 Citation in Donald Dodd's Challenge and Response, A Hisory of Wildlife and Wildlife Management in Nova Scotia. Halifax: N.S. Dept.of Natural Resouces, 1993:14

reference. When the French brought in cattle in the early 1600s the Micmac coined the term "wenjesteam" -- meaning French moose - to name it. Even in the 1800s when the Micmac were reduced by starvation and disease, they were not known for killing cattle. Titus Smith noted: "They often suffer extremely with hunger, yet I have never heard an instance of a theft committed by any Indian who had not been very much accustomed to the company of white people. At Tusket there are usually a number of cattle which follow the rivers up for 20 miles above the settlements and remain there till fall among the Indians who (though driven by hunger into the village) have never been suspected to have killed any of the cattle. I have been informed of several instances of Indians who came of their own accord and paid people for salmon which they had taken out of their nets, sometime before when in want."[348]

However conflicts with Indians inevitably arose as a result of the demands agrarian settlers placed on wildlife. As George Patterson wrote on the settlement of Pictou County :

> The Micmac viewed their operations with no friendly eye. They considered the settlers as usurpers of their natural rights, who had encroached on their undoubted property. . .We have heard, for example, of a white man taking a fish from the river, and an Indian taking it from him, saying it was not his. Indians would enter the houses of settlers, and help themselves to the cakes that the women might be baking on the hearth, or other provisions, with threatening gestures.[349]

In the friction over property that came with settlement many incidents occurred which clearly laid out the differences between the Indian and European sense of the land. This 1846 Micmac account of an encounter between a farmer and Indian is particularly revealing:

> A farmer in one of the lower towns scolded an Indian for resting on his premises, and injuring his tree. The Indian cooly replied, "If you raise a calf or a cabbage you may call it your own, but you can have no claim to that tree (pointing to a tree five hundred years old). That tree was planted

348 Titus, Smith. "A Natural Resources Survey of Nova Scotia." 1802-02: 39

349 Patterson, George. History of Pictou County.1877:42

> by the Great Spirit of the Red man before you and your fathers escaped from your murky shells and crossed the great waters. Is that your brook? Catch it if you can; it runs away from you. It runs past your house, it runs past everybody's house, and never stops till it reaches the sea. We never injure your pigs nor cows; but the other day your men frightened a bear, and prevented him from going into my trap.[350]

All the measures taken to establish livestock on the land -- the clearing and burning of woodlands to create hay fields, the utilization of wild meadows and marshes, livestock grazing on forest herbage and the bounties placed on predators -- served to displace, drive away or kill wildlife such as bear, moose as well as many plants. In settlement areas, this tipped the balance away from the flora and fauna of shady, moist, mature forests toward those liking warm, dry sunny clearings. The native woodland plant species, accustomed to a moist rich cover of humus, higher humidity, reduced sunlight and other factors associated with a woodland environment, were unable to persist very long after the forests had been cleared. It opened the way for European weed species to establish themselves and spread like wildfire. Arriving in pant cuffs, cracked soles of boots, impure agricultural seed, and ship's ballast dumped on shorelines, they aggressively took hold, well adapted to surviving in the disturbed fields, cattle pasture and waste places carved out by Europeans. Dandelion, lamb's quarter's, plantain, thistles, sorrels, pigweed, evening primrose, chickweeds, buttercups, burdock, chamomile, hawkweeds, daisies became a common sight. They were able to germinate under a wide variety of environmental conditions, grew rapidly, produced huge quantities of seeds for widespread dispersal and could tolerate grazing as their brittle stems when broken off could readily regenerate themselves from remaining fragments. A few indigenous species had enough of these characteristics that they too became more common as a result of European settlement -- the most prolific of these being common ragweed[351] and goldenrod. Most weeds, however, were European.

According to ecological historian Alfred Crosby, American Indians considered the Englishman a botanical Midas, able to change flora with his touch; they called plantain "Englishman's foot" because it seemed to spring up wherever the white man

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350 Anonymous Micmac Man. To Rev. John Sprott, Musquodoboit, N.S. 1 February 1846. From The Wigtownshire Free Press, Scotland; quoted in The Novascotian, Halifax, 6 April 1846. Excerpted in Ruth Whitehead's The Old Man Told Us :229

351 Cronon, William. Changes in the Land: 143

stepped.[352] In Nova Scotia the spreading of weeds would have had a longer history extending back to the 1500s to the shoreline bases, occasional garden plots and ballast dumping areas of European fishermen.[353] Because of the French history in these lands, Micmac names for introduced European plants and animals generally had a French reference. If the objects had some resemblance to things with which the Indians were previously acquainted, it bore this Indian name with the Micmac word for French (wen'j) as a prefix. Thus the Micmac word for apples was 'Wen'jusun' meaning French cranberry and so it went with many other new species. When there was no similar native plants or animals to compare introduced species to, as was the case with weeds, then the word created referred to a significant ecological feature which distinguished the newcomer. The Micmac word for weed, "musigun' geteget" was synonymous in meaning with 'cultivate' and was derived from similar sounding Micmac words which meant - 'bare, empty, clear, and undressed' or 'clear the bush or thicket'[354] --- an obvious summary of the land changes Indians witnessed as agrarian settlement and new species took hold.

Countless species were introduced by Europeans from the apple, pear, plum, sour cherry, French willows, Lombardy popular, and Scotch elm trees of the Acadians to the lime (linden or basswood), horse-chestnuts, European Ash, campanulas, veronica, phlox and yellow loosestrife of the English to name just a few. As was noted by 184?: "Only a few years ago, when a traveller passed along the main post roads, he was wearied by the sight of the log house, the stump field and the silent forests; he is now cheered by the pretty garden, the clean house yard and gay flowers presented at the windows of even the humblest dwellings."[355] Some ornamental plants became roadside escapes like columbine, lupins, black-eyed susans, musk mallow, and Japanese knotweed but most required constant tending to persist, unlike the ever-present weeds. Many of these European weeds - to say nothing of grains, vegetables

352 Pollan, Michael. "Weeds Are Us." New York Times Magazine November 5th, 1989:50

353 It is believed the fishermen had summer gardens at various points along the coast where they came ashore to dry their catch. Jordan, Shelburne County may have been one such place. It was named Rivera Des Jardins, "river of gardens" by the Portugeese and the Lopo Homen map of 1554 shows approximately the same spot called Les Jardins. See From the Ground...The story of Planting in Nova Scotia by Majorie Major, Petheric Press, 1981:5

354 Silas Rand's Dictionary. A Short Statement of Facts Relating to the History, Manners, Customs, Language and Literature of the Micmac Tribe of Indians in Nova Scotia and P.E.I.:18

355 Gesner 201

and orchard trees -- quickly became the most common and familiar plants of the pastoral landscape, their populations sustained in all places by the habitats human beings and domesticated animals created for them. Of Nova Scotia's 2000 plant species today 400 are introduced species.

Along with the razing of woodlands and the introduction of weeds, the landscape had been changed by the cultivation of hay, potatoes, a variety of vegetables and grains (turnips, carrots, oats, wheat, barley, rye, Indian corn, peas, beans), fruit (mainly apples) and the raising of horses, cattle, sheep, swine, and poultry. This led to increases in insect populations attracted to the widespread growth of vegetable and grain crops. Some insect predators were native, others came as European imports such as the Hessian fly which devastated wheat in the mid-1800s. Wheat was proving to be difficult to grow in many areas of Nova Scotia even without the destruction of Hessian fly, and at mid-century debate raged as to whether the province was capable of raising wheat in sufficient qualities for the support of its own inhabitants. Instead farmers had focused on raising beef and other livestock either for subsistence or for sale to local markets. As Haliburton noted: "The high price of labour, the cheapness of [imported] American flour, the previous habits of the people, and the great demand which the fleet and army made during the late war for beef and pork, all contributed to render grazing the predominant and favourite system of farming."[356]

The establishment of European grasses (timothy, fescue, brown top) were therefore very important. This was why English grasses were a prominent feature in the 1758 Boston Gazette advertisement placed by Colonel Lawrence describing the fertile, vacated Acadian farmland ready for settlement -- with "more than 100,000 acres of upland, cleared and stocked with English grass". It grew more densely than did the naturally occurring grasses, produced more hay, was more digestible tc cattle and generally hardier in tolerating the strain of constant livestock grazing.

Grasses were equally as important for the Micmac although for different reasons. Sweet grass (tsi-m-tsee-goo), literally meant great grass and was considered sacred because it was part of the creation story: Netaoanson, Glooscap's nephew was born of

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[356] Haliburton 367

it. A single strand of grass was believed to keep negative forces away so it was used in various ways as a precaution.[357] Since sweetgrass is found in low, lying moist heavy soils around the upper areas of tidal marshes surrounding the whole coast it was most likely cut along with other marsh grass for hay. Other Micmac wild plants and food sources formerly abundant also grew scarcer. As Gesner noted in his role as Commissioner for Indian Affairs: "Indigenous roots once highly prized [by the Micmac] for food have been destroyed by [roaming] domestic animals. Herds of swine have consumed shell fish beds along the shores [which Indians relied on]."[358]

Driven off the best lands, reduced by disease and alcohol consumption, and starving from the depletion of game, other food sources and insufficient relief aid, Micmac were propelled to take up agriculture which was held out by whites as their salvation. Some were successful but most failed. Timing was critical and just when more Micmac turned to agriculture as a result of a government program to encourage it, natural factors conspired against them in 1848:

> During the last three years the potato crop has been a failure. In the second year the crop of hay also was so deficient as to occasion, in the absence of the usual supply of potatoes, a great loss of livestock, and much additional distress from the scarcity of grain -- a large proportion of that crop being consumed as provender for the cattle. In the last year the prevalence of unusually wet weather prevented, in great measure, the saving of the hay that promised to be abundant; and the same weather caused extensive destruction in the grain crops after ripening. From the pressure of these accumulated failures in the crops, the Indians have been forced to desert their agricultural settlements, and disperse over the country in search of subsistence.[359]

The potato blight which destroyed farming in Nova Scotia from 1846 to 1848 made a mockery of all the much touted comfort and stability of farming life. It affected whites and Indians alike, but the accompanying diseases ravaged natives most severely.[360] Farming failed Indians for three main reasons: seeds were shipped from government

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357 Pritchard, Evan Thomas. 'Introductory Guide to Micmac Words and Phrases' (PANS v/f v.81 #1 &19)

358 Report of the Commissioner for Indian Affairs, Journal of the House of Assembly, 1847, Appendix 24.

359 E.M. Dodd and H.W.Crawly. In Legislative Assembly of Nova Scotia Journals. 12, February, 1848, Appendix 36:143

360 Upton. " Indian Policy in Colonial Nova Scotia.":108

stores in Halifax to communities without sufficient time to allow planting during the proper time; there was a lack of sufficient relief aid during the first few years of the program (the people ate the seed stock when it arrived rather than plant it because there was no other food available, or they neglected their fields to hunt for necessary food); and most importantly, the lands set aside for the Micmac were encroached upon by white settlers.[361]

Agriculture had brought dramatic changes in the land -- both culturally and ecologically. Nova Scotia's population rose from approximately 40,000 in 1800 to 275,000 at mid-century in 1851, to 440,500 in 1889: 70% claiming to be farmers. Rural settlements were scattered around the coastal edge of the province and confined to the main river valleys stretching inland. Much of Nova Scotia's interior remained unsettled except except for a few pockets of settlement in northern Queens and Lunenburg counties, along the Upper Musquodoboit valley of Halifax county and along the St. Mary's and Guysborough rivers of Guysborough County. By contrast the interior of Cape Breton was equally as well settled as its coastline owing to the ease of access afforded by the Bras d'Or Lake.[362]

These broad patterns correspond closely to the physiographic features of the province. More than half of the province comprises hard crystalline and metamorphic rock. An extensive belt of granites, slates and quartzites stretches along the Atlantic coast from Cape Canso to Cape Sable and extends some twenty miles inland. On these "eastern and southern shores," so called, settlement was limited to the bays and inlets that provided small pockets of alluvial soils, protection from Atlantic storms, and access to the relatively rich inshore fishery. Much of the uplands formed by the northern extension of the Appalachian Mountain range - and known variously as North and South Mountains, Cobequid Mountain, Pictou-Antigonish Uplands and Cape Breton Highland - was equally forbidding, relatively inaccessible, and uninviting. Early settlers found the Fundy marshlands, the fertile alluvial flood plains of in the major

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361 McGee, Harold. 'The Micmac Indinas: The Earliest Migrants' in Banked Fires: 28

362 Wynn, Graeme and MacKinnon, Robert. "Nova Scotian Agriculture in the "Golden Age": A New Look." Geographical Perspectives on the Maritime Provinces ed. Douglas Day , Halifax: St. Mary's University,1988: 47 . The1889 population figure comes from Calkin, J.B. School Geography of the World Halifax: A. & W. MacKinaly, 1889:176

river valleys and nearby lowlands far more attractive. The only significant exceptions to the resulting pattern of peripheral settlement were on drumlin fields in interior Queens and Lunenburg counties where the soil was far more fertile than the surrounding, hard bedrock belt. Here farming developed in close association with lumbering as the colony's best stands of white pines were found in this area.[363]

Despite the fact that farming proved to be a successful initiative for many colonists, there were a considerable number of others who, like the Micmac, found it very difficult. As one discouraged man complained: "It is no wonder that I'm gloomy living here. . .in the wilderness. . .with nothing better than plain potatoes. Before I make a clearing and raise crops and tear the tyrannous forest up from its roots by the strength of my arms, I'll be worn out and almost spent before my children have grown up."[364] Backbreaking labour was not enough. Titus Smith concluded that location of land was everything: "If Nova Scotia was deprived of its eastern division and the low lands near the Bay of Fundy, the remainder of the province would be a very poor country for agricultural purposes."[365] Much of the land that was cleared was useless for cultivation and settlers moved on leaving behind abandoned fields which quickly grew up in white spruce. The lessons in the land's ecology were many. Discourse over the land included many responses that ranged from 'nature as enemy (forests) to 'nature as habitat' (the search for good lands) to "nature as poverty (the paucity of good soils) to 'nature as wonder' (the mysterious succession of trees) to 'nature as wounded object' (the devastation of widespread forest fires). It was agriculture that most changed and 'tamed' the land. But more transformation would take place with the taking of the forests.

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363 Ibid:48

364 Citation in Marjorie Major's From the Ground...The Story of Planting in Nova Scotia. Halifax: Petheric Press, 1981:43

365 Smith, Titus. Crown Lands

Chapter Six

TREES, TIMBER , TRANSFORMATION

> "To the Englishmen unaccustomed to northern fir forests and their accompanying flora, the woods are naturally the strangest feature of the country..."
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> ....Campbell Hardy, *Forest Life in Acadie*, 1869

Strange or not, Nova Scotia's forest were the dominant presence on the land, defining it more than anything else. Vast tracts of these so-called 'primeval forests' described as being 'as ancient as the world itself' did not mean that large mature trees stretched from one end of the province to another awaiting the transforming hand of Europeans. There were extensive bogs, in many cases, much as we know them today, with tree cover sparse or absent. There were natural barrens where the soils were too thin or too coarse to support anything but heath-type vegetation. The band of white spruce along the exposed Atlantic coast was probably not very different in many areas than it is today as it is one of the few species able to withstand the constant drying effect of salt-laden sea winds. Mature and over-mature forests were common. The deep soils of the high ground were covered with maple, beech and white pine, the moister slopes and valleys with hemlock, yellow birch, pine and spruce. But there were young stands too, and middle-aged stands, and new barrens, because huge fires raced unchecked across the land following electrical storms[366] and periodic windstorms and hurricanes.[367] sometimes levelled over mature forests[368]

With settlement and the twin developments of agriculture and the timber trade, the patterns of the 'primeval' forests radically changed. Trees became a mercantile

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366 Nicholas Denys wrote in 1672(395): "thunder falls sometimes in fires and strikes the woods where everything is so dry it continues there some three weeks or a month. Unless rains fall sufficiently to extinguish it, the fires will burns sometimes ten, twelve and fifteen leagues of country."

367 Titus Smith wrote in 1802 of the widespread levelling of large tracts of forests. The great gale of 1798 blew down over a million acres of woodlands from Porter's Lake, Halifax County on the east to Shelburne County on the west and north as far as Windsor. Foliage on trees, crops and other plants turned black attributed to the "salt water in the air" as some people believed. Cited by Ralph Johnson's in Forests of Nova Scotia:60

368 Martin, Lynton. "The Land." The Occasional Vol.7.no.3.Feb.1982: 12-13 (PANS AM1 OSV7)

commodity, 'nature as wealth', and were selectively cut for many reasons, in demand within the province and for export. As surveyor Charles Morris wrote in a 1761 report:

> ... in every township there will be found great quantities of spruce, fir, pine and other species for Masts, Spars, Deals, etc and considering the extent of Nova Scotia . . .there will be a sufficient quantity to supply Great Britain will all those materials for ages to come.[369]

Yellow birch, with its close grain was used in shipbuilding and found more durable than oak especially for parts that lie under water like planks and knees. White birch (also called Canoe Birch) being fine grained and light was used to make wooden dishes, grain shovels and wheels plus its bark functioned to cover the crevices of buildings previous to shingling or clap-boarding. One large tree would supply sufficient bark for the Micmac to make two canoes each capable of holding 10 people. Sugar maple was used for furniture making, flooring and fuel but was most useful left standing to spring tap its sap to make maple sugar and syrup -- long used by the Micmac who showed the French how to tap trees. White ash, from it ability to bend and retain its position afterwards was used for a great variety of purposes including the construction of farming implements, as well as oars and staves. White cedar (which wasn't common) and black spruce, growing in swamps, were highly valued for their rot resistant qualities and used for fenceposts and in the case of cedar, shingles. Tamarack, also found growing in wet poorly drained areas, had very durable strong wood which was actively sought for ship building and construction of such works that were exposed to alternate wet and dryness. Black spruce, one of the most lofty forest trees when not growing in a swamp, was highly valued for its strength and toughness and its squared timber and saw mill logs were used in all types of construction. The smaller white spruce was similarly employed and its small roots, typically very strong when kept moist, were used by the Micmac for cords. Hemlock, not as strong as spruce, had more limited utility, but when immersed in water was durable and therefore was employed for wharves or fence posts and its bark was universally used in tanning leather. Balsam fir was cut for poles, sawn into boards and staves and its balsam or resin utilized for its medicinal properties. White pine, the monarch of the wilderness towering over all other trees, was unrivalled as a staple of commerce and

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369 Morris, Charles, "Description and State of the New Settlements in Nova Scotia in 1761." Report of the Canadian Archives Appendix F Sessional Paper 18, 1905

domestic use since its soft wood was easy to work with the tools of the time. It supplied masts for large ships, square timber, deals, boards, shingles, and the wood used for the finishing of every kind of carpentery work. [370] Mature white pines which frequently rose to heights of 200 feet and had a four to six foot diameter were easy targets to spot and their preferred habitats of dry, sandy ridges were actively sought out by colonists. Campbell Hardy elaborated on this in 1869:

> The White pine is the great object of the lumberer's search. Ascending a tree from which an extensive view of the wild country is commanded, he marks the tall overbearing summits of some distant pine grove (for this tree is singularly gregarious, and is generally found growing in family groups), and having taken its bearings with a compass, descends, and with his comrades proceeds on his errand of destruction. In the neighbourhood of the coast, or on barren soil, the pine is a stunted bushy tree, its branches feathering nearly to the ground; but the pine of the forest ascends as a straight tower to the height of some 120 feet or more, two or three massive branches being thrown out in twisted and fantastic attitudes. As if aware of its proud position as monarch of the forest, it is often found growing on the summit of a precipice; and these conspicuous positions, which it seems to prefer, have doomed this noble specimen of the cone-bearing evergreen to ultimate extermination as certain as that of the red man or the larger game of this continent. Some half-century since, pine was found on the margins of all the large lakes and streams, but of late the axe and devastating fires, have, as it were, driven the tree far back into the remoter solitudes of the forest.[371]

At the time of this writing the waning of Nova Scotia's original old-growth pine forests was well in sight, reflecting an age-old pattern of forest exploitation that occurs with the development of settlement, cities and market trade. Ancient writers observed that forests always recede as civilizations develop and grow. The great Roman poet Ovid wrote, for instance, that during the "Golden Age," before civilization began, "not yet had the pine tree been felled on its mountainside"; but when the Iron Age succeeded it, the pine were cut down. This occurred for a simple reason; trees have been the principal fuel and building material of almost every society for over five thousand years.[372]

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370 Gesner 81-98

371 Hardy, Campbell. Forests of Acadie: 27-28

372 Perlin, John. A Forest Journey: The Role of Wood in The Development of Civilization. London: Harvard University Press, 1989: 25

In Nova Scotia the demand that colonists would place on the valued white pine was foreseen by British colonial administrators in the early 18th century. The British need of pine ship masts, to ensure domination of the seas and state security, resulted in regulations prohibiting the felling of pine trees. In 1728 the enactment of the Broad Arrows law forbid the cutting of white pines 24 inches in diameter and larger, 12 inches from the ground, which were to be marked with the traditional broad arrow and only felled by licensed surveyors. Trees of such size and straightness were unknown in Europe; no European trees were large enough to serve as masts without several being spliced together.[373] The extent of the implementation of the Broad Arrow policy for reserving pine to the Crown was attested to by the missionary Joshua Marsden who noted, in 1801 on his travels through Nova Scotia, that it was possible to travel fifty and sixty miles through wilderness following marked trees.[374] In New England, the conflict between colonial and imperial interests as symbolized by the Broad Arrow policy on pines, contributed to the American Revolution. In Nova Scotia, the prohibition on taking pines was essentially largely ignored.

This policy and its resulting blazed trees stood as a symbol of the early and extensive exploitation of pine resources in the province which, although plentiful, were not inexhaustible. As Charles Morris recorded in his report to Governor Legge in 1774, the various acts passed by the colonial government to regulate forests fire (1762), trespassing (1767) and the exploitation of timber (1772) on Crown lands were "ineffectual"[375] and in a short time "trees fit for masts will become scarce if not altogether destroyed". Since pine was rapidly disappearing on mainland Nova Scotia, Morris recommended setting aside Cape Breton island as a naval timber reserve since, "whole and entire tracts of land should be reserved for such purposes and. . . found the more necessary because the woods and timber trees among which the pines grow are very necessary for their protection during their growth and in a great measure prevent their destruction from gusts of wind, the pine towering with great

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373 Cronon110

374 Marsden, Joshua. A Narrative of a Mission to Nova Scotia..., London, J.Kershaw, 1827:72 Citation in Paul Webster's Thesis "Pining For the Trees":35

375 Murdoch, Beamish. A History of Nova Scotia or Acadie, 1866.Vol.3: 526. Primary Source:Charles Morris to Francis Legge. (PANS MFM 15234 Letter #32)

height above all the other Timber Trees."[376] Taking heed of such council, the Governor made Cape Breton a pine tree reserve for a brief three year period until the island was opened up for settlement.

As English colonization took off in the 1780s so did the timber trade. Sawmills rose from 27 in the province in 1761 to 1401 in 1861[377] -- often set up in places that 'no one would dream of'. Small lumber operations were common due to the many small rivers flowing into the bays and harbours of the Atlantic shore, the Bay of Fundy and Northumberland Strait. Yet larger scale operations were centred around the principal rivers or river systems, such as the Medway, the La Have, the St. Mary's, the Shubenacadie and the Annapolis. As well, the Bras D'or Lake providing the same forest access as a larger river meant that for many years an extensive lumber trade with Britain was centred around Baddeck. Along the Annapolis River, the growth on the fertile intervale was soon removed to make way for agriculture, but for a considerable period the forests on the mountain slopes were exploited to provide lumber for the West Indies market. Lush forests growth could be found along a number of the river systems on the eastern coast, as well as in Cumberland, Colchester and Pictou counties, where North Shore ports were centres of exploitation of the principal stands of pine.[378]

Lumber exports rose dramatically. Shiploads of 'fir' that were exported to England increased from 565 in the year 1800 to 28,059 in the year 1818. Europe, cut off from its Baltic supplies of timber in 1808 by the Napoleonic Wars, had turned to North America for its supplies. Shipbuilding entered a boom phase with 600 vessels built between 1824 and 1830, 1000 ships between 1831 and 1838, and 1491 built between 1853 and 1861.[379] The hunt to find the best stands of timber covered all areas of the province.

Widespread land speculation became rampant. Duplicitous timber speculators posing

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376 Charles Morris to Francis Legge. (PANS MFM 15234 Letter #32)

377 Census of Canada, 1665 to 1871, Census of Nova Scotia, Ottawa 1875

378 Ferguson, Bruce. 'Lumbering in Nova Scotia.' Public Archives of Nova Scotia Annual Report1955:59

379 Goldsmith, R.B. "An Evaluation of a Forest Resource-- A Case Study From Nova Scotia", Journal of Environmental Management v.10,1980: 89

as settlers, paid the required one quarter value down-payment for tracts of land, stripped and then abandoned timber lands.[380] Colonial leaders urged the government to take action to "allow no absolute grants without such conditions as will ensure the occupancy and improvement of the lands. To those who only want the timber, leases might be given for certain periods to cut what they require." The latter did not happen until the 20th century. Since outright land grants were given until 1900, most of the timber holdings were vested in thousands of small grants, leading to small-scale timber operations, a lack of monopolies[381] and very little Federal Crown land left - - only 3 percent. Two-thirds of the province's forests thereby became privately owned, leaving the remaining one third to the province - generally the poorest, most inaccessible land.

Efforts to stop the pilfering of good trees on lands belonging to the crown or private landowners proved ineffective. Colonel J.F.W. Desbarres, is just one of many who protested to Crown Lands Commissioners about the illegal removal of trees from his land -- a 20,000 acre estate at Tatamagouche:

> [The thieves] are now loading two vessels one of 300 tons and one of 100 tons with timber lathwood and plank we can prove the timber comes off the land we hold. These vessels will sail in about ten days from the time you receive this letter I have forbid the merchant I have warned the Captain I have repeatedly seized the timber and am now sick and tired. . .You may rely that they are trying to destroy every tree on the land, and will if any delay is taken.[382]

Micmac lands were also encroached on by tree thieves. An exchange of letters concerning the theft of timber from land upon which the Micmacs were being encouraged to settle at Bear River in the 1830s illustrates the difficulties Micmacs faced trying to keep timber pirates at bay. Reporting on the activities of a local timber-cutter, a friend of the Bear River Micmacs wrote to their main patron, Judge Wiswall at

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380 Minutes of Evidence, Commission of Enquiry for Crown Lands and Emigration 1838, Appendix 4:61 PANS AK F74 C16

381 F.E. Fernow, Forest Conditions of Nova Scotia. Ottawa, 1912:36. See also Barbara Robertson's "Trees, Treaties and the Timing of Settlement: A Comparison of the Lumber Industry in Nova Scotia and New Brunswick, 1784-1867." Nova Scotia Historical Review. 4 (1)

382 Desbarres to Crown Land Commissioners Aug. 13, 1814. PANS MG1 Vol.1183 #64a, Desbarres Papers

Digby, February 3, 1832:[383]

> ..he [the timber cutter] has gone on the lots where he has bought none and these Indians are away in the woods he has. . .sawed down a number of trees so that the sound of the axe could not be heard. . .by what I have seen I believe it to be true that the timber he is. . .carting away is that which they have got in a clandestine manner. . .I think [there ought] if possible to have something done to put a stop to the white people intruding upon their lands. . .it is a pity that the Indians should be thus annoyed. . .and I hope that you will prescribe an immediate remedy.[384]

Drawing attention to this problem three years earlier Lord Dalhousie wrote to the Legislative Council in 1829 urging the government to devise "some means to protect [Micmac lands] from encroachment and trespass. . .the Indians now complaining that a great part of their land had been settled by intruders, and that others had stripped them of their wood."[385] As grievances about the destruction of timber on Micmac lands grew, the colonial government felt pressed to take action. In 1839 signs were posted around Micmac reserves, warning:

> If, after this notice, any person shall dare to settle on any Indian Reserve, or to extend his improvements, or to cut timbers, or commit any other act of depredation thereon, such offender will be prosecuted with the utmost rigours of the law.[386]

Despite such measures, as well as laws to protect timber on crown land, efforts to control the exploitation of trees failed. Woodlands growing adjacent to the bays and rivers, the sites of settlements, were the first to be felled. By 1791 Shelburne suffered the fate of many other communities particularly those in long-established farming areas around the Bay of Fundy. With the cutting of nearby trees, easy access to lumber plummeted and without deep water rivers or roads into the interior where there were trees to cut, the price of wood soared -- for both building and fuel purposes. In the case of Halifax, 1774 accounts noted that all trees were burnt down within a three to

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383 Webster, Paul. "Pining For the Trees: The History of Dissent Against Forest Destruction in Nova Scotia 1749-1991." MA Thesis, Dalhousie University, 1991: 74

384 J.S. Harris to Wiswall, Feb.3, 1832, PANS MG5 Vol.17 #42

385 Minutes of Council, 3 Oct. 1829 PANS RG1 Vol.308 Doc.89

386 Notice to Trespassers on Indian Lands, PANS RG1, Vol.431

four mile radius around the town.[387] Close to settlements wood was scarce and by 1796 the high price of fuel was a concern particularly in winter[388] with wood-cutters going farther afield to obtain it.

The task of collecting fuel was not without its costs as a great deal of hard labour had to be expended in chopping, splitting, and carting the bulky, heavy, hard commodity. Fuel cutters selected smaller trees under two feet in diameter. Chopping was generally done in winter when other tasks couldn't be performed and also because logs split more easily during freezing weather. Snow on the ground also made it easier to drag out the wood on sleds. In the late 1700s and early 1800s the typical rural household consumed between twenty or thirty cords of wood annually as fireplaces in homes were very inefficient with 80 percent of the heat going up the chimney. Trees were selected for their inherent qualities so that the best burning woods was cut first. Hardwoods were targeted since they have the best percentage value of heat as related to one short ton of coal. For example, oak had 86 percent, sugar maple 84 percent, beech and birch both 80 percent. Most softwoods have low heat value, pines ranging from between 70 and 77 percent, tamarack being 75 percent. There were other considerations other than heat value. Hemlock split badly and sent sparks flying up the chimneys. Elms rarely dried enough to give good heat and most pines were so full of resin that, though they ignited quickly, and burned well in an open grate with an immediate and intense heat, they caused great smoke and soot accumulations in narrow chimneys and, later in the 19th century, in the pipes, stoves and cooking ranges. Consequently, the mixed hardwood forests received the greatest impact from cutting for fuel wood and the forests were cut over repeatedly wherever regrowth occurred.[389]

Fuel wood trade engaged rural dwellers in providing adequate supplies to towns. But this did not mean that there were not firewood shortages in rural areas and necessary strategies to overcome them. As Governor Wentworth wrote in 1790: "I have seen several of the late settlers, who have consumed, with infinite labour, all the wood

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387 Robinson & Rispin 4

388 Murdoch, Beamish. History of Nova Scotia. Vol3. 1867:146

389 Williams, Michael. Americans and Their Forests :77-78

within reach of their cottages, and in the autumn build huts in the adjacent forests and live therein during the winter for the sake of having sufficient fuel."[390]

Since wood had become private property it interfered with Micmac subsistence patterns. Long standing traditions of moving from place to place, setting up camp and using nearby wood for wigwams and campfires was now curtailed by landowners adamant on preserving the trees for their own uses. This was particularly devastating in winter when food was scarce and hungry Micmac moved closer to settlements where they were reduced to 'wandering from place to place and door to door seeking alms".[391] This petition to Governor Wentworth pleaded their case in 1807:

> The petition of eleven families of Indians humbly sheweth that your Excellencies Petitioners (as well as most of our nation in this country) are a poor distressed people. . . that there is scarcely any game now in the country for use to live on that in the winter season we are reduced to the most wretched circumstances. . .that we are often very much exposed to cold and hunger and many times are denied liberty to build wigwams or cut any wood in the settlements of this country, that owing to hunger, cold and bad victuals many of our people are sick and dead.[392]

Louis-Benjamin Peminuit Paul would write of the tree-cutting bans placed on Micmacs in his petition to Queen Victoria in 1841 protesting the poverty of the Micmac:

> My people are in trouble. I have seen upwards of a Thousand Moons. When I was young I had plenty; now I am old, poor and sickly too. My people are poor. No Hunting Grounds--No Beaver--no Otter--nothing. Indians poor--poor for ever. No Store--No Chest--No Clothes. All these woods once ours. Our Fathers possessed them all. Now we cannot cut a tree to warm our Wigwam in Winter unless the White Man please. . .White Man has taken all that was ours. He has plenty of everything here. . .Let us not perish.[393]

Micmacs were prohibited from cutting trees partly because some Indian men were self-employed as coopers. Experienced in wood handicrafts, they quickly responded to

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390 Wentworth to the Honourable the Principal Officers and commissioners of H.M. Navy, March 20, 1790, PANS RG1 Vol.49

391 Gesner, Abraham. In Legislative Assembly of Nova Scotia Journals. 1849. Appendix 36:338

392 Petition to Wentworth, 1807, PANS Land Grants, Vol,28.#140

393 Louis-Benjamin Peminuit to Queen Victoria, received by the colonial Office, London, 25 January 1841. Excerpted in Ruth Whitehead's The Old Man Told Us:218

government encouragement to get involved in the manufacture of staves, hoops, shingles, clapboards, oars, rafters, barrels and fish casks. However, as with Micmac birch bark boxes and wood basket handicrafts, there was a limited, small market for the sale of these goods. Still the Micmac continued to produce them and conflict over woodlands intensified as the lumber industry expanded. When Indians camped in the remaining wooded areas close to settlements, they quickly stripped the area of trees, using the wood and the bark for fires and the manufacturing of staves and baskets. In retaliation, some communities denied them the right to cut firewood.[394]

Although the greatest domestic use of trees was for fuel, colonists responded to the initial abundance of wood by using it in many new ways. Old world construction techniques based on scarcity were altered. Half-timbered construction of buildings walls gave way to full-timbered construction using clapboard or singles; stone-walled construction became relatively rare. Slate or thatched roofs were replaced with wood shingle roofs. House size in general increased over English models, so that buildings required not only more lumber to build but more firewood to heat. In short, most of the aspects of colonial house carpentry came to rely on the seemingly endless supply of timber.[395] That combined with the timber and shipbuilding trade meant that sawmills were widespread with lumbering restricted to waterways so that logs could be moved more easily to mills.

The proliferation of water-powered sawmills on every creek, stream and river in the province soon altered both forest and stream ecology. Even when steam began to replace water as the power source in the mid-1800s waterways remained important for the transport of logs upon which the whole lumber industry depended. As Gesner wrote:

> The felling, hewing, sawing and rafting of timber, are simple operations, performed either by parties of men sent out by the merchants, or by persons who collect logs, timber, and sawed wood, on their own account. Late in the autumn, or early part of winter, parties are dispatched to the woods, with a supply of provisions, axes, horses, or

394 Upton, 1975a:45-47. Citation in Gonzalez's Changing Economic Roles For Micmac Men and Women:57

395 Cronon 119

> oxen, and everything necessary for the enterprise. Hay is often transported at a great expense, or the animals employed are fed upon oats, or Indian corn. A rude camp and hovel are soon erected, and covered with the bark of trees. The men commence felling and hewing the pine, or collecting sawmill logs, which are rolled into the nearest stream to await the freshets of the ensuing spring, when they are transported downwards to the mills. . . Many. . . are dependent upon the falling of showers of rain to float the wood rolled into the streams, or to set the saw mill in motion, whereby they obtain their subsistence.."[396]

Larger operations created elaborate sluiceways, canals and dams to divert and supply sufficient water for their mills. Thus upstream landowners might find their land flooded for lumbering operations and downstream landowners might discover their water supply lessened. Log drivers were permitted by law to remove all obstructions such as trees, stones, logs (but not mill dams) along connecting water routes used to drive logs to mills. Pervasive log-jammed waterways plus the massive output of mill sawdust that collected on the sides of streams had dramatic environmental impacts -- clogging streams, choking off the oxygen supply and killing fish. Furthermore, dams erected across waterways to create mill ponds obstructed the passage of fish upstream. This impeded both the spring and fall migration of salmon, gaspereau, smelts and other fish. Although fish pass legislation was enacted in 1786 to instigate the installation of fish ladders, the enforcement of these regulations was rarely effected not least because of the influence wielded by the mill owners themselves. Legislation enacted in 1854 to stop the dumping of mill refuse into waterways did not stop the practise which continued well into the 1930s. [397] An 1855 report from the Chief Warden of River Fisheries for Halifax County elaborated on the problem:

> I have often seen the broken fragments of full grown fish, as well as masses of fry that have been killed by the mill wheel. That thousands of barrels of various kinds of fish are yearly destroyed by this means is beyond controversy. . .I wonder. . .that we see even one salmon in our waters, which our forefathers describe as abounding in miraculous multitudes of those fish.[398]

A year later Campbell Hardy would write that the formerly abundant salmon in

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396 Gesner, 215

397 Johnson, Ralph. Forests of Nova Scotia, 1986:119

398 Report of the Society For the Preservation of the Inland Fishery 1857

Sackville River were now scarce as " the sawmills and their obstructive dams have quite cut off the fish from their spawning grounds."[399] This disappearance of salmon and other fish from waterways across the province was protested by Micmac, sportsmen and government officials alike including J.S. Morris, then Surveyor General and Commissioner for Crown Lands in 1838 who pointed out that the inshore fishery was being severely disrupted by the construction of dams across rivers and streams.[400]

With such widespread lumbering activities, it didn't take long before specific trees were gone. The exhaustion of the original-growth pine in Nova Scotia forests took place by 1837-38.[401] Cedar and tamarack stands were spent around the same time due to the large export of wood for ship knees in the 1840s and 50s.[402] As Nova Scotian shipbuilder, Captain Beckwith put it, "We are wasting our forests, habitually, wickedly and insanely and at a rate which must soon bankrupt us in all that element of wealth."[403] In 1838 Titus Smith would report to the Durham Commission Enquiry into Crown Lands that "the timber used to be good [in Queen's county] but it is nearly exhausted." [404] Other colonial scientists and leaders reported similar conclusions for the rest of the province. Small areas of untouched forests still remained in inaccessible interior areas since as Gesner noted in 1849 "small sized rivers have checked timber exports but protected inland forests" which logging roads and motor transport would late open up to exploitation. But basically, the best stands of the most highly valued trees were exhausted by the mid-1800s. The disappearance of large white pines was dreaded by the lumberer as much as a scarcity of large white birches was dreaded by the Micmac who required big strips of birchbark to make canoes. By the early 1900s large mature white birch trees were generally no longer obtainable.[405] Nova Scotia's

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399 Johnson, Ralph. Forests of Nova Scotia. Halifax: N.S.Dept. of Lands and Forests, 1986:119

400 Minutes of Evidence: Commission of Enquiry for Crown Lands and Emigration 1838, Appendix 4:61

401 Croighton, Wilfred. Forest Keeping: A History of the Department of Lands and Forests in Nova Scotia 1926-1969. Halifax: N.S. Dept. of Lands and Forests, 1988: 7

402 Ferguson 69

403 Beckworth, Captain N.M., "Our Canadian Forests." The Canadian Monthly and National Review Vol.1 1872: 527-29

404 Smith, Titus. Minutes of Evidence, Commission of Enquiry for Crown Lands and Emigration: 24

405 Harry Piers. 1 December 1924. unpublished notes. Nova Scotia Museum Pritned Matter File. Excerpted in Ruth Whitehead's The Old Man Told Us:324

mature woodlands had undergone dramatic change.

This was not to say that the forests were destroyed but rather that the best accessible trees in it were cut . There were far fewer (and in many areas no) hardwoods, spruce or pine trees left of any kind or size that could be reached with the technology of the time. Immense stands had been felled and, in mixed woods, desired trees removed. The selective cutting of these trees triggered an ecological fallout. Taking the best, largest , most luxuriant trees meant removing a superior seed stock for future generations and leaving instead poorer quality trees with inferior genes to seed and renew the forest -- a process known in the forestry industry as high grading.

If there was a bright side to the timber scarcity it was that many woodsmen were forced to farm --- or at least that was the twisted opinion of some colonial leaders committed to the cause of cultivation.[406] But as dramatic as the effects of lumbering were on Nova Scotia's forests, waterways and fish populations, it was nothing compared to that of the clearing the woodlands for farms. Concerned bystanders considered the careless use of fire to clear the 'primeval forest and especially the tangled underbrush' [407] tantamount to crime. Such reckless action had a dramatic impact on the countryside when fires ignited nearby softwood thickets. As General Surveyor J.S. Morris observed in 1838: "A great proportion of the pine and spruce which originally covered a large portion of Nova Scotia, has been destroyed by fires which swept over it, and what this element spared has, to a great extent, been cut and carried away, so that there is comparatively but little remaining."[408]

But arguably the biggest crimes of forest incendiarism were those of early English colonial leaders themselves. In the mid-1700s they employed Mohawks to subdue the Micmac who had launched a guerrilla war against English colonists - albeit a brief one. As early as 1720 Governor Phillips from Boston on a visit to Nova Scotia suggested to English officials that 200 Mohawks from New York be brought in and kept in service to 'awe' the Micmac."[409] Mohawks, the traditional enemies of the

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[406] Gesner 216

[407] Hamilton, William B. The Acadian Recorder August 24, 1870

[408] Minutes of Evidence, Commission of Enquiry for Crown Lands and Emigration, 1838, Appendix 4, 61

[409] Murdoch v.2,368

Micmac, had a sporadic history of setting fire to Micmac hunting grounds long before Europeans arrived and now employed by colonials they launched their incendiary tactics again through the mid-1700s. Jesuit priest Pierre Maillard wrote of this in 1758:

> It is remarkable that in proportion as Europeans have settled in this country, the number of savages considerably diminishes. As they live chiefly upon their hunting, the woods that are destroyed to cultivate the country, must in the course contract the district of their chase, and cause a famine among them or compel them to retire to other countries. The English, sensible of this effect, and who seem to place their policy on exterminating these savage nations, have set fire to the woods, and burnt a considerable extent of them. I have myself crossed above 30 leagues together, in which space the forests were so totally consumed by fire, that one could hardly at night find a spot wooded enough to afford the wherewithal to make an extempore cabin..[410]

Fires created a particular landscape look. Woodlands which were predominately softwoods burnt quickly and the fire spread fast due the inflammable nature of their resin and the dry needle litter on the forest floor. Mixed woods featuring both conifers and deciduous trees also burnt likewise. However if the fire hit a solid stand of hardwood trees this portion of forest would often not be affected 'as the leaves in the summer were full of watery juices'. Likewise trees growing in wet, swampy, bog lands were also safe from the fires that ignited surrounding conifer stands. The impact of these conflagrations was devastating as this description of a burnt area from Sheet Harbour to the Bay of Islands depicts:

> I was lately on the Eastern Shore, and from Sheet Harbour to the Bay of Island I could not see as much green wood as would make a broom. The whole country was as black as Sodom the morning it was burnt, and some of the houses which were saved, like Lot's wife, were scorched with the fire.The birds and the rabbits were lying dead on the road, and the bear and the moose deer sought refuge from the fire among the tame cattle in the open fields. The loss of buildings is less than might have been anticipated from the extent of the fire, but lumber, ship timber and firewood are completely consumed in many districts. Fencing poles and firewoods will grow again, but the dust of ages must roll over our heads before the desolation of our pine forests can be repaired.[411]

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410 Maillard, Pierre 82

411 Memorials of Rev. John Sprott, Edited by his son Rev. George Sprott, Edinburgh, 1906:109. Citation in Philip Hartling's Where Broad Atlantic Surges Roll Antigonish: Formac, 1979:36

As for an overall picture on the state of the mid-nineteenth century Nova Scotia landscape and the role of fire in it Campbell Hardy wrote: "Broken only be clearings and settlements in the lines of alluvial valleys, roads, or important fishing or mining stations, the forest still obtains over large sections of the country, notwithstanding continued and often wanton mutilation by the axe, and the immense area annually devastated by fire."[412] With the desolation of these large tracts of woodlands from fire, burnt lands soon rejuvenated sprouting species typical of the early successional stage of forest regeneration which varied depending on the nature of the soil and other factors. Smith, for example, described seeing tracts of a hundred acres and more covered by raspberries, loaded with a luxuriant crop on poorer soils.[413]

Since the physical conditions of disturbed areas are very severe the first species to invade the area are very tough. They grow quickly and reproduce before other species enter and shade them out. These colonising species, called pioneer plants, are replaced by others that take longer to complete their life cycle. Finally (climax) species occur that continue to grow in the area indefinitely until the next disturbance. This process of vegetation development, the replacement of species by other species over time, is the process of ecological succession which Titus Smith and other Nova Scotian scientists, botanists and nature enthusiasts observed taking place after the destruction of woodlands. The process of fast growing, sun-loving species springing up on burnt lands and providing shelter for shade tolerant species to get a hold until they outgrew and shaded out their short-lived predecessors was noted by Smith who likened it to 'sheltering':

> The principal trees of our forest are the white and red pines, the spruces, hemlock, beech, sugar maple, oak, yellow birch, and white ash. The elms and the large black cherry, common forest trees farther southward are here nearly confined to alluvial soils. Most of the smaller trees and many shrubs, are necessary to introduce these upon open land, as they will not succeed unless sheltered when young. Two of these sheltering trees, the red-flowering maple and the balsam fir, extend their protection to all, as they are to be found upon every kind of soil. The fir is a tree of rapid growth; and the roots of the maple are never injured when the system is

412 Hardy, Campbell.Forest Life in Acadie: 24

413 Smith, Titus. "Natural History of Nova Scotia.": 646

> killed by fires, or cut down; and consequently always throw out a number of shoots, which, in the course of one summer, after a fire, form clumps of shrubbery three feet or four feet in height. The white birch and the poplars, always with a mixture of fir and maple, and often of oak and spruce, form the shelter of the white pine. The hemlock is sheltered by the yellow birch, mixed with fir, spruce and maple; and these young groves of trees, are protected on the open side, if such should be, by a thick belt of firs. Wherever, also, the edge of an old grove of beech or fir is exposed, by the destruction of wood on the adjoining barren, a very thick belt of fir springs up; which in the course of a few years, completely shelters it form the wind and sun. The red larch, or tamarack, forms a portion of shelter for black spruce on rocky barrens. The alder, mixed with withrod, dwarf willows, and shoots from the roots of the red-flowering maples, serves to shelter the white birch, popular, spruce, fir and tamarack. The seedlings of the alder require the shelter of Kalmia, or of the evergreen and old leaves of the common plants of poor lands....the hawkweeds, the golden rods, the trailing evergreens, the kalmias, spireas and rhodora...[414]

The depth of soil, its moisture content and fertility plus climatic factors all affected what climax forest would eventually grow in various areas of Nova Scotia. Hardwoods, with their deep root systems preferred the better drained deeper soils and were common on the slopes of valleys. The climax species of these forests are shade tolerant hardwoods like Sugar Maple, Yellow Birch and Beech which develop in the understory of other trees and then outgrow them to form the forest canopy. Red Spruce, White Pine and Hemlock formed the climax forest type in the flatter, moderately drained sites. When the topography is mixed and rolling the climax vegetation types approaches the regional climatic climax, the Eastern Hemlock, White Pine and Sugar Maple, Yellow Birch and Beech forest. In the highlands of northern Cape Breton, characterized by its boreal climatic regime, the climax forest is a seventy year old Balsam Fir Forest.[415]

With the repeated firings of woodlands, soil fertility plummeted, becoming so sterile in areas with shallow, acidic turf that forests could no longer grow. Widespread barrens resulted on the burnt-over shallow soils of southwestern Nova Scotia, the Eastern shore and northeastern Cape Breton. These type of barrenlands occurred naturally

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414 Smith, Titus. Natural History of Nova Scotia." 1835: 652-653

415 Natural History of Nova Scotia. Halifax: N.S. Museum, 1984: Vol.1:212

either through soil conditions or the scorching caused by past electrical storm fires. However incendiarism perpetrated by Mohawks and, above all, settlement activity increased the number of barrens. Some colonists thought that "at no very distant period, many large tracts will present nearly the same appearance as the naked heaths and downs of the old world."[416] By the end of the nineteenth century fire rangers in southwestern Nova Scotia admitted that burning land to generate blueberries for the market had become widely practised and was out of control.[417] Barrens had spread to such an extend that they covered 25 percent of the province by the early 1900s.[418] Repeated conflagrations on the province's uplands with coarse soils has reduced forest productivity to that of many thousands of years ago. Campbell Hardy describes the site of a burnt Nova Scotia barren:

> Such a scene of desolation is seldom witnessed, except in these great burnt and denuded wastes of the North American forest. As far as the eye could reach was a wild undulating wilderness of rocks and stumps; a deep indigo-coloured hill showed the limits of the barren, and where the heavy fir forest again resumed its sway. It appeared to be some ten miles or so in length, and to slope from us in a gentle declivity towards the westward. The average breadth might be four or five miles. Little thickets and groves of wood dotted in all directions; sometimes a clump of spruce, against which the white stem of the birch stood out in bold relief; or, at others, a patch of ghost-like rampikes; whilst the brooks in the valleys were marked by fringing thickets of alder. Boulders of rock and fallen trees were strewn over the whole surface of the country in the wildest confusion; and the dark, snow-laden sky cast a shade over the scene, investing it with the most forbidding and gloomy appearance imaginable.[419]

If the destruction of woodlands meant more barren lands, it also meant more tracts of small trees growing up. William Chambers, in his description of Nova Scotia in 1857 noted "[in] the course of my journey I saw no large trees worth speaking of. . .much of the wood was small, and only fit for rails or other inferior purposes; my impression being that it was a second growth filling up the space which had been cleared by fire

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416 Smith, Titus. "Natural History of Nova Scotia." 1835:652

417 Kinsman, G.B. "The History of the Lowbush Blueberry Industry in Nova Scotia, 1880-1950." 1986

418 Natural History of Nova Scotia. N.S. Museum, Vol.1:223

419 Campbell, Hardy. Forest Life in Acadie: 146-147

or the axe."[420]

For timber interests, this second growth forest was of little value. With the denuding of mature hardwood and mixed forests the land reverted to the earlier successional stages where softwoods like balsam fir and spruce often predominate in woodlands. This second growth forest, as it turned out was perfectly suited for industrial exploitation and thus the pulp and paper industry was born in the province. The process of making pulp from wood (rather than rags) was, in fact, invented in Nova Scotia in 1839 by Charles Fenerty of Upper Sackville. Although he discovered the method of making paper out of crushed spruce wood fibre, he did not patent it as did a German several years later. With this development the pulp industry took hold. In 1875 the first pulpwood was cut from a second growth forest near Windsor. A second pulp mill was built on the Medway River in 1880 at Slater's Fall. Others soon followed and began to export their paper product. By 1900 pulp and paper was big business in Nova Scotia[421] as it is today with three multi-nationals operating in the province that annually cut vast tracts of forests. The industry's repeated cutting of second, third and fourth growth forests, plus the use of herbicides, has created more even age stands of softwood forests. Thus lives on the ecological aftermath of settlement fires which transformed the more abundant 18th and 19th century stands of mature hardwood, pine and hemlock forests to younger softwood forests.

In 1773 Surveyor General Morris described Black Birch (probably Yellow Birch) that were 9 to 12 feet in girth in Cape Breton. Others in living memory have described birch forests on mainland Nova Scotia that one could ride a horse underneath -- a familiar way of describing the open, park-land quality of mature forests. Even into the 1930s people spoke of remaining old growth hardwood stands of beech, birch and maple trees that were large, healthy and widely spaced with little or no underbrush underneath. Beech trees once reached heights of 60 to 85 feet, diameters at breast height of 16 to 24 inches and ages of 300 or more years. The yellow birch grew to 80 or 90 feet tall, two to three feet in diameter and had a life span similar to beech. The sugar maples lives to 300 to 400 years, reaching heights of 70 to 95 feet and

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420 Chamber, William. Things as they are in America. Edinburgh: William and Robert Chamber, 1857:37

421 Webster 48-49

diameters that were usually 20 to 36 inches. Because of the difficulty of floating hardwood logs to sawmills and the insignificant demand for hardwoods in Nova Scotia until the 1920s these beautiful forests growing on out-of-the-way ridges and well-drained slopes were largely left unmolested. But in the 1890s beech bark disease was introduced when European beech nursery stock was brought to Halifax for ornamental purposes. The devastation of this disease on Nova Scotia's forests was felt within thirty years. Beech were killed and the saplings that sprouted up only live until they reach a diameter of 10 inches or so. Beech, which had once dominated the hardwood stands in the province was now greatly reduced in its presence, forming distorted understory trees. Around 1900 the introduction of other European nursery stock spread more forest diseases: Balsam woolly aphid and the mountain-ash saw fly. The European winter moth struck red oak and by the 1940s most of the mature oak in various areas of the province died. Birch die back would also kill off off large numbers of yellow and white birch in the 1930s.[422] Dutch Elm disease would later wreck havoc with elms. In this way Nova Scotia's remaining mature hardwood forests in the late 1800s and early 1900s were transformed. With the introduction of tree diseases from Europe the hardwood forests in the province would dramatically change from those first described by European explorers and setters in the 17th, 18th and 19th centuries. Just has Europeans human diseases decimated Indian populations, European tree diseases destroyed the make-up of Nova Scotia's original hardwood forests. This -- along with the fact that fires and forest clearing created more stands of softwoods -- changed the face of the forests.

The ecological changes triggered by the clearing of the forests for settlement extended to climate as well. Indeed in 18th and 19th century there was great anticipation that this activity would have the effect of dramatically warming the weather. As Thomas Haliburton wrote:

> The prostration of the forest, the drainage of land, and other operations of agriculture, enlarge the sphere of the sun's action upon the soil, and the effect will be first observed in abridging the season of winter of part of its duration, and in breaking the uniform severity of the cold.[423]

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[422] Johnson, Ralph.310,311,168,169

[423] Haliburton 365

Nova Scotians noted that snow melted from cleared fields more quickly, disappearing before the end of winter. In contrast snow in the woods didn't melt until May since the cooler temperature of forests slowed the thaw. Similarly the woody shades were cool retreats in summer, while the radiation of fields gave great heat. These observations on the effects of land clearing generated controversy as to whether a milder climate would result. "It is certain that in Nova Scotia the severity of the winters have gradually relaxed during the last century, and exotics, that formerly refused to grow, now flourish luxuriantly," wrote Gesner in 1849 noting that "the experience of the oldest inhabitants is that the cold of winter is less intense, the weather more variable than formerly, and the the climate is annually growing more mild".[424] But although the climate had slightly changed it was widely thought it had not "improved".[425] Winter wasn't significantly shorter nor spring earlier. The changes weren't dramatic enough to produce a climate like that of England, Europe or more southern areas of New England -- which was the measure some had in mind.

Deforestation did have the effect of warming and drying the soil, making the surface of the land hotter in summer and colder in winter. Temperatures in general fluctuated more widely without the moderating effects of the forest canopy to shade the ground and protect it from wind which has considerable drying and cooling effects. Cleared land then became sunnier, windier, hotter, colder and drier than it was in its forested state. And although cleared land tended to be colder in winter than forested land -- because drier and more exposed to the effects of wind chill -- it received enough radiant heat from the sun to melt snow more quickly[426] as Nova Scotia naturalists noted. These complex and convoluted fluctuations created localized pockets of microclimate change. Observing this in 1842, Titus Smith writing in the Colonial Farmer noted the changes in plant growth that took place once formerly protected fields were exposed to cool winds :

> There are many areas in the province where apple trees formerly succeeded well, but now for a considerable time have become near worthless. This failure in general is to be ascribed to the destruction of the adjoining forest wood. There is a very great difference in the summer's

[424] Gesner 156
[425] Gesner 158
[426] Cronon 122-23

> heat between fields of ten acres sheltered on every side by broad belts of forest wood, and land in similar situations perfectly open and unsheltered. It is at least equal to a degree of latitude. At the close of the American War the Blacks who were settled in Preston, generally upon land covered with tall hemlock, brought green peas, beans and such articles to market ten days or a fortnight earlier than the Halifax gardeners. Their fields, then not exceeding two or three acres, were sheltered from all winds by the high woods surrounding them --while the open land near the town was exposed to the chilly southwest sea breeze, which seldom fails to blow in the after part of every warm day. Now that the wood has mostly been destroyed, their crops are as late as those raised near the town. . .Many must have observed that Clover and Timothy have stood this winter without injury in small field surrounded by woods in a season in which they were winter-killed upon unsheltered ground; they may also recollect that those small sheltered fields were covered with snow, while the bleak exposed ground was naked and barren.[427]

Just as forests protected plants and adjoining fields from extreme temperature fluctuations, woodland turf also protected soils from rapid rainwater run off. Once this ground cover was removed by fire or land-clearing, ecological changes produced flooding, erosion and siltation as Titus Smith observed in 1835: "Very extensive fires in the woods are so generally followed by heavy floods of rain. . .The water now rushes over a surface smoothed by fire and carries with it into the swamps and ponds considerable quantities of charcoal, fragments of turf, spruce cones, pieces of the outer bark of trees and shrubs, and other light substances. . .after every fire. . .large additions are made.." [428] Such erosion contributed to the siltation of streams. Watershed changes developed as waterways became shallower and the exposed, bare soils of fallow fields or burnt over ground allowed faster rainwater run-off. As a result when water from spring melts or rainstorms was suddenly released it triggered intense flash flooding as this 1792 reports reveals:

> The first settlers of Stewiacke had many difficulties ... there was a great freshet which carried away a large part of their wheat which was standing in stook in the field. Many of their houses stood on the interval, and were in danger of being carried away. Many made rafts of boards from the floors of their homes and pushed off for higher land, while those who had canoes were busy saving the people first and afterwards the cattle and

[427] Smith, Titus. The Colonial Farmer January, 1842

[428] Smith, Titus. "Natural History of Nova Scotia." 649

> sheep. After this they very prudently built more of their houses on the uplands.[429]

Clearing trees and ground cover down to the edge of a waterways had other effects as well. Streams were widened and and fish habitats damaged. Centuries of this tree-clearing practise on Nova Scotian farmland had significant ecological impact. Naked ground no longer held soil in place causing erosion. The resulting siltation coats the stream's gravel beds ideally suited for fish spawning often covering over fish eggs which can then die from lack of oxygen. River and stream banks are further eroded by the trampling of cows and this erosion causes waterways to widen often making areas too shallow for fish to pass. Loss of forest cover by streams decreases fish food supply and eliminates shading causing water temperatures to rise to levels hazardous for fish. The abundance of wide, shallow silt bottomed streams in Nova Scotia today is the legacy of clearing woodlands to the stream's edge which began with settlement.[430]

To Nova Scotians living in the 18th and 19th centuries the taking of the forests had many implications, both ecologically and culturally, that created considerable discourse over the changes taking place in the woodlands. The change in focus from economic concerns to environmental ones was a big jump, but a natural one as Nova Scotian scientists, naturalists, botanists, surveyors, foresters and government officials witnessed what was happening in the forests. Exploiting 'nature as wealth' had resulted in wide-ranging consequences including the waste and over-exploitation of trees, the spread of fires and barrens, the creation of sterile soils, the wildlife damage caused by sawmills and settlement encroachment and the altered appearance of the second growth forest. For many the unpredictable pioneer landscape -- that represented both liberty and opportunity -- had turned into a 'great outdoor laboratory for study' as colonists wrote of changes taking place from wood shortages to climate changes to flash flooding. Engagement with the environment was a bond that united most people. But none would feel ecological changes taking place more than the Micmac who witnessed their horne and way of life so radically altered by European settlement. This transformation in woodlands, wildlife populations and Indian

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429 Miller, Thomas. Historical and Geneological Record of the first settlers of Colchester County, Down to the Present Time. Halifax: A.&W. Mackinlay 1873

430 See Bob Bancroft's "Stream & Rivers - How Nature Makes Them." Nova Outdoors. Nova Scotia Wildlife Federation Publication Vo.2, No.3 Fall 1993:20

circumstances was summoned up by this Micmac petition of ten chiefs to the Governor of Nova Scotia on February 8th, 1840:

> That long time ago our fathers owned and occupied all the lands now called Nova Scotia, our people lived upon the sides of the rivers and were a great many. We were strong but you were stronger, and we were conquered.
> Tired of a war that destroyed many of our people, almost ninety years ago our Chief made peace and buried the hatchet forever. When that peace was made, the English Governor promised us protection, as much land as we wanted and the preservation of our fisheries and game. These we now very much want.
> Before the white people came, we had plenty of wild roots, plenty of fish and plenty of corn. The skins of the Moose and Carriboo were warm to our bodies, we had plenty of good land, we worshipped "Kesoult" the Great Spirit, we were free and we were happy.
> Good and Honourable Governor, be not offended at way we say, for we wish to please you. But your people had not enough land, they came and killed many of our tribe and took from us our country. You have taken from us our lands and trees and destroyed our game. The Moose yards of our fathers, where are they. White men kill the moose and leave the meat in the woods. You have put ships and steamboats upon the waters and they scare away the fish. You have made dams across the rivers so that the Salmon cannot go up, and your laws will not permit us to spear them.
> In old times our wigwams stood in the pleasant places along the sides of the rivers. These places are now taken from us, and we are told to go away. Upon our camping grounds you have built towns, and the graves of our fathers are broken up by the plow and harrow. Even the ash and rnaple are growing scarce. We are told to cut no trees upon the farmer's ground, and the land you have given us is taken away every year.
> Before you came we had no sickness, our old men were wise and our young were strong, now small pox, measles, and fevers destroy our tribe. The rum sold them makes them drunk, and they perish, and they learn wickedness our old people never heard of.
> Surely we obey your laws, your cattle are safe upon the hills and in the woods. When your children are lost do we not go to look for them?
> The whole of our people in Nova Scotia is about 1500. Of that number 106 died in 1846, and the number of deaths in 1848 was, we believe, 94. We have never been in worse condition than now. We suffer for clothes and victuals. We cannot sell our baskets and other work, the times are so hard. Our old people and young children cannot live. The potatoes and wheat do not grow, and good people have nothing to give us. Where shall we go, what shall we do? Our nation is like a withering leaf in a summer's sun.

> Some people say we are lazy, still we work. If you say we must go and hunt, we tell you again that to hunt is one thing and to find meat is another. They say catch fish, and we try. They say make baskets, we do but we cannot sell them. They say make farms, this is very good, but will you help us till we cut away trees, and raise the crop? We cannot work without food. The potatoes and wheat we raised last year were killed by the poison wind. Help us and we will try again.
> All your people say they wish to do us good, and they sometimes give, but give a beggar a dinner and he is a beggar still. We do not like to beg. As our game and fish are nearly gone and we cannot sell our articles, we have resolved to make farms, yet we cannot make farms without help. We will get our people to make farms, build houses and barns, raise grain, feed cattle and get knowledge. Some have already begun. What more can we say? We will ask our Mother the Queen to help us.[431]

What more could be said? Changes in the woodlands and river valleys had devastated the Micmac as farmlands and timber interests transformed the country along with the colonial quest for land. Encroachment upon the forests by the colonists had the effect of depriving mammals, birds, and fish of their habitat and robbing Micmac of their age-old means of subsistence. Thus, the transformation of the woodlands was equalled by the transformation in wildlife -- and another round of discourse over the land.

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[431] The Acadian Recorder Halifax, 24 February 1849.

Chapter Seven

FINNED, FURRED AND FEATHERED TRIBES

> "Vast tracts of this province remain covered by primeval forest, destined probably to stand for ages, the haunt of moose, cariboo, and bear..."
>
> -----Campbell Hardy, 1855
> *Sporting Adventures in the New World* [432]

When Campbell Hardy wrote this account there were bear, caribou and moose found throughout Nova Scotia - albeit not in the same numbers as formerly. This was his first book written on Nova Scotia while he was stationed at the British garrison in Halifax. His second book *Forest of Acadie* published in 1869 presented a very different picture of the land. Ecological changes were well underway. Caribou herds which had long roamed the uplands were threatened by the reoccurring fires of settlement. Dependent on one main food source, the caribou was particularly vulnerable when barrens and mature woodlands burnt and along with them the lichens known as reindeer moss which they fed on. As early as 1801, naturalist Titus Smith would write of this threat in his "Survey of Natural Resources of Nova Scotia":

> The caribou are more numerous than the moose but few are compared to what they have been heretofore, owing to the fires which have burnt over the open barrens and destroyed reindeer moss which is their principle food. They herd together and are numerous on the hills south of Digby and the Annapolis River and upon the mountains between West-Chester and Pictou in the summer season. In the winter, they usually approach the southern sea coast if the snow should be deep.[433]

The fires wrought by settlement had been disastrous. In addition to the 1792 fires which raged through southwestern Nova Scotia, there were many fires through the 1800s. The year 1902 was also a significant one for fires, and this when the caribou were fighting for survival. Three-quarters of woods bounded by Minas Basin, Cumberland Basin and the Springhill and Parrsboro Railways as well as the land

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[432] Hardy, Campbell. Sporting Adventures in the New World. Vol.21855:11

[433] Smith, Titus. "A Natural Resources Survey of Nova Scotia 1801-1802.":39

around St. Mary's River went up in flames. Such settlement induced fires -- which took place over a hundred and fifty year period -- destroyed lichen ranges and climax forests, harbouring old trees with tree lichens. Lichens grow very slowly and once burned they may take 80-100 years to reestablish themselves. When you add to this the further reduction of tree and ground lichen through lumbering, the splitting of herds into smaller groups by settlement, roads, and railways and the continuous illegal killing of the animals, the pressures placed on caribou is clear. Caribou were extinct on the mainland in 1905 and in Cape Breton by 1912.[434] The place names that had formerly identified their presence - Caribou Barren, Caribou Bog, Caribou -- were all that was left of the herds that had roamed the province. Their numbers were low even by the mid-1800s when only four or five would be seen together. This stood in stark contrast to Micmac assertions that vast herds of a hundred or more animals once ranged over Nova Scotia.

Moose populations had plummeted as well. Since there was an active trade in moose hides they were hunted by both Indians and whites alike. As Montgomery Martin wrote in 1837: "The moose..are now comparatively scarce, owning to an indiscriminate massacre which took place for the sake of the hides, soon after the English settled in the country. So murderous was the destruction of this fine animal, that hundreds of carcasses were left scattered along the shore from St. Ann's to Cape North; the stench from which was so great, as to be wafted from the shore to vessels at a considerable distance.[435] Meat Cove, in Cape Breton thus got its name. In 1789 nearly 9000 moose were killed in Cape Breton solely for their skins.[436] Such massive kills were done in winter when the moose, handicapped by deep snow, were easy targets in moose yards -- browsing grounds with beaten down snow -- where they wintered. When hunters assembled again in 1790 for another massacre, only the government's dispatchment of a 30 man regiment to Cape North and Ingonish prevented another mass slaughter. [437] By 1800 moose were very scarce and it would take until mid-century for their population to increase. But the pressure on moose would continue as

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434 Benson & Dodds. Deer of Nova Scotia Halifax: N.S. Dept. of Lands and Forests 1977:33-35

435 Martin, Montgomery, History of Nova Scotia...Cape Breton, The Sable Islands, New Brunswick, Prince Edward island, the Bermudas, Newfoundland, London: Whittaker & Co. 1837:100

436 Extract, Council Minutes, 9 March 1790. Public Archives of Nova Scotia, Halifax. (RG1, Vol.319:315)

437 Dodds, Donald. Challenge and Response: A History of Wildlife and Wildlife Management in Nova Scotia. Halifax: Nova Scotia Department of Natural Resources, 1993:17

both whites and Indians hunted them for their skins.

Additional stress was placed on moose from the fact that a great many colonists relied on the animal for meat. If they didn't hunt it themselves the Micmac often supplied it to them. The British garrison in Halifax and town markets were thus supplied with moose meat. Settlers clearing land would often kill fifteen or more moose in a couple of hours during a brief hunt in surrounding woodlands[438] and backwoods lumbermen were suspected of being big moose killers. Thomas Haliburton elaborates:

> When the British settlers first began to immigrate into the province, game of all kinds were plenty. The rivers and lakes were alive with ducks and teal - the woods with partridge, and the marshes with plover. Moose were killed in great numbers, and venison was the only kind of flesh consumed by many families. There was then a wanton and wasteful destruction of the giants of the forests. Thousands were shot for the sake of their skins; and up to the present time [1849] the flesh is often left to putrefy, or to be devoured by the carnivorous races. The practise of hunting the elk with packs of dogs when the snow is deep, is very destructive. The Indians have petitioned the legislature for the enactment of laws to prevent this mode of hunting the moose, by which they will soon disappear altogether, and the Micmacs be deprived of the food they have always considered to be their own. Without a protecting law, assailed at all points and at every season, it is remarkable that any of these noble creatures have survived; but they are still to be found in all the remote uninhabited districts, and frequently they not only approach settlements, but emerge from the woods into the cultivated fields, and during the rutting season they frequently cross from one line of forest to another, regardless of every danger. Not withstanding their fleetness, in like manner have the reindeer, or caribou been destroyed.[439]

Concern for the fate of Nova Scotian wildlife first began to mount in the late 1700s. It triggered the 1794 passage of the first game law, which made it unlawful to kill partridge and blue winged ducks at certain times of the year. In 1843 power to rule with regards to methods of taking of moose was vested in local governments and this power was increased the next year to include their rights to set seasons for moose. It is questionable whether it was ever acted upon.[440] In 1853 a small group of gentlemen sportsmen and garrison soldiers formed the Nova Scotia Game and Fisheries

[438] More, James. The History of Queen's County, 1873:124

[439] Haliburton 221

[440] Benson and Dodds, Deer of Nova Scotia,1977:18

Protection Society which pushed for a hunting season that would limit the taking of moose.[441] The first province-wide closed season on moose was proclaimed in 1856 whereby it was only legal to kill moose between September 1st and February 1st. In 1874 for a three year period a total hunting ban was placed on moose and beaver due to their low numbers. Game and fish wardens soon were enrolled to enforce laws and issue fines to violators including those using dogs to hunt moose and caribou. By the end of the century game laws were consolidated covering moose, caribou, beaver, deer and other wildlife including fish. Many settlers and Micmac hunters resented these laws restricting their ability to hunt and fish so poaching was rampant and in Micmac eyes justified since moose was their traditional food source and their 1752 Treaty with the British guaranteed protection of their hunting and fishing rights. Indian views that wildlife legislation was affording the woodland animals better treatment that the Micmac themselves is revealed in this story by Abraham Gesner who for a period served as Indian Commissioner:

> The Indians have a curious legend, that when the whites first landed upon their grounds, the bear and moose held a general parliament at the Ponhok, or outlet of the upper lake, about fifty miles from the seaboard, and entered into a treaty. They both declared war against the "pale faces". The moose were to destroy all the corn fields, and the bears the cattle and sheep of the 'newcomers'; but no person was to be eaten by them, unless he carried a gun, of which they entertained the greatest fears. The place where the conferences was held is still guarded by two black bears and two moose, which are invulnerable; and since the treaty, no bear has been known to kill a moose, however young and defenceless. One of the Indians declared to the writer [Gesner], that it would have been better for his people if they had attended the convention, and entered into the alliance; for the white men made laws to protect the moose, duck, and partridges, but had done nothing for the preservation of his tribe.[442]

Wildlife protection laws in the form of limited hunting seasons served to decrease the slaughter of moose, salmon and other animals, but populations still declined and this greatly affected Micmac food supply. Since moose was valued by everyone the

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441 The full name of the association was The Provincial Assocation for the Protection of the Inland Fisheries and Game of the Province of Nova Scotia. In 1874 the association changed its name to the Game and Fishery Protection Society of Nova Scotia

442 Gesner 48-49

possibility of domesticating the animal was seriously considered. Moose were envisioned as being the New World equivalent of the horse or cow with Nova Scotia exporting the 'giant of the forest' back to England for life on the farm. But further investigation revealed that natural history factors were obstacles:

> The great objection is the nature of [moose] food; he is exclusively a wood-eater, living upon the tender branches of deciduous trees, with a proportion, more particularly in winter, of those of the evergreen. No plantation or copse in England could thrive with a couple of moose in it; and, though, fond of roots, such feeding would prove fatal, as I know from experience; whilst, with one exception, I have never seen a tame moose accept hay or grass. If it were not for this, we would have in the moose an animal most appropriate for acclimatisation --with the speed of a trotting horse, the strength and endurance of an ox, a docile and useful beast of burden, and good for food. [443]

Although moose could not be domesticated, it could certainly be tamed. Moose became pets in settlements, feeding along with the cattle and from children's hands. Turnips were a means of attracting them and they could also be fed young branches of birch, maples or evergreens. Once semi-tamed they were sometimes harnessed for draught work:

> A few years since [1869] a settler on Guysboro' road, named Carr, possessed a two-year-old bull moose, which was perfectly tractable in harness. For a wager, he has been known to overtake and quickly outdistance the fastest trotting horse on the road, drawing his master in a sleigh, the guiding reins being fastened to a muzzle bound around the animal's nose. Another instance was that of a very large moose kept by a doctor in Cape Breton, which he would invariably employ in preference to his horse when wishing to make a distant visit to a patient, and in the shortest time. It is very certain than in its youth the moose is one of the most tractable of animals; but it is in the rutting season of the third year that the males first become unmanageable and dangerous.[444]

Campbell Hardy and others envisioned semi-domesticating moose in enclosed areas on the Bedford and Dartmouth barrens which were frequent moose haunts. If need be it was thought they could be castrated at the appropriate stage in their life to facilitate

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443 Hardy, Campbell. "Reminiscences of Andrew Downs." Proceedings of the Nova Scotia Institute of Science 1906:xxiii

444 Hardy, Campbell. Forest Life in Acadie:352

this semi-domestification as had been done with the wapiti (elk) in the state of New York.[445] It was an idea that never bore fruition. But what would bear fruit would be the introduction of new wildlife to Nova Scotia that quickly adapted to the land and thrived. Deer, introduced to the province in the 1860s would take over the forests by the early 1900s and greatly effect moose.

Andrew Downs was the first man behind this action. Downs was a Halifax naturalist who created the first zoological garden in British North America in 1847 on a hundred acres at the head of the North West Arm. In time his gothic cottage, filled with case upon case of specimens of every description, a herbarium and many paintings, and surrounded by a horticultural garden and grounds containing an astonishing menagerie of monkeys, bears, deer, moose, beavers, and birds from all over the world, became a source of pleasure and instruction to visitors to Halifax. An authority on bird life and an expert taxidermist, Downs supplied specimens to many museums in America and Europe[446] (including 25 live moose sent by schooner to King Victor Emmanuel of Italy for his zoo in 1867). He was the first to introduce deer and English pheasants to Nova Scotia keeping them in his zoological garden. It was thought that both escaped to the wilds and survived.

Other Nova Scotians also brought deer into the province in the 1890s. However around this time deer were migrating north due to human pressure on their populations on the eastern seaboard. Since deer were already in New Brunswick they would have moved into Nova Scotia by the early 1900s on their own accord. Once introduced their populations thrived and by 1916 deer were so common an open hunting season was placed on them. The introduction of deer had a spiralling chain of ecological consequences. Soon it was found that when deer were plentiful, moose became scarce and sick. Deranged moose came out of woods collapsing dead in fields during the 1940s. The mysterious new phenomena was known as moose sickness. Moose appeared to prosper only in those areas where deer were not abundant. It was only in 1964 that the cause of moose sickness was identified as a

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445 Hardy , Campbell. "Reminiscences of Andrew Downs":xxiii

446 Berger, Carl. Science, God and Nature in Victorian Canada, Toronto: Univ. of Toronto Press, 1985:4

nematode parasite, carried by, but not harmful to, deer[447] but affecting both caribou and moose. Land clearing had resulted in a greater overlap of deer and moose range. Moose prefer sub-climax vegetation with shrubby growth, while deer thrive on the early successional stage vegetation associated with cut-over or burned land and abandoned farm land. Deer populations took hold so fast because they flourished in the late 19th century Nova Scotia landscape that was dotted with small, multi-cropped farms offering optimum edge habitat -- woodland shelter next to open clearings featuring browse -- and plentiful winter browse from the annual cutting of firewood. Following the widespread abandonment of farms during the depression years, deer populations initially soared while moose plummeted. Moose were now only found in areas without deer. This along with hunting pressure scattered and reduced moose populations so that they were no longer found through most areas of Nova Scotia as they had been at the time of Campbell Hardy's writing in 1855. Moose had disappeared from Cape Breton in the early 1900s and attempts to reintroduce individuals from the mainland did not help until eighteen moose from Alberta were successfully released in 1947 and 1948. Now moose on Cape Breton belong to the western subspecies *Alces Alce andersoni*, while mainland moose are *A. a. americana* -- the ecological aftermath of the introduction of the deer in the late 1800s and over-hunting.

The creations of clearings -- through settlement, fire and forest cutting -- that bolstered the spread of deer also created changes in bird communities. The increase in grassland habitat caused by the proliferation of farms, particularly in the agriculturally dominated Annapolis Valley, increased populations of grain-eating birds like pheasants, mourning doves, cowbirds and crows. Birds characteristic of mature, closed, mixed forests were more abundant in 1600 and those associated with more open, younger, and more coniferous habitats were less numerous [illegible] European settlement. However, few forest bird species have disappeared from or appeared in the Maritimes as a result of forest changes induced by settlement and forestry. Instead the relative numbers of different species changed. With the destruction of many old-growth hardwood stands the Pileated Woodpecker and Barred Owl, which nest in cavities in large, mature hardwood trees, presumably declined. As cut over and burnt

447 Natural History of Nova Scotia, N.S. Museum:Vol.1:261-262

forests regenerated into early successional stages dominated by softwoods , the birds of solid conifer stands, especially bud-worm followers such as Bay-breasted and Cape May Warblers, increased, as did forest-edge species such as Chestnut -sided warbler, which was considered a rare bird at Audubon's time, and of course robin. The greatest extent of cleared land was reached between 1880 an 1930 and the infiltration of birds of open habitats occurred - Horned Larks, Grackles, Cowbirds. Vesper Sparrows were originally scarce, only found in burns and sandy barrens, but they thrived in the early stages of land clearance. The dyking and draining of saltmarsh for hay lands and pasture ended up reducing marshland habitat for breeding birds like the Sharp-tailed and Savannah Sparrows, the Willet and some ducks. House Sparrows were introduced in Nova Scotia in the 1850s and became established in the 1880s. Starlings arrived here in 1915-20 spreading from introductions in the eastern states. Buildings and other urban structures provided cavities and artificial cliffs, increasing the availability of nest-sites which earlier had limited regional numbers of Barn and Cliff Swallows and Chimney Swifts.[448]

Market hunting of migrant shorebirds up to 1916 decimated many of the larger species and brought Eskimo Curlew, Hudsonian Godwits and Lesser Golden Plovers close to extinction. Many other birds were seriously reduced by hunting - Willets, wood ducks and Red-necked and Horned Grebes - the latter have not reappeared. Unlike seashore and migrant birds, land birds were not regularly exploited for food as they were fewer and less concentrated. The one exception was the Passenger Pigeon, extinct in the wild by 1900 by hunters and habitat change as lumbermen eliminated the formerly extensive mature hardwood forest on which these species depended.[449] Seabirds congregating in rookeries also experienced drastic population decline since transatlantic fishermen had been killing them for fish bait for centuries and the extinction of the Great Auk stands as a sad symbol of the depravity of ruthless wildlife exploitation.

Typical approaches to wildlife in the 19th century and earlier were revealed by this account of Campbell Hardy. If birds weren't viewed as food for the table, they were

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448 Erskine, Anthony. Atlas of Breeding Birds of the Maritime Provinces. N.S. Museum Publication, 1992:13-15

449 Ibid.

often seen as target practice or vermin to be destroyed:

> For several days towards the end of summer, [the] Halifax Commons, and the open fields towards the North-West Arm, are the scene of great excitement from the arrival of large flights of plover, which birds stop here to rest before proceeding further south. Every man or boy, who can muster up a "shooting iron" goes to blaze away at the plover as they pass. . .Bang go dozens of guns, pointed at the dense flight of plovers.[450]

Some species which were essentially extirpated from Nova Scotia were later reintroduced as was the case with Cape Breton moose. Reintroductions of fishers (1940s), American marten (1986) and the Peregrine Falcon (1980) all took place preceded by the reintroduction of the beaver in 1933. Beaver, the animal that drove the fur trade in the 17th and 18th century never recovered from over-hunting. They were essentially exterminated in Nova Scotia, only survived by a small remnant population that from time to time slightly increased.

The few that remained were a curious sight for the naturalist and the object of trapping for the hunter. Along with a variety of other animals like mooses, bears and foxes they were sometimes made pets as this account reveals:

> The beaver is easily domesticated, and will evince the affection of a dog for its master. In the spring of 1853, an Indian brought me a tame beaver, which he had captured when quite young, in the neighbourhood of Lake Rossignol, in the western end of Nova Scotia; when he wished to leave it, the little animal shuffled after him, whining piteously, and having reached him, scrambled up his clothes and neck. The Indian afterwards sold it to a zealous naturalists residing about two miles from Halifax, at the head of the north-west arm. Nothing would satisfy it for days afterwards, but nestling in the Indian's blanket, which he was obliged to leave for that purpose. Its owners fed it on bread and milk, with a few cabbage leaves and other esculent vegetables. The animal was perfectly tamed, appeared pleased at being noticed, and answered to the name of "Cobeetch", the Indian name for beaver.[451]

Beavers fascinated early European writers who considered this animals along with the moose the most interesting to be found in Nova Scotia and indeed central Canada --

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[450] Hardy, Campbell. Sporting Adventures:68

[451] Ibid 57

where a huge hinterland meant the beaver was hunted for much longer. Notwithstanding the marvel in the profits generated from its fur, the beaver was hailed for its brilliance as writers like LeClercq (1691) detailed its extraordinary feats:

> With these teeth the beaver cuts poles for building its house, as well as trees as large as the thigh; these it can fell exactly in the very spot where it foresees that they will be most useful ...It cuts these trees into different pieces of different length, according to the use it wishes to make of them. It rolls them on the ground or pushes them through the water with its forepaw, in order to build its house and to construct a dam which checks the current of a stream and forms a considerable pond, on the shore of which it dwells. There is always a master beaver, which oversees this work, and which even beats those that that do their duty badly. They all cart earth upon their tails, marching upon their hind feet and carrying in their forepaws the wood which they need to accomplish their work. They mix the earth with the wood, and make a kind of masonry with their tails very much as do the masons with their trowels. They build causeways and dams...which are so difficult to break that this is in fact the hardest task in the hunting of the Beaver, which by means of these dams...flood very often a large extent of country. They even obstruct rivers so much that it is often necessary to get into the water in order to lift the canoes over the dams. The Beaver house is of some seven to eight feet in height, so well built and cemented with earth and wood that neither the rain nor the wind can enter it. It is divided into three stories, and in these the large, the mid-sized, and the small beavers live separately and sleep upon straw. And the following circumstance is also worthy of remark, that when the number of these animals, which multiply rapidly, come to increase, the older yield the house to the younger, which never fail to aid the others in building a house. If is as if these animals wished to give a natural lesson to both fathers and children mutually to aid one another.[452]

The legendary stature that the beaver acquired from such accounts and scores of others set up great expectations for those curious to witness such a new world spectacle. But, for some, the mythical fame of the beaver dam didn't match its actual appearance. "On suddenly rounding a turn in the brook, our head Indian [guide] whispered 'There beaver house' ...", wrote Hardy. "I confess I was disappointed.. Instead of the regular mud-plastered dome I had expected and seen depicted in all works of natural history, the house appeared merely as an irregular pile of barked

[452] LeClercq, Chrestien. New Relations of Gaspesia, 1691, Toronto: Champlain Soceity ,1910: 278

sticks. . .very much like a gigantic crow's nest inverted and formed without any apparent design."[453]

Representation and reality were often different. Larger-than-life book portrayals of armies of busy beavers building dams overpowered the fact that the overhunted animals were largely absent and no longer present in large congregations in the 17th and 18th century Nova Scotia. Tidy, mud plastered domes depicted in illustrations contrasted with the messy heap of trees that constituted their dwellings. Still, for many years, the beaver dam continued to represent more than just the amazing engineering feats of an ingenious creature. Beavers stood as symbols of the lessons to be learned from the wilds. If they could build houses and thrive in the backwoods in bustling communities of other beavers, as was conveyed in these illustrations, then similar enterprise could build a thriving European empire in this land. Thus, nature was looked to for moral inspiration and lessons in survival -- reflecting a 'nature as wonder' response to the land. This was often apparent in natural history writing from the 17th to 19th century. Denys' account of hunting techniques learned from watching foxes is a survival lesson picked up by curious observation:

> . . .the dispositions of foxes are cunning and subtle in capturing the Wild Geese and Ducks. If they see some flocks of these out on the sea, they go along the edge of the beach, make runs of thirty to forty paces, then retire from time to time over the same route making leaps. The game which sees them doing this comes to them very quietly. When the foxes see the game approaching, they run and jump; then stop suddenly in one jump, and lie upon their backs. The Wild Goose or Duck keeps constantly approaching. When these are near the foxes do not move anything more than the tail. Those birds are so silly that they come even wishing to peck at the foxes. The rogues take their time, and do not fail to catch one, which pays for the trouble. We train our dogs to do the same, and they also make the game come up [which we then shoot]. [454]

Likewise, Micmacs looked for wildlife signs that would help in their survival needs. Martens seen on the coast (which generally occurred every two or three years) meant

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[453] Hardy, Campbell. Forest Life in Acadie:166

[454] Denys 385

a good winter as there would be much snow and better hunting.[455] No snow meant poor hunting and hunger, a time when looking to signals from wildlife might lead to food:

> About the last of March or the first of April [one winter], the Indians had very few provisions -- there was no game or fish. A big storm came. [Peter Ginish's] grandfather heard a crow flying toward him. It came close to him, then cawed and cawed. He noticed it appeared to be greasy, and was wiping and cleaning its bill on its feathers. It cawed and cawed, then flew off to one end of Portage Island. He told his father about the crow. They went out with another man, put on snowshoes, and crossed the ice to the island. Something had come ashore. When they arrived at the place, the found it to be something large, like a ship, and black. It was a big whale. They found a big whale! There was seven inches of fat in addition to the meaty part. The men returned. . .to take the news. From all these settlements the Indians came and hauled away pieces of the whale. . .[A crow] is never stingy. When a crow finds provisions, it brings the news to Indians. It came to tell the people at Burnt Church about the whale which it had found at Portage Island.[456]

The important role that animals played in the lives of the Micmac and many early colonists such as Denys in the 17th and 18th centuries goes well beyond that of meat and furs. Animals were 'community' constituting the first circle surrounding people. They were at the centre of the experience of people living in a land where the force of culture paled compared to that of the wilderness. In this setting animals could enter into the imagination as messengers and promises, to both Indians and whites. And the choice of a given species as magical, tamable or alimentary was determined by the habits, proximity and "invitation" of the animal in question.[457]

The qualities of an animal could be imparted to humans. Early French writers wrote that young Micmac hunters had taboos against eating porcupine for fear that they would absorb its slow energy and be handicapped in the chase. Animals could be either shunned or sought for the attributes they possessed. Apart from food considerations, hunting in all cultures provided a means of access to the 'wildness'

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455 Denys 387

456 Peter Ginish to Wilson. D. Wallis, 1911. in The Micmac Indians of Eastern Canada, by Wilson D. and Ruth Sawtell Wallis. 1955:432

457 Berger, John. "Why Look At Animals?" About Looking. New York: Pantheon Books 1980: 1,2

embodied in animals. Killing the largest, bravest, smartest animals of a land bestowed these qualities on the hunter and at the moment of the kill provided an instant of conquest , separation and unification with primal wildness.

Wild nature was full of dualities. Living in proximity to humans, animals represented both the familiar and the alien. A sense of companionship could be engendered by these creatures who inhabited the same ecological neighbourhood and exhibited attributes -- mildness, fierceness, timidity, cunning, intelligence and emotional attachment -- which mirrored human qualities. On the other hand, they were not human, and their inability to communicate through speech made them parallel companions in solitude with the loneliness of humans who fully understand their separateness in the universe.[458] Such an unspeaking companionship lead to the frequent stories whereby animals communicated with humans. Whether Micmac legends or Aesop's Fables these stories were common in all societies, as they are today, representing the basic human need for bonds with animals and other members of the non-human world.

This urge for connection took new forms as the traditions which joined humans and nature fragmented during, and beyond, the 19th century when North America and Europe experienced industrialization, the move to cities and the rise of science. Encounters with wildlife became more limited. City dwellers, in leisure time, had to go out to the countryside or wilderness to experience that connection with nature. It contributed to the rise of many developments including the pursuit of natural history, the Victorian penchant for stuffed animals and the emergence of sports hunting.

In Europe hunting had largely been the domain of the wealthy on huge estates. The new world, as a point of contrast, represented freedom as anyone could hunt the initially abundant wildlife. When new world areas, such as New England became densely populated, urbanized and industrialized, a new appreciation for the wilderness developed. Now the rustic, formerly denigrated, had a fresh allure and closeby Nova Scotia, just a quick ferry trip away, became the destination for American hunters from 1870 to 1940s, as it had for British Garrison soldiers seeking a posting in

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458 Ibid 5

Halifax during the mid-1800s for the same reasons.[459] During this time the Micmac were in high demand as guides and their exceptional hunting and fishing skills were marvelled at. A booming business in taxidermy developed with mounted moose heads sent to far-flung places. These trophies of the chase mirrored the ancient practice of rulers who have always captured animals as a symbolic representation of the conquest of distant and exotic lands. Explorers or colonists also proved their patriotism by sending new world animals back to old world imperial empires. Nova Scotia's first wildlife gift to ruling European powers was an eagle, taken from her nest at the top of a tall pine tree, which Lescarbot took back to France for the king but the tethered bird broke her leash while trying to take flight and drowned in the sea on the 1607 return voyage [460]

Since transporting wildlife was difficult in the sailing ships of the time, illustrating them on maps proved an easier way to show the new land's exotic creatures. Various early maps of Nova Scotia feature drawings of moose, fish, beaver and other wildlife. The most captivating of these is known as Porcupine map done in 1750 by Moses Harris. It provides a plan of the town of Halifax and the harbour.[461] In the map area surrounding the town are featured wonderful illustrations of beetles, moths and a very large porcupine. Filling up space that would otherwise be read as forests, the placement of these wildlife illustrations reduced the impact of the wilderness, most likely intentionally.

Once the wilderness was tempered by the taming influence of settlement this antagonistic relationship began to change. The establishment of a zoo in Halifax by Andrew Downs in 1847 signifies this and reflects an overall trend to reestablish a connection with the wild that was happening throughout the western world. Public zoos came into existence at the beginning of the period which was to see the disappearance of animals from daily life in industrialized Europe. When they were founded -- the London Zoo 1828, the Jardin des Plantes in 1793, the Berlin Zoo in

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459 Morrison, James. H. "American Tourism in Nova Scotia, 1871-1940." Nova Scotia Historical Review 2.no.2,1982:40

460 Lescarbot Vol.3:232

461 Dawson, Joan. The Mapmaker's Eye: Nova Scotia Through Early Maps. Halifax: Nova Scotia Museum 1988: 115

1844 -- all brought considerable prestige to their national capitals[462] and acted to both bring animals into view for the public and showcase exotic wildlife from distant lands that were part of colonial empires. Andrew Downs, visiting Europe in 1864, took 50 live specimens and two cases of stuffed birds and stuffed moose to present to the London Zoo.

Andrew Down's zoo was not unique. His neighbour, John Matthew Jones, owner of the "Ashbourne" estate, had an extensive wildlife collection. In 1866, Jones' private museum at Ashbourne held some 7000-8000 specimens. Jones, like Downs, had an international reputation and he managed the Nova Scotia Fishery exhibit at the 1862 International Exhibition in London. Jones was a member of the Linnean Society of London, a Fellow of the Royal Society of Canada and one of the founders and for a time president of the Nova Scotia Institute of Natural Science. In 1866, while President, Jones led a pilgrimage of Institute members on one of their first field days to Titus Smith's grave where he read an account of Smith's life and achievements[463] -- who today is credited as being one of the first pioneers of plant ecology in North America. A noted gentlemen farmer, botanist and land surveyor Titus Smith (1768-1850) had an extraordinary ability to observe nature and decipher its patterns in advance of his time. Smith's Survey of the Natural Resources of Nova Scotia, commissioned by Governor Wentworth in 1801, left the first detailed study of Nova Scotia's forest. His ecological treatise on Nova Scotia's natural history was the first of its kind on the province and was published in London's Magazine of Natural History in 1835.

The scientific investigation of natural history featured numerous bright lights in 19th century Nova Scotia. John Young, more popularly known by his pseudonym "Agricola", wrote an influential series of articles in the "Acadian Recorder" on agriculture. Thomas McCulloch, founder of the Pictou Academy in 1816, combined interests in natural philosophy, natural history, education and theology to create a extensive collection of Nova Scotia field specimens of wildlife used as a reference by Audobon. Abraham Gesner, the inventor of kerosene, had a wide range of talents as a

462 Berger, John. About Looking:19

463 Allen, Gillian. "Laws, Logs and Lumber: A History of Forest Legislation in Nova Scotia." MA Thesis, Saint Mary's University, 1993:8

farmer, inventor, manufacturer, geologist and author of *The Industrial Resources of Nova Scotia*. Nova Scotia born William Dawson earned an international reputation as a geologist, author (*Acadian Geology 1855*), McGill University principal, Royal Society of Canada founder and prolific writing of dozens of scientific papers. The rigorous pursuit of science and natural history study by these men was also matched by the more casual explorations of other Nova Scotians as well as vacationing Americans. One such visitor was nature writer, Frank Bolles who wrote of his 1893 adventures in the book *From Blomidon to Cape Smoky* which detailed, among other things, his bird-watching odyssey:

> All told, I think that I saw eighty species of birds during my two weeks wandering in Cape Breton. Had I taken my tame owl Puffy with me, I should doubtless have seen more for he would have drawn many shy birds round him which found no difficulty in secluding themselves from me. The island is certainly remarkably good ground for bird study; species are many, and individuals numerous. The combination of ocean, bay, inland lake, both salt and fresh, forest, and mountain is one which favours diversity and stimulates abundance.[464]

Despite meticulous and sometimes quirky observations of the natural world in the 19th century, there were more puzzles than answers. What became of birds in the winter was a topic of considerable debate until bird migrations patterns were determined by the mid-1800s with the practice of ringing birds. The belief that swallows spent the winter months hibernating underwater rolled up in a tight ball had been spread in 1555 by Olaus Magnus, the Archbishop of Uppsala in Sweden who claimed a fisherman told him. These ideas still circulated in the 19th century with many noted members of the European scientific community endorsing this theory as others indignantly opposed it with experimental evidence proving swallows could not survive under water.[465] Still others believed swallows hibernated in marshes, river banks or inside hollow trees to emerge in the spring as this 1842 account in Nova Scotia's *Colonial Farmer* suggests:

> What has become of our swallows? They should have arrived long ago, yet we do not see the hundredth part of our usual number. The past

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464 Bolles, Frank. From Blomidon to Cape Smoky. Boston & New York: Houghton, Mifflin, 1894: 105

465 Bright, Michael. Unlocking Nature's Secrets. Ariel Books, British Broadcasting Corporation,1984:120-121

> winter has been unusually mild, and the ground bare of snow through the greater part of it. Considering their habits it is possible that an untoward accident may have destroyed them. From the great numbers that have been found in a single hollow tree it appears probable that all the swallows of a considerable district winter in one place. . .If our swallows were all sleeping in a hollow tree which should be overthrown by a gale in December, it is probable that the greater part would perish.[466]

The drive to understand nature in 19th century Nova Scotia embraced many Victorian needs: a need for connection with surrounding nature; a feeling of duty to help in the advancement of the province through the accumulation of knowledge to aid in wiser use of fish in the fisheries, trees in forestry, soils in agriculture, plants in horticulture, minerals in mining, animals in hunting; a drive to participate in the advancement of science and intellectual currents of the time; and a satisfaction in observing nature as as manifestation of god's creation. With the publication Darwin's *Theory of the Origin of Species* in 1859, the origin of plants and animals was diverted from a creator to the godless mechanism of natural selection and survival of the fittest. Widespread rigorous debate erupted in Europe and North America as scientists, naturalists, religious leaders and others argued for or against this contentious theory in newspapers, journals and institutions. William Dawson would be one of Canada's greatest Darwin opponents. Dawson had earned his scientific reputation with the study of the minerals and formations of the Maritimes and for his account of the flora and land animals that had once lived in the luxuriant forests and lagoons of the Carboniferous period, the age in which coal had been laid down. From the upright fossil trees at Joggins on the Cumberland Basin he had disinterred the remains of a lizard-like animal, the first indication that reptiles had lived in the coal period in North America. It was these types of findings in the emerging geological record that revealed that the earth had not always been what Victorians saw around them but rather a museum of stupendous and sometimes violent change -- all of which helped to substantiate Darwin's *Theory of Evolution.* Dawson would publish *Archaia: or Studies of the Cosmology and Natural History of the Hebrew Scriptures* (1860) to repudiate the notion of any disharmony between divine creation and the geological record --- that nature and revelation were products of the same author.[467] Ultimately, Dawson's publication of three virulent

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466 Colonial Farmer, July 1, 1842

467 Berger, Carl. God, Science and Nature In Victorian Canada: xxii, 39

refutations of Darwin in 20 years, resulted in his ostracism by the controlling members of the international scientific community by the late 1870s[468] -- a victim of the struggle between theologists and evolutionists on the origins of life.

Seeing patterns and predicting consequences was the driving force behind Darwin's Theory of Evolution as it was with natural history investigation in general. The information amassed lead to the development of the professions -- geology, chemistry, botany, zoology, horticulture -- by the latter half of the 19th century. Seeing patterns and predicting consequences was also of paramount concern to many colonists as over-exploitation of animals and settlement-induced environmental changes took their toll on wildlife populations. As early as 1770, there was concern over the walrus or 'sea cow', once very common in the waters of the Gulf of St. Lawrence and Northumberland Strait. In the late 1700's they had vanished due to widespread killing by French settlers taking them for their oil and ivory. An October 1770 dispatch from Governor Walter Patterson to Lord Hillsborough in London drew attention to this issue "fearing that the sea cow fishery might be entirely ruined" which prompted him "to pass an act for the regulation of it, by the advice of His Majesty's Council". Hillsborough's response in June of 1771 was that "the putting of a stop to these practices which must have the effect to destroy the sea cows, appears to have been a very proper object of your immediate attention."[469] By the end of the 18th century they were extinct in these waters. The ability to predict the consequence of over-exploitation could not prevent wildlife destruction despite regulations. This is a repeating pattern in Nova Scotia's ecological history and applies equally to forests, soils, wildlife and fisheries.

Provincial officials had bemoaned fishery depletion as early as mid-century. In the 1870's, Commissioner of Fisheries W.F. Whitcher pointed to the destructive practices in the oyster fishery, and feared the same for lobster. New fishing technology was a factor. In 1874, Whitcher had this to say about seals:

> The inevitable fate attending excessive pursuit of the fauna of field, forest and flood, threatens speedy extinction of seals in the Gulf of St. Lawrence. While sea hunting on the ice was carried on from sailing

[468] Allen, Gillian. "Law, Logs, Lumber" : 4

[469] Warbarton, Alexander. "The Sea Cow Fishery." Acadiensis. Vol.3.1903:116-119

> vessels and by shore nets, the vicissitudes of the pursuit afforded some natural protection to this animal, and it numbers kept up a flagging pace with the legitimate annual destruction. But the recent employment of steamers has overcome many former difficulties, and enables the sealers to pursue their prey with indiscriminate slaughter. . .and so great was the havoc committed [by the European, American and Canadian sealers] that it has excited universal apprehension.[470]

In response to fishery declines, from 1890 to about 1920, Royal Commissions on the fisheries were launched. A handful of experts - at least such experts as were available at the time since real fisheries knowledge was still lacking -- would talk to people in the fishery concerned, and draw up regulations. At these hearings fishermen and processors advanced many reasons for depletion. In 1898 experienced fishermen in the Bay of Fundy had advanced 16 reasons for fluctuations in the herring industry. Bay of Fundy gillnet fishermen blamed weirs for overfishing herring. Among other fishery villains cited in the 1890's: longlines dropped dead fish which rotted and destroyed grounds; purse seines had been harmful; the pound net was deadly; and so on. Everywhere and always, fishermen tended to associate depletion with rival types of gear[471] -- a practice which continues today.

By the 1880's overfishing and depletion of coastal fisheries was acknowledged. Even Newfoundland's cod had dropped off enough to cause alarm. However the closer to shore and rivers, the worse overfishing appeared. For river species, water powered grist mills and the saw mills and sawdust pollution of the burgeoning timber industry remained a problem. The 1400 sawmills in operation in Nova Scotia by the mid-1800s often made watercourses inaccessible for spawning fish which consequently suffered population declines. Although fish pass legislation was enacted in 1786 in Nova Scotia, the implementation of these regulations was ineffective.[472] When fishways or fish ladders were in place, they were often poorly designed and didn't allow for the passage of spawning fish. Frederick Veith's 1868 report on Salmon river was typical of the state of other rivers in the province and reflects an overall increase in the 'nature

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[470] Gough, Joe. Fisheries Management in Canada 1880-1910 Halifax: Dept. of Fisheries and Oceans, 1991:3

[471] Ibid 15-16

[472] R.W. Dunfield, The Atlantic Salmon in the History of North America. Halifax: Dept. of Fisheries & Oceans, 1985:80

as wounded object' response to the land:

> Mill dams and bag nets have done their deadly work too well, and almost ruined these once-far-famed streams. Salmon River (running into Beaver Harbour), [Port Dufferin], Quoddy, Ecum Secum and Liscomb, each flowing into its own bay, are all either so totally obstructed by mill dams, or so unfairly netted in every way, that their fisheries must of necessity shortly be remembered only as that which has been, but no longer exists.[473]

Many Micmac were also involved in the fisheries in the 19th century both for their own use and for market sale including export. Porpoise hunting was an equally important maritime activity as the market for its oil was a profitable one. Between early May and late June porpoises were hunted in southwestern Nova Scotia during which time Indians lived in coastal camps. Once the blubber from the animal was dried it was boiled into an oil and sold at either Digby or St. John. In the early 20th century the market collapsed when cheaper petroleum forced porpoise oil from viable competition. The importance of the porpoise industry for the Micmac in the early and mid-19th century was demonstrated by their vociferous stand against white fishermen who were thereby thwarted in their attempt to make porpoise hunting illegal which they claimed was destroying the herring fishery.[474] Micmacs had a long history as vocal opponents to unfair fisheries, hunting, timber and land settling practises. Their concerns were often taken up by responsive Nova Scotians from Indian commissioners to neighbours yet, as with environmental legislation, the force of greed and the effects of colonial development could not be adequately checked to stop ecological damage and loss of land that so radically altering the traditional Indian way of life. The changes Micmacs witnessed over two generations was summed up by eighty-five year-old Peter Paul who recounted the difference between the land he knew in 1865 and that of his father who was born in 1734 and lived to be almost a hundred:

> That time everything plenty; salmon, trout, eels, good many kinds fish. Plenty moose, Cariboo, Bear, Beaver, Otter, Martin, Foxes, Wildcat and good many more. My father have'em coat -- inside beaver, outside otter. That time plenty of fish in summer and dry-em for winter...white men that time...cut down woods..spear'em salmon...all gone now. Everything

[473] Veith, Frederick. A Brief Report on the Conditions of the Principal Rivers on the South Coast of Nova Scotia. Halifax: Compton & Co.1868:14

[474] Gonzalez, Ellice. Changing Roles for Micmac Men and Women. 1981:55,63

> eat'em up make country cold -- make rivers small; build saw mills, sawdust and milldam send all fish away. That time plenty codfish, white man set line scare'em all. White man burn up all wood for staves, baskets, everything scarce now. That time, great many Micmacs; white people learn'em to drink...many bad things...and great many die; now not many Micmacs now. One time this Micmac country, our country; now white people say this their country, take'em from Indian and never pay'em...nothing same now...vessels sail about, steamboat make water dirty, and scare'em fish; Railroad and steam engine make noise; everything noise, bustle, all change-- this is not Micmac country--Micmac country very quiet, no bustle; their rivers make gentle murmurs; trees sigh like young women; everything beautiful... [475]

While Nova Scotia's quiet, wild beauty was Micmac country, and an alluring wilderness to American hunters on rustic vacations, to many white Nova Scotians such wild beauty continued to represent a land lacking in sufficient development, industry and enterprise. At a time when provincial tourism interests were aggressively advertizing Nova Scotia to the New England market as the 'Angler's Arcadia', the 'Tourist's Paradise' and the 'Land of Evangeline',[476] the other side of the mixed response to the province's wild lands was evocatively expressed by Richard John Uniacke's account on loons in his 1865 'Sketches of Cape Breton'. For him, the wild beauty of the scene before him beckoned for 'improvement' and stood in contrast to Peter Paul's preference for the quiet lands of Micmac country:

> To stand upon the shores of one of these [Nova Scotia] lakes, embedded as they often are amidst wild solitudes; surrounded by dark forests of pine, indented with numerous little shady coves, --...entranced with the peaceful but wild beauty of the scene, -- to hear the voice of the loon sending forth its deep plaintive. . . mournful note. . . unexpressively beautiful and sad, -- which are answered by the echoes of every cove, -- such a scene affords a treat, which is scarcely surpassed in any country. To be sure in such a spot you must try to forget the sting of mosquitoes, which swarm around you at certain seasons; and notwithstanding its wild loveliness, you cannot help feeling something of the oppression produced by an unbroken and monotonous solitude; and wish for a day when the hand of industry and civilization would level these forests, and

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[475] Dr. George Patterson Collection, Scrapbook No.5, newspaper clipping: "Biography of Peter Paul--Written February 16th, 1865. From his own statement--By an Amanuneunis." Excerpted in Ruth Whitehead's The Old Man Told Us: 266-268

[476] Dominion Atlantic Railway, Illustrated Guide, Hants Journal, 26 July 1893. Citation in Graeme Wynn's "Images of the Acadian Valley: The Phot graphs of Amos Hardy." Acadiensis Autumn, 1985:67

> clothe the borders of these lakes with fruitful fields and villages. But still as specimens of nature in her primeval charms such scenes cannot fail to delight those, who have a taste for natural beauties. And it must be admitted that the hand of civilization is already making great inroads upon these wild spots; for one of the lakes, which I had in view. . .from its deep and gloomy solitudes, is at present traversed and enlivened by the rolling cars three times a day; and the monster notes of the steam whistle have succeeded to those of the loon.[477]

The silencing of the cry of the loon by steam railways represented the triumph of settlement over wilderness and the replacement of Micmac 'habitat' with European 'habitat'. But the response to wildlife in Nova Scotia through the 17th, 18th and 19th centuries was much more complex than that. Wildlife meant many things: food, furs, target practice, pets, messengers, teachers, neighbours, curiosities and puzzles. Over three centuries interest and greed was matched by care and concern not always marked by self-interest. Then as now, Nova Scotia's laws, without exceedingly stringent enforcement, could not curb the various environmental factors that contributed to wildlife decline. The amazing accounts of abundance of the early explorers and settlers would fade into the distant past well before the 20th century and become a memory inexplicably hard to believe of another time in a completely different land.

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[477] Fergusson, Bruce, ed. Uniacke's Sketches of Cape Breton and Other Papers Relating to Cape Breton Island. Halifax: Public Archives of Nova Scotia. 1958: 95

CONCLUSIONS

> Have you ever studied the philosophy of nature? Have you ever learned to gather wisdom from the expanded leaves of creation?. . .who heeds not the wisdom which is taught by the hills, and which a wise man may gather in the valleys. Every flower you see hath instruction...
>
> ----Joseph Howe, 1838
> *Western and Eastern Rambles*

To perceive the essence of a flower was for Joseph Howe to grasp the meaning of a blossom both as a metaphor for human potential and the genius of nature's strength and delicacy. It was an appropriate symbol for an emerging colony where there was much to be learned by the challenges and contradictions presented by the natural world and a new society. Nova Scotia's hills and valleys concealed countless stories and varied instruction as centuries of discourse over the land reveals. In many of these diverse written accounts nature dominates as a central point of reference. For hundreds of years, the collective social experience of Nova Scotia has been one where land and nature formed a commonality that was as unifying as divisive. Nature, a word with immensely complex meanings, would signify many things apart from the biological processes of the surrounding natural world.

Europeans coming to Nova Scotia sought to place form and meaning on the chaos of wilderness. In this regard the natural attributes of place illicited specific responses to nature. For both the newcomers and the Micmac, Nova Scotia as a land was perceived in terms of: nature as wealth, nature as poverty, nature as the promised land, nature as enemy, nature as habitat, nature as wonder, nature as freedom and nature as wounded object. All points of view overlapped and collided and together form a sense of the diverse cultural interpretations of land and place evident in written accounts. However, looking for patterns that changed over the centuries, it is significant that in the 1600 'nature as wealth' was the dominant response to Nova Scotia and by the late 1800s, it would be superceded by 'nature as wounded object' expressed in the many narratives detailing the decline of forests and wildlife. Dramatic changes had taken place.

In the three centuries spanning 1600 to 1900 transformations in the land encompassed great ecological and cultural shifts. A hunter-gatherer society collided with an agrarian-trader society as Micmacs and Europeans intermingled for the exchange of goods. Since the 16th century the great ecological abundance of the North Atlantic had attracted large fleets of cod fishermen who annually spent four to five months in these coastal waters to harvest the prolific cod which, by comparison, were scarce in European waters. With the development of the new technology of dry-salting cod, shoreline bases were established for the processing of fish. This move from the fishing banks to inshore waters increased regular contact between Indians and cod fishermen. A spiralling chain of ecological repercussions followed. Diseases carried by Europeans with tougher immune systems devastated Micmac populations with no immunity to old world microbes. The tribe was reduced to a remnant of their former numbers with the ravages of disease occurring well into the 19th century. Contact with cod fishermen led to the development of the fur trade. The ensuing traffic in beaver and moose hides led to the establishment of numerous French fur trading posts including Port Royal (1606) transforming a sporadic commerce into an organized continuous one. The convenience of European trade goods had the effect of altering traditional Micmac subsistence patterns. Formerly animals provided sustenance only for the needs of Indians, now they supplied European markets thereby transformed into global commodities driven by the fashion in beaver felt hats. By the mid-1600s moose (valued for leather) were scarce in Cape Breton and beaver throughout the province almost exterminated. The countless beaver meadows that resulted, as abandoned dams released and grew up in grasses, became valued pasture and hay for the colonists that followed.

'Nature as habitat', otherwise known as environmental determinism, decided much of the human response to the land. From the 1600s onward, river valleys were one of the favoured lands of all people offering open intervales full of meadow grasses that were free of thick forests. To the non-agrarian Micmac river valleys and, in particular, river estuaries or sheltered bays provided a plethora of riches -- fish, fowl, plants, grazing moose and other wildlife. For the colonists that followed, these same areas would be the most desired and would make the most easy transition into agricultural lands.

Rivers provided water transportation to the coast and a means of transporting logs to mills while the upper slopes of valleys featured the most desired trees. With the influx of colonists in the 1780s, conflicts over land arose because of the widespread ecological preferences for river valleys, estuaries, sheltered bays and luxuriant woodlands. Whites pushed Micmacs off their choice lands -- the best and most pleasant in the province. Earlier Acadians avoided this clash by dyking marshlands along the bays and rivers of the Bay and Fundy, thereby transforming nutrient rich sediments into fertile soils while skirting the labour of cutting down large forests areas to create pasture. The vast tracts of land so gained changed the face of rivers particularly those emptying into the Minas Basin. Because Acadians occupied the most fertile lands in the province, the British -- having control of mainland Nova Scotia since 1713 -- felt thwarted in attempts to attract English settlers. This, along with other reasons, was a factor in the deportation of the Acadians, and with their departure former Acadians lands were advertised as an enticement to attract Anglo-immigrants.

Environmental determinism was a formative factor behind the location sites of many towns. Those along the Annapolis Valley and the Kings/Hants/Cumberland Counties areas with their warmer, more fertile lands became agricultural townships. Pictou, surrounded by large tracts of white pine was a timber centre. The sites of sheltered bays such as Shelburne, Liverpool and Lunenburg were chosen as fishery centres to take advantage of closeby fishing banks. Halifax's excellent harbour was the reason for its site selection so unlike most cities it does not have an agrarian hinterland. Throughout the province natural history or geographic attributes formed a basis on which settlement developed and influenced today's pattern of communities. Many place names -- from Beaverbrook to Salmon River -- reflect the past natural history of areas but no longer reflect current wildlife indicators.

The clearing of forests to create farmlands had far reaching effects. Careless use of fire to aid in the job resulted in repeated widespread fires throughout the province. This reduced Micmac hunting territories, decimated wildlife populations, contributed to the extermination of caribou and resulted in the extinction of passenger pigeons. Widespread fires in areas with shallow soils also had the effect of producing barrens which had increased by 1900 to form 20 percent of province lands. With the

destruction of mature forests, the burnt over areas grew up in plant life typical of the early successional stages of forest development -- stages generally dominated by softwoods.

Making farmlands had other ecological spin offs. Hundreds of new plants were introduced, many of them weeds, which quickly thrived and became a dominant presence in the pastoral landscape. Clearing forests also generated a mild warming effect on the land in the form of microclimate changes which were accompanied by the tapering off a cooler climatic period (the Little Ice Age 1300-1800) that began to wane in 1600 and terminated in 1800. Slightly warmer lands meant less snow and poorer winter hunting for the Micmac which contributed to hunger and devastation from disease from 1600 onward.

The types of forests covering the province were diverse but featured many large stands of old growth hardwoods, pines and hemlocks. White pines were the most valued trees. The British need of pine ship masts, to ensure domination of the seas and state security, resulted in laws prohibiting the felling of pine trees. In Nova Scotia these laws were largely ignored as wilderness represented the freedom and liberty to take what you wanted. By 1840 the old growth pines were gone and soon after that other valued species. Many areas formerly supporting mature woodlands were replaced by new forest growth. A use for these large tracts of early successional stage softwoods was soon found and the pulp and paper industry developed by latter half of the 1800s. Just as European human diseases had decimated Indian populations, European trees disease, introduced through imported nursery stock, resulted in a the destruction of the make-up of Nova Scotia's original hardwood forests. Beech, which had formerly been a dominant tree, would now be less common and when found constituted only a diseased and distorted member of the forest understory. Numerous other species were also effected and, as a result, Nova Scotia's hardwood forests today are very different than in the past.

The abundance of wildlife -- fish, fowl, and animals -- enthralled Europeans first encountering Nova Scotia. Amazing accounts of prolific wildlife form the basis of 17th century 'nature as wealth' accounts of the land. If is hard to know exactly how wildlife

populations were affected by colonization but it is obvious that before 1750 there was 'much more' and by 1860 'much less'. Over hunting had long ago decimated beaver populations. Moose became scarce, recovered, over hunted and became scarce again. The late 1800s introduction of deer, and with it the parasite fatal to moose, had a major effect in reducing the widespread range these animals formerly had. The patterns of bird populations changed with the effects of colonization too. Species favouring grasslands and fields increased as did those seeking out new growth forests. Birds preferring mature woodlands decreased. The timber trade had a dramatic impact on salmon as waterways were blocked with sawmills, sawdust, log jams, and water wheels which obstructed fish spawning migrations.

Ecological 'measuring sticks' provide a means of assessing change in an environment or ecosystem. In looking at Nova Scotia over a three hundred year period, the most applicable tools for determining change are successional changes in forests and wildlife population change. Both are readily apparent in written accounts and their legacy has moulded the present-day landscape and natural history of the province.

Along with ecological change came far- reaching cultural repercussions. The Micmac lost their traditional way of life. Encroachment upon the forests by colonists had the effect of depriving mammals, birds and fish of their habitat and robbing the Micmac of their age-old means of subsistence. Farmlands and timber interests had transformed the country as did the colonial quest for land. The response to the land as 'nature as wealth', 'nature as habitat' and 'nature as freedom' meant that Euro-immigrants were often ruthless in taking what they wanted whether it was cleared Indian grounds, choice intervales, pine trees, the best fishing spots on rivers or mass quantities of moose. However, this culture of exploitation was paralleled by the culture of 'nature as wonder' as a new society emerged bonded by shared interests. A good number of people were very interested in the land's wildlife, climate, soils and forests for the sole reason of trying to understand it. This was not a resource-extraction approach to the natural environment but rather a burning curiosity to unravel its puzzles. The study of nature, therefore, became a passionate pursuit for a considerable number of early Nova Scotians. Their findings contributed to overall climate of scientific developments emerging in the late 1800s ranging from Darwin's Theory of Evolution to Clement's

Theory on Plant Succession. As the transformation taking place in the land became apparent to those with their 'eyes on the environment', the 'nature as wounded object' voice became strong in many accounts of the land. These expressions of concern often contributed to the triggering of laws to protect wildlife or forests. In most cases, the laws were not strictly enforced and therefore had little effect.

What are the lessons to be learned from three centuries of discourse over the land? What are the wisdoms taught by the hills and gathered in the valleys as Joseph Howe asked? Engagement with the natural world takes many forms. One may go to the wilds of the mountain, to seek refuge from culture and find solace in the solitude of the hills and the sky and the grand perspective that such a vista offers. With a greater vision thus gained ancients came down to the valleys, a traditional meeting place between nature and culture, to share insights acquired by closer communion with nature as a source of instruction and spiritual renewal. But the mountains and valleys also stood as basic symbols of the ongoing change in the material grounding of nature. The solidity of the rocks and soils of hills gives way, over time, as slopes erode into valleys contributing to the deeper, fertile loams of the lowlands. In the natural world change is constant, and speed and time relative. The speed with which changes in the land took place in Nova Scotia rapidly accelerated with colonization. Today the domination of culture and capital over the environment has greatly hastened this process. The lessons that history offers is that interest and concern over the natural environment has always been a subject of considerable inquiry and discourse. In the past, predicting patterns of decline in the environment did not effectively stop the changes taking place. All actions had a cost; a lesson the modern world is finding with sobering implications. Three centuries of discourse over the land reveal the interconnectedness of the environment and serve to expand our vision of the natural world and the role of humans in it.

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