

This document is an electronic copy of a book chapter published in:

Craig, B. (1993). Agriculture in a pioneer region: The Upper St. John River Valley in the first half of the 19th century. In K. Inwood (ed.), *Farm, factory and fortune: New studies in the economic history of the Maritime Provinces* (pp. 17-36). Fredericton, NB: Acadiensis Press.

We acknowledge Acadiensis Press for granting permission to make this text available electronically.

Agriculture in a Pioneer Region: The Upper St. John River Valley in the first half of the 19th Century

Béatrice Craig

Prince Edward Island excepted, the Maritime provinces are not famous for their agriculture, either in the present or in the past. Nineteenth century New Brunswick, for instance, is perceived as a "timber colony" that had to import foodstuffs. Nova Scotia evokes images of shipping, shipbuilding and fishing. In general, the maritime farmer is assumed to have been self-sufficient and uninvolved with the market.¹ However, recent studies of agriculture in the Maritimes have challenged this stereotype. Alan MacNeil's doctoral thesis demonstrates that Nova Scotia agriculture performed at a wide variety of levels, ranging from subsistence farming complementing other activities such as lumbering and fishing, to market-oriented ventures, such as the exporting of goods to New Brunswick, Newfoundland and St Pierre and Miquelon. In the better areas, farms were as productive as those in Upper Canada.² This wide range of productivity could be found even within the limits of a single community, as Rusty Bittermann's study of Middle River demonstrates.³ T.W. Acheson's survey of New Brunswick farming suggests that the "timber colony" was not that different from Nova Scotia: 25 per cent of farms in the parish of Wakefield, Carleton County were definitely commercial in 1871.

Wakefield was located in the St. John River valley; almost the entire length of the river was suitable for agriculture, and it supported prosperous farms throughout the 19th century. The lower valley was the site of several small settlements even before the arrival of the Loyalists. The middle valley was settled by disbanded soldiers. Further up, the valley attracted migrants from Britain, especially from Ireland, who spilled into the adjacent Aroostook River valley, in Maine.

The section of the upper St. John River which is the subject of this article was opened to settlement in 1785 by a handful of Acadian families from

1 For a survey of opinions concerning Maritime agriculture, see T.W. Acheson "New Brunswick Agriculture at the End of the Colonial Era: A Reassessment", in this volume.

2 Alan MacNeil, "Society and Economy in Rural Nova Scotia, 1761-1861", Ph.D. thesis, Queens's University, 1990.

3 Rusty Bittermann, "Middle River: The Social Structure of Agriculture in a Nineteenth Century Cape Breton Community", M.A. thesis, University of New Brunswick, 1987.

southern New Brunswick, and by French Canadians from Rivière Ouelle and Kamouraska. At the time, the governors of Quebec and New Brunswick were trying to protect the Halifax-Fredericton-Quebec mail route, which used the valley in winter. The Acadians and French Canadians, led by Louis Mercure, a government courier, settled above the Grand Falls, where the river was lined with *intervale* land. Half-pay officers were established along the portage route on the highland separating the St. John and St. Lawrence valleys, where they supplemented their income with a few animals and a garden patch. No land grant was issued after 1794, on account of the boundary dispute between the British and the Americans. The two countries could not agree on the exact location of the northeastern boundary, and both claimed the upper St. John Valley (also referred to as "Madawaska territory"). The disagreement was not settled until 1842, when both parties split the disputed territory lengthwise: the northern bank of the river remained British; the southern bank became American.

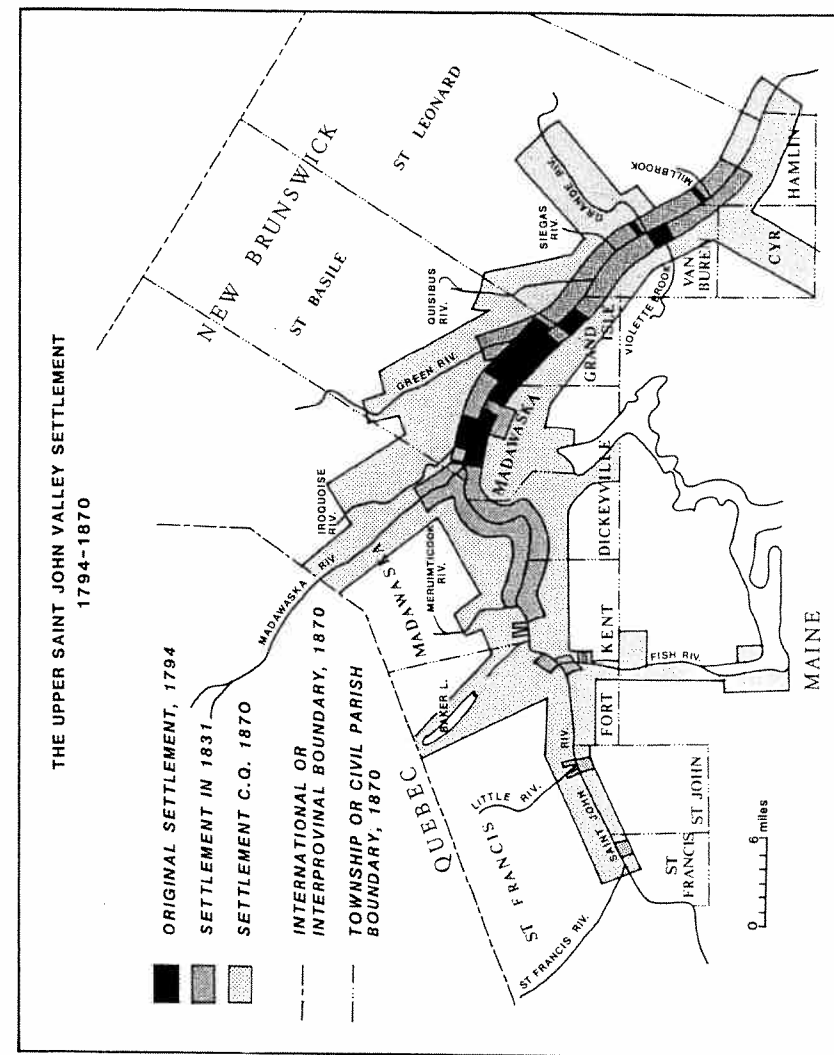
Diplomatic quarrels notwithstanding, the population grew steadily, fed not only by a high birth rate, but also by immigration from the St. Lawrence valley. There were 331 settlers in 1799, 1,200 in 1820, 2,500 in 1830, 6,200 in 1850 and 15,000 in 1870.⁴ Until 1842 the newcomers, as well as the children of the founders, squatted on the land of their choice, which they cleared, improved, sold or bequeathed as they saw fit. Under the terms of the 1842 treaty, bona fide settlers were to receive a grant of the land they occupied. The state of Maine issued 563 such grants in 1845, and the province of New Brunswick 505 in 1848.⁵

Agriculture was the sole economic base of the community until the winter of 1823-4, when lumber camps opened in the vicinity.⁶ The St. John Valley was, and still is, blessed with land that is unusually fertile by regional standards. Distance and poor communications, however, had an adverse effect on initial economic growth. There was a potential market at Rivière du Loup, 70 miles away on the St. Lawrence, but to reach it travellers had to boat up the Madawaska River and Lake Temiscouata, then walk the rest of the way

4 Lettres des prêtres missionnaires du Madawaska à l'évêque de Québec, Archives de l'Archidiocèse de Québec, Québec; U.S. census, 1820 and 1830, US census, 1850, M432, roll 248; New Brunswick provincial census, 1851, C996, Public Archives of Canada.

5 "Maps of the Madawaska Survey conducted by Land Commissioners J.A. MacLaughlan and John C. Allen to settle the claims arising under the treaty of Washington, 1844-1848", Crown land office, Province of New Brunswick; "Report of the Commissioners Appointed under the Resolve of February 21, 1843 to locate grants and determine the extent of possessory claims under the late treaty with Great Britain", Special Collection, Fogler Library, University of Maine.

6 Graeme Wynn, *Timber Colony* (Toronto, 1980), p. 36; Lettres des prêtres missionnaires, 27 March 1824.



through the portage route — a distance of 12 miles. This route was adequate for people and mail, but not for bulky agricultural products. According to an 1831 report by surveyor Joseph Bouchette, the Madawaska settlers had never tried to sell products in Lower Canada.⁷

Another potential market was the more accessible, but more distant, town of Fredericton, 170 miles downriver, or the even further port of St. John. The road, when and where it existed, was in poor condition. But the whole length of the river was navigable five months a year, broken by only one serious obstacle: the Great Falls, just below the French settlement. Distance, and the additional costs incurred portaging goods around the falls, often made sending goods downriver uneconomical. Monsignor Plessis, Bishop of Quebec, noted during his 1813 pastoral visit:

Les habitans ont plus de 30 lieues à aller au fleuve St Laurent et 60 à aller à Fredericton. Voila néanmoins leurs seuls débouchés. Comment tirer parti de leurs denrées? Les frais de voyages n'en absorbent-ils pas presque tout le profit?⁸

In 1831, surveyor Bouchette reported that the valley was blessed with an abundance of natural meadows, which enabled the inhabitants “to keep numerous flocks and herds, and these would, if they had any means of getting them to market, be a source of great wealth to the settlement”.⁹

Low-priced or perishable products could not bear the transportation costs to Fredericton. But high-priced agricultural goods could be profitably sold there. American agents John G. Deane and Edward Kavanagh mentioned in 1831 that the valley exported large quantities of maple sugar.¹⁰ Peter Fisher mentioned a more important market commodity in his 1825 history of New Brunswick: wheat.¹¹ Bouchette also reported that the inhabitants milled their

wheat into flour and sent “considerable quantities to the market in Fredericton, where it meets with a ready sale at an abundantly remunerating price”.¹²

Unfortunately for the Madawaska settlers, wheat-growing was struck a fatal blow in the early 1830s. It was killed by the same pest that destroyed it in New England and Lower Canada, and as in New England and Lower Canada, the farmers gave it up. By the 1850s the farmers were buying wheat flour in the local stores, like their colleagues in New England. In 1848 the St. John Valley was described as shipping out timber, “small quantities of wheat”, fur and maple sugar.¹³ But the failure of the major cash crop did not force the settlers into self-sufficiency. Lumbering seems to have created a substitute market for local products. The local priest wrote to his bishop (27 March 1824), “Les effets ont assez bon cours à présent parce que des faiseurs de bois de tonne ont ouvert cet hiver des chantiers dans nos endroits”, whereas as late as 1821, he was complaining he could not sell the products collected as tithes (“les effets”).¹⁴ Visitors also identified the lumber camps as a market and source of employment for local people. Ward stated in 1841 that the valley boasted several substantial farmers, who raised large quantities of oats and grains “with which they supply the lumbering parties in their immediate vicinity”.¹⁵ J.F. Johnston also noted in his remarks on the agricultural capabilities of New Brunswick that lumbering offered “a more ready market for farm produces. It kept prices up and gave employment to idle hands”.¹⁶

Visitors failed to notice another market for the local farmers: people clearing land for their farms. According to Danhoff, it took five to ten years to develop a farm.¹⁷ The St. John Valley does not seem to have been different.¹⁸ Newcomers therefore constituted a genuine market for several years, and there were many of them in the valley. All through the 19th century, the

Kavanagh, there were three grist mills in the upper St. John Valley in 1831, two of which were in operation.

7 Joseph Bouchette, *The British Dominions in North America or a Topographical and Statistical Description of the Provinces of Lower and Upper Canada, New Brunswick, Prince Edward Island, Newfoundland, Nova Scotia and Cape Breton Island, and a Topographical Dictionary of Lower Canada* (New York [London], 1968 [1831]).

8 “Le journal des visites pastorales de Mgr Joseph Octave Plessis, Evêque de Québec en Acadie, 1811-12-15”, *Société Historique Acadiennes*, Cahiers, 11, 1-3 (mars/septembre 1980), p. 25.

9 Bouchette, *The British Dominions in North America*, p. 104.

10 W.O. Raymond, ed., “State of the Madawaska and Aroostook Settlements in 1831, Reports of John G. Deane and Edward Kavanagh to Samuel E. Smith, Governor of the State of Maine”, *New Brunswick Historical Society, Collections*, 9 (1914), p. 455.

11 Peter Fisher, *History of New Brunswick, as Originally Published in 1825, with a Few Explanatory Notes* (St. John, 1921), p. 53. According to Deane and

12 Bouchette, *The British Dominions in North America*, p. 104.

13 Abraham Gesner, *New Brunswick, with Notes for Emigrants* (London, 1847), p. 180.

14 Lettres des prêtres missionnaires.

15 Edmund Ward, *An Account of the St. John and Its Tributary Rivers and Lakes* (Fredericton, 1841), p. 86.

16 James F.W. Johnston, *Report on the Agricultural Capabilities of the Province of New Brunswick*, 2nd ed. (Fredericton, 1850), p. 51.

17 Charles Danhoff, *Changes in Agriculture, The Northern United States* (Cambridge, Mass., 1969), p. 120.

18 A land agent report for 1831 gives the date when most pieces of land were initially taken by their first owner; this report can be linked with an 1833 agricultural survey taken by a New Brunswick official. In 1833, half of the eight to ten year old

St. John Valley attracted a steady stream of immigrants. Immigration was particularly important in the few years after the opening of the lumber camps. The population more than doubled between 1820 and 1830, and 41 per cent of this increase was the result of immigration. The year 1826 alone saw the arrival of 30 new families. The newcomers were not merely following the lumber camps: they took land, and most became permanent residents. By 1850 those people were identified as farmers by the census taker. Immigration explains why at any time in the 1830s, 1840s and 1850s, between 50 and 60 per cent of the farms were at the clearing stage. Their owners and their families had to be fed somehow. The men could work in the woods in winter, and use their wages to buy seeds, stock, and food. In a simpler fashion, they could barter their services with a farmer-lumberer in exchange for various agricultural products. In any given year, then, about every other family in the valley had to rely on the market to secure its subsistence.

We do not have a lot of data on the St. John Valley agriculture prior to 1850, besides the fragments of information conveyed by visitors. Sources are scarce: a few tithing records, grain bonus lists from New Brunswick, an American land agent report for 1831, an agricultural survey taken in the winter of 1833, aggregate figures from the New Brunswick census of 1851, and the 1850 agricultural census for the American side of the river. Only four tithing records exist: two for the whole settlement (in 1799 and 1804) and two for its western section (1832 and 1841). All four were sent to the Bishop of Quebec by the local people, who tried to convince him they could support a priest for the whole settlement (1799 and 1804), and that a new parish should be erected in the west of the territory (in 1832 and 1841). Parishioners (and in those years almost everyone was Roman Catholic) were expected to give 1/26 of their grain, peas and potatoes to the priest.¹⁹ The grain bonus lists were established by the New Brunswick government. In 1818 the New Brunswick legislature passed a bill providing for bonuses ranging from 4d to a shilling per bushel of grain raised on new land. The last bonus list for Madawaska is dated 1830.²⁰

farms had crops as opposed to 29 per cent of the six to seven year old farms and 20 per cent of the farms five years and younger. Twenty-nine per cent of the farms five years and younger had neither crop nor animals in 1833, but only 20 per cent of the six to seven year old and ten per cent of the farms eight years and older were in this situation. This seems to indicate that on the average, it took seven or eight years to make a farm on the upper St. John River Valley.

19 Tithing records for 1799, 1804, 1832 and 1842. *Lettres des prêtres missionnaires*.

20 Papers of the Legislative Assembly, Schedule of Persons entitled to the Bounty for raising Grain on New Land, 1818-1830, Provincial Archives of New Brunswick [PANB].

The 1831 report was written by agents Deane and Kavanagh, who were sent by the state of Maine to investigate if the people of the St. John Valley people had rights on the land they occupied, and which the state claimed as its own. The report is a nominal list of residents, indicating the number of people in each household. It contains fairly detailed information about property size, number of acres cleared, land improvement, duration of tenure and names of the previous owners for about half the settlement. Deane and Kavanagh's investigation was restricted when James A. MacLauchlan, the British "warden of the disputed territory", stepped in, warned the two Americans he considered them trespassers, and discouraged settlers from answering their questions. The information relating to the rest of the settlement is generally limited to the name of the occupant and what the two agents could observe. Deane and Kavanagh made some comments about crops and husbandry practices; they also reported the tithes collected that year.

The 1833 agricultural survey, taken by MacLauchlan, is an extremely rich document. The crops failed in the Madawaska district in the fall of 1833 because of a wet summer and an early winter. The hard-pressed inhabitants petitioned Fredericton for relief. Before taking action, the provincial government requested a report from MacLauchlan, who had lived in the area for several years and was likely to be well informed about local conditions. MacLauchlan proved extremely zealous. His report consists of a census of all the local families, naming the heads of household, indicating the number of people living with them, listing all the stock they owned, how much they had sowed in the spring, how much they had harvested, the quality of the crops, and how much they used to harvest, on the average, in the past few years. The document is extremely valuable because nominal agricultural censuses were not taken until 1850 in the U.S. and 1861 in New Brunswick.²¹

The last useable document is the 1850 census. By that time the valley was divided, and censuses cover only one bank of the river or the other. Only the aggregate figures published in the *Journal of the Legislative Assembly* are available for New Brunswick in 1851.²² The agricultural schedule of the 1850 U.S. census on the other hand still exists, and entries can be linked most of the time with the corresponding ones in the population schedule.²³ Unfortunately, only the 167 farms above a certain value (officially \$500, in fact \$300) were enumerated. Despite the fact the other heads of household were enumerated as "laborers" in the population schedule, there were more than 167 farms on the

21 "Report of the Commissioners of Affairs at Madawaska, 1834, Papers of the Legislative Assembly relating to the Settlement of Madawaska", PANB.

22 *Journal of the Legislative Assembly of New Brunswick, 1851-1852*, pp. xxvi-xxvii.

23 The population schedule is available from U.S. Census, 1850, M432, roll 248, National Archives (Washington, D.C.). The agricultural census is available from the Maine State Archives in Augusta, Maine.

U.S. bank of the river. In 1845 the state had granted 565 farm lots — and they had not been massively abandoned. The 1845 grantees (or their children) were still living in the valley five years later. By 1860 those lots were included in the agricultural census, and reported crops. They were therefore genuine farms. But in 1845, two-thirds of the lots granted had been recently taken, and were reported by the land agents as not yet improved.²⁴ The proportion of unimproved farms was similar in 1833 at 60 per cent. The farms enumerated in 1850 represented 36 per cent of the 1845 land grants. It is therefore plausible that the 167 farms listed in the 1850 agricultural census were all the productive farms on the American side of the valley, and those left out by the census taker were still at the clearing stage, and had little or no stock or crop to report. (Productive farms are here defined as those growing crops.)

Tables One and Two summarize the information contained in these different sources. The households counted here are the separate co-residential groups which are identified by the various documents; the households listed in the 1831 and 1833 reports occasionally included other relatives, some servants or some boarders, besides the conjugal family. The “farms” included in Table Two are productive farms. At first glance, some of the figures seem anomalous. The average production per household in the early 1830s is much higher than that reported in the tithing lists, or in the Deane and Kavanagh report (which is based on tithing figures). The early 1830s figures are calculated from the “average yield in past years” column of the MacLauchlan report. Although high, these figures are not unrealistic. One can, for instance, estimate the acreage under cultivation from the quantities of seed sown. Most are under 20 acres. One can also estimate from the same seed figures the anticipated yields for the fall of 1833 and compare these figures with the ones for the past years; they are very close. One can estimate the yield per acre by dividing the past year crop average by the acreage sown in 1833. Not only are the resulting yields not excessive, but they fall below the yields reported by Deane and Kavanagh:

	Wheat	Barley	Oats	Buckwheat	Peas	Potatoes
Estimated yields (bu.)	11.9	14.6	17.5	8	13	132
D. and K.’s figures	20	25	30	no data	n.d.	250

In short, the Madawaska settlers could easily have grown the quantities they reported. The document is internally consistent. The question then is: why only in the early 1830s? Why are the MacLauchlan figures conflicting with those derived from the tithing records?

²⁴ “Report of the Commissioners appointed under resolve of February 21, 1843, to locate Grants and determine the extent of Possessory Claims under the Late Treaty with Britain”, Special Collections, Fogler Library, University of Maine, Orono, Maine.

Tithing records are likely to underestimate agricultural production as residents did not tithe as much as they were supposed to. Tithes were an object of perpetual quarrels between priests and parishioners, if we can believe the letters the priests sent their bishops. The MacLauchlan figures on the other hand may overestimate production; the settlers may have exaggerated their past production to make their plight seem worse. But it is doubtful that MacLauchlan would have taken unrealistically high figures at face value. And if one compares not average production per household, but average production per farm, the early 1830 figures are not excessive compared with those for the 1850s.

Despite their apparent lack of consistency, the data in Tables One and Two seem fairly reliable. The figures suggest that the upper St. John Valley was prosperous and normally capable of feeding its entire population. In addition, a comparison between the state of agriculture in the early 1830s and in 1850 not only confirms the shift from wheat to other crops noted by visitors, but also suggests that changes in the natural, economic and political environment led farmers to switch to a different type of husbandry altogether. In the early 1830s settlers harvested trees, grew wheat for sale out of the upper valley, and foodstuffs for their use and that of their neighbours. In 1850 local residents were primarily farmers engaged in mixed agriculture. In both cases they sought to provide for their needs both from subsistence farming and market-oriented activities. Beginning in the 1850s, they were not loath to purchase some of their food either.

In the early 1830s only a minority of farms (40 per cent, or 159) were operational, that is reporting any crops. Nonetheless, those 159 farms were capable of feeding the entire permanent population, and still have some surplus to sell to lumber camps or out of the valley. To estimate this surplus, we must first evaluate the food and feed needs of this population. Deeds of maintenance offer useful information about food needs.²⁵ When elderly people decided to retire, they often exchanged all or part of their property for maintenance until their death. The deeds of maintenance very often listed in great detail everything the retiree expected to receive. In some parts of North America, widow’s portions — which were forms of deeds of maintenance — seem to have significantly exceeded needs, and historians have claimed that part of the supplies was meant to be sold.²⁶ This does not seem to have been

²⁵ Deeds of maintenance are found at the Northern Registry of the Deeds (opened in 1845) in Fort Kent for the Maine side, at the Victoria County registry Office (1850-73) for the New Brunswick one. Records of land transactions prior to 1845 are very rare. The few that exist can be found in the York County registry (1785-1831) and the Carleton County registry (1831-50)

²⁶ Bettye Hobbs-Pruitt, “Self-Sufficiency and the Agricultural Economy of Eighteenth-Century Massachusetts”, *William and Mary Quarterly*, 3d. ser., XLI, 3 (July 1984), p. 348.

Table One
Production per Household, 1799-1851

Year	1799	1804	1831	1832	1830	1833	1841	1850 ^a
Number of Households	56	100	475	113	400	400	140	466
Wheat	51	42	29	29	45	15	15	3
Buckwheat	0	0	0	0	1	1	10	51
Oats	10	11	6	10	30	11	22	46
All grain ¹	64	nd	nd	nd	80	30	57	111
Peas	8	8	9	10	16	5	11	9
Potatoes	67	75	41	88	143	90	123	61
Hay ²	nd	nd	nd	nd	nd	8.8	nd	8

a U.S. side only

1 Includes wheat, barley, oats, buckwheat, corn and rye. All quantities in bushels.

2 Quantities in tons.

Table Two
Production per Farm

Year	1830	1840	1850
Number of Farms	159	159	167
Wheat	112	37	8
Buckwheat	3	3	142
Oats	74	29	134
All Grains	202	75	310
Peas	39	12	24
Potatoes	359	226	171
Hay	nd	16	21
Horses	nd	1.96	1.8
Oxen	nd	1.96	1.23
Cows	nd	3.78	3.62
Cattle	nd	3.4	3.4
Sheep	nd	14.6	19
Pigs	nd	5.21	3.62

Sources: 1799 and 1804, tithing records for the parish of St. Basile; 1831, Deane and Kavanaugh Report; 1832, tithing records for the parish of St. Luce; 1850, U.S. census, population and agricultural schedule.

the case here. On the one hand, retirees often requested small amounts of cash in addition to their supplies. Many deeds of maintenance also contained a clause specifying that unused supplies were to revert to the younger couple. On the other hand, the quantities requested provided people with a diet that was both quantitatively and qualitatively adequate, although bland and monotonous. A typical retiree would consume weekly at least seven pounds of potatoes,²⁷ nine pounds of bread or wheat based products, two pounds of mess pork, one pound of beef or mutton, one and a quarter pounds of dried peas, one and a half ounces of rice or barley, half a pound each of sugar, dried fish (after 1855), and butter, half an ounce of tea (this is the weight of six modern tea bags, with their bags) two ounces of lard, as well as milk, eggs, poultry and vegetables in season. (All these are modal values.) Some families stored onions and cabbages as well as salted greens for winter use, but the practice was not universal. These various food items, in the quantities listed above, could provide each retiree with a generous, but not excessive, amount of calories for an active person living in a cold climate. There is therefore no reason not to rely on deeds of maintenance to estimate consumption patterns and levels.

The 1833 survey reports a population of 426 men, 394 women, 844 boys and 854 girls. If we count every two children as equivalent to one adult for consumption purposes, this population was equivalent to 1669 adult consumers.²⁸ Modal allowances of wheat, potatoes and peas were nine bushels of wheat, six bushels of potatoes and one and a half bushels of peas yearly. Grain, peas and potato requirements and surpluses would have been the following:

	Production	Consumption	Seeds	Total	Surplus
Wheat (bu.)	17,946	15,021	2,332	17,353	593
Peas (bu.)	6,243	2,503	624	3,127	3,116
Potatoes (bu.)	57,141	10,014	5,714	15,728	41,413

Farmers, after satisfying the needs of their neighbours, would have had not only a small surplus of wheat to export out of the valley, but also a mountain

27 The distribution of potato requirement is bi-modal, with a peak at six bushels, and a slightly smaller one at ten. The elderly could also grow potatoes on the garden plot that most of them requested.

28 "Adults" are here defined as people 16 or older. Most historians prefer to distribute the population in narrower age categories, and assume increased consumption with the increased age of children. To test the accuracy of the simpler method, I calculated the number of adult equivalents in two control townships using first Atack and Bateman's formula in *To Their Own Soil*, then McInnis's formula in "Marketable Surplus in Ontario farms", and finally the equation of two children = one adult. The results were virtually identical. For instance, in the township of Eagle Lake, I counted respectively 75.5, 77.5 and 75.5 adult

of peas and potatoes. Potatoes were not worth shipping out, being cheap, bulky and perishable. It is doubtful farmers would have eaten their cash crop and let others rot away. It is also doubtful Bouchette would have referred to the valley as a flour producer, if it could send only 100 barrels of flour a year to outside markets. It is plausible the bulk of the population ate less bread and more peas and potatoes than their elders (at any rate, it would have made more business sense). Nine bushels of wheat was enough to feed each adult consumer one and a quarter pounds of bread every day — a generous allowance for people who had potatoes and peas in abundance.

St. John Valley residents could have lived easily on three-quarters of a pound of bread a day (one barrel of flour or six bushels a year), if they had increased their potato consumption to two or three pounds a day (12 or 18 bushels a year).²⁹ Requirements and surplus would have been the following:

	Food	Seeds	Total	Surplus
Wheat (bu.)	10,014	2,332	12,342	5,604
Peas (bu.)	2,503	624	3,127	3,116
Potatoes(12 bu./yr)	20,028	5,714	25,742	31,399
(18 bu./yr)	30,042	5,714	35,756	21,385

The valley was therefore in a position to send a substantial quantity of wheat or wheat flour to external markets, without hardship to its human residents; in this case a total of 934 barrels of flour, which averaged 35 bushels of wheat per operating farm.³⁰

Even in a year of famine such as 1833, the quantity of grain was sufficient — unfortunately, two-thirds of it was labelled “bad” by MacLauchlan — and the potatoes, struck by the blight, were rotting in storage. The 159 established farmers could make ends meet, but likely had nothing left that year for their newer neighbours, who wintered over on meal supplied by the provincial government.

equivalents. As I find the expression “adult equivalent” positively awful, I will use “adult consumer” instead. Jeremy Atack and Fred Bateman, *To Their Own Soil: Agriculture in the Antebellum North* (Iowa, 1987); and Marvin McNinn, “Marketable Surplus in Ontario Farms”, *Social Science History*, VIII (Fall 1984), pp. 395-424.

29 This consumption pattern would also have been similar to the one reconstructed by Frank Lewis and Marvin McNinn for Canada East in 1861 (seven bushels of wheat and 14 bushels of potatoes). F. Lewis and M. McNinn, “Agricultural Output and Efficiency in Lower Canada”, *Research in Economic History*, 9 (1984), pp. 45-87.

30 According to Deane and Kavanagh, there were two operating and one disused grist mills in the upper valley in 1831. The disused mill had been built in the 18th century.

Surplus production was not evenly distributed among all the productive farms. All farms that were productive grew a surplus; none grew fewer than 35 bushels of wheat equivalent (the minimum needed for subsistence)³¹ But 18 per cent grew between 250 and 1,000 bushels, and two-thirds grew more than 100. Milk and meat production were similarly impressive. The 723 cows enumerated in the survey could produce 325-350 gallons of milk a year, or two quarts a day per adult consumer.³² The quantity of available meat can be calculated using the number of animals in the 1833 survey, the slaughtering ratio used by McNinn, and the animal weights reported by Johnston.³³ Total production would have been 151,012 pounds of beef, 209,912 pounds of pork and 36,290 pounds of mutton. This translated into 90 pounds of beef, 126 pounds of pork and 22 pounds of mutton a year per adult consumer — slightly more than the amount requested in the deeds of maintenance. Most farmers, if any, evidently did not try to produce a surplus of meat to sell outside the valley.

Meat production was also more widespread than grain production. Two-thirds of farms had animals, and about 20 per cent of the animals were on farms reporting no crops. Not surprisingly, farms reporting a high level of grain production also had a higher than average number of animals. Farms reporting a production of 250 bushels of wheat equivalent had twice the average number of cows and pigs and three times the average number of sheep. Two farms had 17 and 18 pigs, three had 50 sheep or more and three had 10 cows or more. Three farms had an extremely large number of animals: Joseph Hébert had 50 sheep, 15 pigs, and 10 cows; his brother Simonet had 50 sheep,

31 All bushels are not equal in weight (e.g., a bushel of oats weighs 32 pounds, whereas a bushel of wheat weighs 60 pounds). Consequently I converted all grain production to a common unit. My initial intention had been to use the same conversion rates as Atack and Bateman in *To Their Own Soil*, to facilitate comparisons. Unfortunately Atack and Bateman are rather vague about the ways they converted various grains into corn equivalents, and I could not get the same conversion ratios when I tried to replicate their calculations. Besides, it seems a bit silly to convert into corn the production of a region which could not grow that particular grain. My conversion rates, like Atack and Bateman's, are derived from Morrison, *Feed and Feeding* (20th ed.). They take into account both the different weight of each grain, and the difference in nutritive content. For instance, a bushel of wheat weighs 60 pounds, of which 84 per cent (50.4 pounds) is digestible matter. One bushel of barley weighs 48 pounds, of which 37.77 pounds is digestible matter. One bushel of wheat = $50.4 / 37.77 = 1.33$ bushels of barley. It is also equal to 1.1 rye, 1.6 buckwheat, 2.2 oats.

32 The figure is based on an annual production of 450 gallons per cow, reported by Johnston in *Agricultural capabilities of New Brunswick*.

33 Johnston, *Agricultural Capabilities of New Brunswick*, p. 12; Frank D. Lewis and Marvin McNinn, “Agricultural Output and Efficiency in Lower Canada”, *Research in Economic History*, 9 (1984) pp. 45-87.

10 pigs and 10 cows; Michel Martin had 64 sheep, 18 pigs and 9 cows. The three men produced among themselves 1,580 bushels of wheat equivalent, 1,900 bushels of potatoes and 400 bushels of peas. Farmers who grew very large quantities of grain also grew large quantities of peas and potatoes and had a lot of stock. They had more improved acres and more draught animals, and almost always had several sons. Increased production was conditioned by access to sufficient human and animal power to clear the land, plow, and harvest the crops. Those who had access to these resources obviously made the most of them. The 22 farms that produced at least 250 bushels of wheat equivalent were full-fledged commercial ventures, despite their lack of specialization. But it seems unfair to deny the label to their 137 colleagues. 159 farms could adequately feed 400 households, which means each farming family on the average fed two others. If a commercial farm markets 60 per cent of its production, most established farmers indeed deserved the title.³⁴

Although the St. John Valley was more than self-sufficient in human food, it suffered an apparent feed deficit. The animals reported in the 1833 survey would have required 3,582 tons of hay and 41,305 bushels of oats to be properly fed.³⁵ Production was only 3,554 tons of hay in 1833, but the wet summer of 1833 may have caused a below average hay crop (there is no hay figure for the "years before"). The valley produced only 11,804 bushels of oats in the early 1830s. This was enough oats for 219 horses, however, there were 436 of them to feed, not to mention the oxen (it is assumed that sheep were never given oats). Horses and oxen could winter over on a poor diet if not required to work. But everything suggests that the St. John Valley farmers kept large number of draught animals to work in the woods in winter, and those alone would have required 32,713 bushels of oats (using the McInnis figures). Outside purchase of fodder seem unlikely at that time. The deficit then had to be made up from local resources. The two major ones were bran and peas. But those could, at best, cover two-thirds of the deficit:

Feed shortfall	22,088 bu. of oats or 706,816 lbs.
Bran production (12 lbs./bu.)	187 bu. 368 lbs.
Peas surplus	186 bu. 960 lbs.
Deficit	10,390 bu. of oats, 332, 488 lbs.

Less obvious types of feed could also supplement orthodox ones. An 1858 report of the Maine board of agriculture claims that 200 pounds of potatoes were equivalent to 59 pounds of oats for feeding purposes.³⁶ Oat straw, grain and pea chaff could also have been used for feed, according to the same source. There was no feed deficit in the valley then, although the quality of the animals' diet may have left much to be desired. Even the most productive farms, those growing more than 300 bushels of wheat equivalent, were not necessarily growing large quantities of oats. Three of them, out of 14, suffered a small shortage of hay, and half of them did not grow enough oats. Farmers who stepped up grain production invested their time and effort in wheat.

North American farmers adopted a casual approach to stock feeding, improvising their animals' feed rather than produce specifically for it. McInnis, MacNeil and Bittermann all found that feeding practices fell short of the standards recommended by the literature of the time. But in addition, New Brunswick farmers were encouraged to do so by government policy. In 1817 the province had passed "An Act to encourage the raising of Bread Corn on New Land".³⁷ The stated purpose of the act was to encourage grain growing in the province; it was also designed to encourage clearing, as the bounty could be claimed only for the first crop, which had to be planted within two years of clearing. The province paid one shilling for each bushel of wheat, rye, corn, buckwheat and barley (the latter two were dropped to 9d. in 1826), but only 4d. for each bushel of oats. Farmers who grew wheat on new land instead of oats not only could expect to earn three to four times as much from its sale, but also to collect three times as much in bounty.

The grain bounty was an additional incentive to clear land, even if this one was used only once or twice for wheat. A farmer who knew his business would have tried to clear a few acres every winter, perhaps planted some patches of peas and potatoes between the stumps until he could remove them

34 This production level was also similar to that uncovered by Alan MacNeil in the Annapolis Valley in 1827.

35 I am using here the same figures as Marvin McInnis to estimate yearly animal consumption:

Horses	1.52 tons of hay, 53.7 bushels of oats
oxen	1.82 tons of hay, 26.8 bushels of oats
cows	1.8 tons of hay
young cattle	.86 tons of hay
sheep	.15 tons of hay, 3 bushels of oats.

Lewis and McInnis, "Agricultural Output and Efficiency in Lower Canada, 1851", p. 79.

36 *Annual Report of the Secretary of the Maine Board of Agriculture* (Augusta, 1859), p. 194.

37 *Acts of the General Assembly of his Majesty's Province of New Brunswick from the Forty Seventh to the Fifty Seventh Year of the Reign of King George the Third* (Fredericton, 1817), p. 333; the act was extended in 1826 and 1829. *Acts of the General Assembly of his Majesty's Province of New Brunswick from the First to the Third Year of King George the Fourth* (Fredericton, 1826), p. 159; *Acts of the General Assembly of His Majesty's Province of New Brunswick Passed in 1829* (Fredericton, 1829), p. 71.

to plough, then put in wheat and, after one crop, use the new field for peas, potatoes or lesser grains. It did not make financial sense to plant wheat on old fields. Some farmers who appeared in the bounty lists year after year probably did just that. Hilarion Daigle (who grew 765 bushels of grain in the early 1830s) reported 200 bushels of wheat and 40 bushels of barley on new land in 1826, 210 bushels of wheat and 90 bushels of barley in 1827 and 265 bushels of wheat in 1830. Assuming a yield of 11 bushels per acre, he would have brought about 70 acres into cultivation in those three years alone. Deane and Kavanagh reported in 1831 that he had 128 acres cleared on three lots. He collected £40 in bonuses. Others, on the other hand, seem to have preferred to collect all at once, such as innkeeper David Cyr who received £25 in 1830 for 372 bushels of wheat, 165 of barley and 22 of oats.

Farmers could also have chosen to keep fewer draught animals. Operating farms reported a considerable number of horses and oxen. Fifty-six per cent of the farms had at least three horses or oxen; nine per cent had at least six draught animals. Horses, like sons, were a source of wealth. They were needed to clear the land on which bounty-earning grain could be grown. Land clearing was also a profitable operation in itself, because the trees could be sent downriver to be sold. Lumbering was theoretically illegal in the disputed territory, but both the British and American authorities tolerated the cutting of trees by farmers on their own land. There is, however, evidence that local people were passing off trees taken from public land as the product of land clearing.³⁸ Lumbering, especially deep in the woods, requires animals. Judging by the number of draught animals in the valley, it seems that anyone who could was busy harvesting trees.

In the early 1830s, Madawaska farmers obviously tried to take advantage of all the money-making opportunities they had access to. They grew large amount of foodstuffs (peas, potatoes, grain) which they could sell to newcomers; they grew large quantities of wheat, had it milled, sold the flour downriver, and earned bounties. They cleared land, which provided them with timber for the Fredericton market, as well as increasing the value of their holding. And they cut on public land when they could get away with it. But they stretched themselves thin. Animals were fed whatever was handy, and the yields were low. North American husbandry was stoppy by European standards; St. John Valley farming seems to have been worse. This was not extensive agriculture, but slash and burn! Yet this casual approach to farming was probably a rational choice. Farmers spent more time clearing land than tending their fields because they could get a higher return for their labour that way.

38 Lettre de M. Langevin, 20 October 1837, Sir John Harvey, Correspondence, MG 24 A17, vol. 4, PAC.

By 1850 on the other hand, farmers may have reversed the strategy. Fields probably came first. As in the early 1830s, only a minority of farms (36 per cent, or 167) seem to have been operational. If we assume that these 167 farms were the only ones with crops, the farmers on the U.S. side of the valley would have grown 9.12 bushels of bread grain (in wheat equivalent) per adult consumer (932 adults and 1864 children), 2.14 bushels of peas and 15.72 bushels of potatoes, as well as 46 bushels of oats and eight tons of hay per household (466 households were enumerated in the U.S. census).

Grain production was again sufficient to cover food needs. If families relied exclusively on their own production, their diet was nonetheless very different from that of their parents. Farms grew about 10 bushels of buckwheat, two-thirds of a bushel of wheat, two bushels of barley and less than a quarter of a bushel of rye per adult consumer (exclusive of seed set aside). This was probably what the poorer people were forced to eat. The ideal was different. Few people asked for buckwheat in the deeds of maintenance (11 out of 93 between 1845 and 1870), and only four of these did not ask for any wheat product. Other grains were seldom listed as alternatives to wheat, but one such was store-bought flour.

One can wonder why the St. John Valley farmers did not revert to wheat growing after the wheat midge epidemic burned itself out. Soil exhaustion could not have been a factor in a settlement where two-thirds of the farms at any one time were less than 10 years old. But the inhabitants were frequently reminded of their vulnerability to the climate. The local growing season is a mere 110 days, with last frost around 30 May, and the first one around 15 September — barely enough to ripen 19th century wheat. Climate-induced crop failures struck again in 1840 and 1854-5. Buckwheat, often labelled a “distress crop”, was better suited to this short growing season, and this may have been the major reason behind its widespread adoption. By 1850 wheat was a luxury crop, grown only in small amounts by substantial farmers.

However, the local population did not give up eating wheat bread altogether. Barrelled flour was available locally as early as 1845 and at a reasonable price. John Emmerson, who operated a store in what is now Edmundston, received 81 barrels of flour in November and December 1846, and 395 barrels in 1850 (not to mention those he ordered specifically for the lumber camps). From 1848 onwards, he also purchased barrelled biscuits (8 barrels in 1850).³⁹ Emmerson seems to have ordered his wheat products from Rivière du Loup, at or below St. John market prices. In September 1848, he was selling flour at 30s. a barrel, whereas it fetched between 30 and 32s. a barrel in St. John in the last two quarters of the same year.⁴⁰ In the last quarter of

39 Abraham and Simon Dufour Ledger Book, 1844-8, Madawaska Public Library, Madawaska, Maine; the Dufours were selling flour in 1845 and after. New Brunswick Museum, John Emmerson Receiving Book, 1845-73.

40 Johnston, *Agricultural Capabilities of New Brunswick*, p. 35.

1848, Emmerson also bought local oats and barley for respectively 2s. and 3s.6d. a bushel. Fifteen bushels of oats consequently purchased the flour equivalent of six bushels of wheat. It is not surprising that local farmers decided wheat growing was not worth their time and effort.

Individual farms were still very productive — grain production per farm increased by about 20 bushels of wheat equivalent since the 1830s. The proportion of very productive farms also increased. In the early 1830s, only three per cent of the operating farms grew 400 bushels of grain or more. In 1850 six per cent were in this category, and one farm reported crops in excess of 1,000 bushels of wheat equivalent (but none in 1830). Twenty-one per cent of the farmers, as opposed to 17 per cent a generation before, grew at least 250 bushels of wheat equivalent. The proportion of farms growing less than 100 bushels dropped from 34 per cent to 20 per cent.

The increase in production may have been the result of a different mix of crops. Wheat, which proved difficult to grow, had become a marginal crop; it had been replaced by higher yielding, and more reliable, oats and buckwheat. The quantity of potatoes grown also declined, freeing some acreage for grain production. This decline could have been a result of the potato blight, which discouraged farmers from planting the tuber on a large scale. Unfortunately, inadequate sources make it impossible to know if the average number of improved acres per farm had increased. Crops were also better balanced between food and feed. The production of animal fodder had increased absolutely and relatively. The south bank produced 3,431 tons of hay and 22,456 bushels of oats. It needed 24,601 bushels to feed all its horses and oxen, and have enough seeds for the next spring. This shortfall was less than 10 per cent of the needs, and could be covered with the now reduced bran production, with the peas surplus, and possibly with buckwheat as well as potatoes. There was a surplus of 524 tons of hay as well. But of course, Madawaska settlers could have continued to feed their stock odds and ends in order to sell more oats to the lumber camps.

Some oats and hay were sold to the shanties. The ledgers of the local store show evidence of purchases of local oats and hay, which were carted, boated or sleighed up the St. John River or to Lake Temiscouata.⁴¹ A brother of the Dufour traders, Cyrille, took full advantage of the opportunities offered by the shanties. In 1850 he harvested 1,000 bushels of oats and 40 tons of hay. He needed only 262 bushels and 35 tons for his own animals. Nonetheless, the Upper St. John Valley could not satisfy the shanty demand for oats and hay. As early as 1844, Shepard Cary, a large-scale lumber operator based in Houlton, Maine, was cutting up the St. John Valley and importing oats and hay from Lower Canada. In January 1846 he bought 3,058 *minots* of oats and 30 tons of

hay from Isaac Hutton in L'Islet.⁴² It is doubtful this was an isolated case.⁴³ The shanty market, like the lumber trade, was very volatile. The prices paid the farmers reflected the fluctuation of the lumber trade: the Dufour brothers, general merchants, bought oats for 2s.6d. in 1844, but for only 1s.6d. in 1848, when the bottom fell off the lumber trade. Farmers could not afford sacrificing subsistence in order to produce more for the shanty market; this would have been a greater gamble than playing the stock market! Only very well-established farmers could take the risk. Cyrille Dufour's farm, for instance, was also self-sufficient in food and feed: he even grew 50 bushels of wheat. The shanty market probably made him wealthy (his farm was valued \$900 in 1850), but he did not need it to provide for the basic needs of his family.

Another level of lumbering operations provided an outlet for oats and hay production. Some local farmers continued to run their own shanties. Some can be identified through the store accounts; either their purchases included shanty equipment, or they settled their accounts with lumber. For those men, farming and lumbering were two facets of the same family business — it was a form of vertical integration. But they were not numerous. The disastrous 1847-8 season, which left some of the small-scale entrepreneurs heavily in debt, may have convinced the more marginal farmer-lumberers to give up their involvement in the forest industry. Farmers in 1850 also had less stock and fewer draught animals than their fathers. In 1833, 56 per cent of the operating farms had three horses or oxen or more; in 1850, only 36 per cent had that many.

Per capita milk and meat production seems to have been less in 1850 than in 1830; the valley produced only 69 pounds of beef, 21 pounds of mutton and 55 pounds of pork per adult consumer in 1850. In 1833 though, 16 per cent of the bovines, 20 per cent of the sheep and 25 per cent of the pigs were on non-productive farms. The real level of meat production in 1850 was therefore likely to be slightly higher than that calculated from census data. If the distribution of animals was the same as in 1833, beef and mutton production levels would have been the same as in 1833 and pork production about half. This could have been a consequence of the reduced potato crop, as pigs were customarily fattened on potatoes in areas where corn would not grow. In addition, the increased buckwheat production may have supported larger flocks of poultry. Unfortunately, sources never mention those birds. On the surface then,

42 Shepard Cary papers, in possession of M. Peltier, Houlton, Maine. Cary was the larger operator on the American side of the Upper St. John River, employing 100 men in 1850. The Glaziers were also bringing their supplies from Lower Canada, using John Emmerson as their purchasing agent.

43 For more details on the trade with Lower Canada, see Martine Coté, "L'exploitation des forêts publiques sur la Côte-du-Sud, 1830-1900: un exemple de la perméabilité de la frontière canado-américaine", paper presented at the Congrès de l'institut d'histoire de l'Amérique française, October 1991.

41 Abraham and Simon Dufour Ledger Book, 1844-8. John Emmerson Receiving Book and Ledgers.

meat production did not seem to keep up with population growth, but we cannot know for sure.

Farmers in 1850 were different from their fathers. In 1830 farming and lumbering were tightly linked. The same people did most of the cutting and most of the growing. The local economy, oriented towards outside markets, could be very profitable, but was also extremely fragile. The failure of the wheat crop, the end of the provincial grain bounties, and the evolution of the lumber industry, which became legal and gradually controlled by large scale entrepreneurs after 1842, forced the St. John Valley settlers to reorganize their activities.

In 1850 more residents devoted their attention solely to husbandry. They shifted to a diversified agriculture catering mostly to local markets; crops were no longer grown primarily for outside markets. Foodstuffs could be imported to substitute for uncertain local production, even though some substitutes could, and were, grown on the farmstead. Some food imports seem to have had no other purpose than to improve the quality of the diet: the Dufour brothers began selling cod in 1845; Emmerson did the same in 1852, and a few years later began to sell herrings. Families setting up new farms still constituted a significant market for farm surpluses, a market that was apparently not mediated by the local stores. Lumbering also played an important role in the local economy, but not a direct one. It encouraged better-off farmers to grow specific crops for a specific market. Local stores acted as middlemen for at least part of this trade. This market was not stable and fluctuated with the lumber trade, which was controlled by forces outside the valley. When the lumber trade collapsed in 1848, so did the price of oats, and local people could not settle their accounts. Although the St. John Valley farmers had turned their backs on outside markets, they were not isolated from them.

The evolution of agriculture in the St. John Valley parallels the experiences in New England and Lower Canada. Crop failures and competition from cheap Canadian flour incited farmers to give up wheat growing as a commercial venture, seek markets closer to home and adjust production accordingly. T.W. Acheson suggests elsewhere in this volume that most New Brunswick farmers were rational men who were engaged in those economic activities which produced the best returns. Upper St. John Valley farmers do not seem to have been the exception. And like farmers in other parts of New Brunswick and Nova Scotia, they did not constitute a homogeneous class of self-sufficient households with tenuous relations to the market.

New Brunswick Agriculture at the End of the Colonial Era: A Reassessment

T.W. Acheson

In New Brunswick, as in every other part of North America, agriculture was the most important economic activity of the early- and mid-19th century. History, however, tends to be a game for winners, and the historiography of the colony is very long on timber and ships and manufacturing and very short on any discussion of the principal economic activity. Much of the reason for this state of affairs stems from the longstanding assumption that New Brunswick was not an agricultural community and that most colonists worked the woods in winter, drove logs in spring, cut lumber in summer and made ships on demand. Agriculture was, at best, a matter of subsistence: a truck garden, a potato plot, a pig for winter killing, and a draft animal for use in the woods. The colonial economy was perceived as driven by its export trade in staples, and its rural society was seen as an undifferentiated mass of part-time lumbermen living on their small undeveloped farm lots.

The traditional historiography suggested that the rural family lived in two interrelated economic worlds: the world of a cashless subsistence agriculture, and the commercial world of the timber trade and the public purse. Arthur Lower drew the classic portrait of the New Brunswick farmer-lumberer in his two studies on the Canadian forest frontier. He characterized such men as the “usual mixture of amateur farmer and timber cutter” who turned from the honest toil of farming to the “illusory promise of an easy cash return for a winter’s work in the woods”, and for whom the “neglect of their farms ended either in abandonment or in extremely slovenly farming”. Even the food consumed in the lumber camps had to be imported from the United States, the Canadas and the West Indies.¹

Lower’s depiction of the province as one vast seasonal lumber camp was accepted and taken for granted a generation later by Stewart MacNutt. MacNutt’s history of the colonial period — still the standard work on pre-Confederation political development — is in large measure a study of the politics of the timber trade. Although the great majority of the electorate of the

¹ A.R.M. Lower, *The North American Assault on the Canadian Forest* (Toronto, 1936), pp. 78-9. See also Lower’s *Settlement and the Forest Frontier in Eastern Canada* (Toronto, 1936), pp. 31-7. The author wishes to acknowledge the support of the Social Sciences and Humanities Research Council of Canada in the preparation of this study.