TIMBER UTILIZATION ON THE AGRICULTURAL FRONTIER IN SOUTHERN QUEBEC

J. Derek Booth Bishop's University

Introduction

A recurring theme in the study of the historical geography of nineteenth century frontier settlement in Quebec and Ontario has been the interrelationships between the agricultural and the timber frontiers. In the words of A.R.M. Lower, "The process of history in Canada has been a race between lumberman and settler" (Lower, 1936).

The nature of the regional economies which emerged by the beginning of the twentieth century, the distribution and subsequent viability of agricultural patterns and the human geography of much of the eastern Canadian ecumen were in large measure the product of the sequence and juxtaposition of these two frontiers of economic endeavour.

The incompatibilities and symbiosities of these two activities within a single landscape have been examined at length (Lower, 1936; Booth, 1972). But a recurring supposition in many of the descriptions and analyses of the agricultural frontier has been the hostile attitude of the frontier farmer towards the forest and the resulting impact on the forest, in terms of the scale and wastefulness of the destruction of timber, which accompanied agrarian settlement.

Describing the forest as plunder, Lower characterizes the settlers' treatment of it as "a century-long war" (Lower, 1973) and claims that the descendants of these settlers "still seem to cordially hate a tree." Harris and Warkentin speak of "an ingrained hostility to the forest," an "exultation at the destruction of trees" leading eventually to "a severe overclearing of the land" (Harris & Warkentin, 1991).

The secondary status of the lumber industry in areas of agricul-

tural settlement, where it commonly remained an adjunct of farming, has been ascribed, in part, to the depletion of the forest resource base by the farmer, not only by his land clearing activities but also by his incursions on the forests of unoccupied lands.

As a result of assertions such as these, the pioneer farmer of southern Quebec and Ontario emerges as one of the most maligned figures of nineteenth century Canadian history, reviled as a wanton destroyer of the forests which stood between him and the potential productivity of the soil. Like many broad characterizations in Canadian history, the image of the frontier farmer as a profligate and wasteful pillager of the forest, axe in one hand, torch in the other, requires some clarification and redefinition.

The notion of widespread wastage of timber, long a basic premise in much of the literature dealing with nineteenth century rural settlement, must be questioned in terms of whether this ubiquitous assertion is, in fact, generally applicable in eastern Canada, in particular in the mixed forest regions of Appalachian Quebec.

While it has been acknowledged that regional variations in the patterns of forest use occurred between areas of predominantly coniferous forest and those regions having mixed or dominantly deciduous vegetation (Lower, 1939), little concern has been directed to the specific nature of the impact of settlement on the latter. Although in terms of the British and North American markets of the first half of the nineteenth century, during the reign of the white pine (*Pinus strobus*), the range of commercial products derived from the deciduous forests was limited at the local and regional scales there evolved a highly varied and selective set of demands which were in turn reflected in particular forest utilization patterns.

The diversity of resource functions filled by the dominant tree species of the mixed forest, during both the establishment and later phases of settlement, militated against the wholesale destruction of these forests and it created, within the constraints of existing technology, a system of relatively efficient resource use.

Although the forest clearly was the primary environmental resistance to be overcome by the pioneer farmer, and in that context may have evoked something of the popular response attributed to it by Lower and others, it was simultaneously a vital domestic and commercial resource to the settler from the very first days of farm occupancy until long after the maturation of the frontier agricultural landscape. It is the purpose of this paper to examine the appropriateness of the widespread assertion of wasteful destruction of timber on the agricultural frontier in the particular context of southern Quebec in the early nineteenth century.

It can be demonstrated that on the agricultural frontier of southern Quebec most timber wastage was confined to the initial five year period after a permanent settlement was made. Furthermore, even this brief period of resource wastage characterized only areas settled before 1830 and did not result in the destruction of substantial quantities of wood by either nineteenth century or contemporary standards.

Study Area:

The Township of Stanstead, lying within the Appalachian fringe of Southern Quebec, provides a useful study area in which to examine the sequence of forest utilization over a period of approximately fifty years, from 1800 to 1850. It is a region which, prior to the construction of railways in the latter half of the nineteenth century, was effectively isolated from the mainstream of British North American economic life, at least in terms of the export of bulky staples such as forest products. With the single exception of potash, all markets for forest products were internal and essentially domestic.

In Stanstead Township, by virtue of its proximity to the United States and consequent early settlement, there was experienced a prolonged "frontier" stage of economic development from which there later evolved a mature pioneer economy and landscape. This fact, in conjunction with the isolation of the region, makes possible the examination of the specific demands and impacts of the agriculturalist as distinct from the incursions of commercial forest industries which, throughout the Eastern Townships, were a postrailway phenomenon.

More northerly regions of the Eastern Townships, where initial settlement came as late as the 1840s and 1850s, experienced only a rudimentary and short-lived pioneer stage before the superimposition in the landscape of both commercial forest operations and the more far-reaching reorientations of the region's agricultural and industrial framework which were a concomitant of the railway.

Stanstead Township is also a region which experienced the most intensive agricultural settlement of any part of the Quebec Appalachians in terms of acres of forest cleared for farming as a proportion of total area and also in terms of the density of rural population achieved by 1850.

The study area is not without its own distinctive cultural geography which, in this context of environmental assessment and impact, may be of some significance. This was a region which was settled primarily by New England farmers unlike many of the more northerly portions of Quebec's Eastern Townships whose first settlers were French Canadians.

Settlement in the Eastern Townships:

Prior to the 1780s the Eastern Townships served as a hunting ground for the Abenaki Indians whose principal habitation lay outside of the region at the mouth of the St. Francis River; the region was untouched by any form of permanent settlement.

The first agricultural settlements were those of small groups of United Empire Loyalists in the 1780s. These early activities were, however, of short duration and ephemeral in nature since the policy of the British governors prior to 1791 was to actively discourage settlement in the region lying between French Canada and the United States, this area being regarded as a buffer zone between two populations of questionable allegiance.

This policy of exclusion was reversed in 1791 at which time the tract of land thereafter designated as the Eastern Townships was opened to settlement and the territory systematically surveyed into townships each containing approximately one hundred square miles. This characteristically English form of land subdivision and the tenure system of free and common soccage were significant differentiating factors between the Eastern Townships and the seigneurial lands of the St. Lawrence lowlands. While, on the one hand, the township system contributed to the cultural isolation of the early settlers of the region from French Quebec and insulated it from settlement by French Canadians, its essential similarity to the land occupancy patterns of neighbouring New England made the Eastern Townships *de facto* a northern appendage of the New England agricultural frontier in the first half century of settlement.

The first major phase of immigration to the Eastern Townships was the movement of New England farmers into the region in the period 1790–1830. These settlers, drawn by the prospect of cheap and readily available agricultural land, established an economy based initially on mixed farming and livestock production. The period of New England immigration came to a close by 1830 fol-

lowing the construction of the Erie Canal (1825) which helped to create alternative settlement opportunities for New Englanders in the American mid-west. The bulk of this early settlement was concentrated in the most southerly townships adjacent to the United States border, in particular in Stanstead Township. The outlines of much of the existing settlement pattern, in terms of occupance of the best agricultural land and situation of the principal towns and villages of the region, were established in this initial half-century of New England influence.

A second trickle of settlement began in 1820 with immigrants from the British Isles occupying both the hitherto vacant lands in the more northerly townships and, to a lesser extent, more marginal agricultural areas of Brome and Stanstead Counties to the south. Settlers from Ireland formed the largest single group, numbering approximately three thousand by mid-century; an additional 1,100 settlers from each of Scotland and England also came to the Eastern Townships at this time, but their numbers were substantially smaller than the 20,000 New Englanders who had crossed the border into Lower Canada.

French Canadian migration into the Eastern Townships, which had been impeded through most of the first half of the nineteenth century by the opposition of the Roman Catholic church, became a major force after 1849 following the establishment of parishes beyond the seigneurial boundaries of New France.

Immigration of French Canadians resulted largely from agricultural overcrowding on the St. Lawrence lowlands and a decreased efficiency of agriculture in the seigneuries. Although this phase of settlement was initially concentrated in the northerly townships of Shefford County, (Ely, Roxton, Milton), by the latter years of the nineteenth century the southward diffusion of French Canadians through the Eastern Townships had become general and, in all but two counties (Brome and Stanstead), they formed the majority of the population by 1900.

Within the context of a relatively isolated pioneer farming economy, the agricultural system which was most congruent with the physical environmental realities of the region, which provided a broad spectrum of domestic food wants, and which held some prospect of cash revenue, was a mixed farming association which combined the cultivation of a wide range of food crops with sheep and livestock raising. The latter, together with wheat production, were the principal commercial elements of early pioneer farming in the Eastern Townships. It is not the purpose of this paper to examine in detail the characteristics and associations of the pioneer agriculture of the Eastern Townships except as it exerted a demand for cleared land. In this context, the raising of cash crops such as wheat and of livestock, the latter with its associated requirements for pasture land and fodder crops, became of primary significance as it represented a relatively extensive use of land and one which, of necessity, was accompanied by large scale forest clearing.

Forest Clearing:

The clearing of the forests for agriculture constituted the single largest and most enduring impact on the timber resources of the Eastern Townships. The scale of agricultural land clearing was such that in those townships best suited by soils and topography to agriculture, over thirty percent of the total area was cleared within fifty years of initial settlement. Although the process of land abandonment began in this region by the 1890s, this particular phase of forest destruction had an impact of much more permanence than those resulting from the variety of forest-based industries which came into being in the region during the nineteenth century.

In this consideration of pioneer forest utilization, it is important to distinguish between the quantities of wood derived from lands which were specifically cleared for agriculture as distinct from those which were derived from uncleared forests and farm woodlots.

Two principal phases of agricultural land clearing can be recognized; the Initial Pioneer stage was characterized by rapid land clearing at the rate of 5–10 acres per annum or more and normally lasted, in the case of the individual land holder, for ten years or less. The second, or Consolidation Phase of slowed clearing at a rate of 1–2 acres per annum followed once an area of approximately 40 to 50 acres had been cleared. Within the agricultural system of this frontier region, the average minimum acreage of cleared land per farm was 40 to 50 acres, of which approximately 40 percent was pasturage, the remainder being land cultivated for fodder or cash crops, e.g. wheat. (Census of Lower Canada 1825, 1831, 1842: Census of Canada 1851, 1861).

In the Consolidation phase, marked as it was by a much diminished rate of land clearing, attention was focused instead upon the improvement of existing cleared land and farm buildings. Stumps, which had been allowed a period of a decade in which to rot, were pulled, and the construction of frame structures to replace the log shanties and barns of first settlement began.

The significance of these two periods lies in the differing demands for wood in relation to the areas of supply.

As the scale and variety of market demands for forest products grew, and transport linkages improved, much of the timber wastage which resulted from the rapid initial pace of land clearing decreased until it effectively ceased. The point at which it ceased was reached, on each pioneer farm, when the opportunity of utilizing substantial volumes of timber from woodlots, rather than from farm clearings, altered the status of the forest from one of environmental resistance to one of commercial resource.

The agricultural land clearing associated with northward movement of the New England farming frontier took place largely on the better-drained upland surfaces characterized by lighter soils and a predominantly deciduous forest cover. By its very nature, however, the clearing of one hundred thousand acres of forest represented a massive rather than a selective attack. As in the other frontier regions within the forested eastern half of North America, there emerged among the early settlers in the Eastern Townships a popular rule-of-thumb correlation between certain species of trees (e.g., the butternut: *Juglans cinerea L.*) and the most highly prized agricultural soil. But the use of the species as soil indicators served only as an initial indicator of land desirability and it did not serve as a basis for actual land clearing.

By 1830 virtually all of the land in Stanstead Township had been granted to individual farmers. The single-family farm was, therefore, the effective unit of forest exploitation. Only small areas of clergy reserves and topographically unsuitable land remained unsettled; commercial lumbering was totally absent in the pre-railway era due to the lack of transport facilities to markets in Montreal or Quebec City. The south bank tributaries of the St. Lawrence, with the single exception of the Richelieu, were not navigable to any significant extent and Stanstead lay in the most hydrologically inaccessible part of the watershed of the upper St. Francis River.

Unlike many parts of southern Ontario where, in the pre-railway era, adequate road networks existed for the movement of bulky goods over relatively short distances to water transhipment points (McIlwraith, 1970), southern Quebec's road system remained practically non-existent in terms of the overland movement of freight. This situation was the result of a combination of factors which included the relatively inhospitable terrain of the Eastern Townships, a sparse and scattered population, a weak local tax base, and the delay in achieving regional representation in the legislature of Lower Canada.

Pioneer Use of the Forests:

The histories of settlement in the forests of Quebec and Ontario abound with accounts of the arduous days and weeks spent by the first settlers in felling trees to prepare land for cultivation (Day, 1869).

Everywhere burning accompanied land clearing; the forest was ubiquitous, markets for timber often inaccessible; the soil was the only potential resource of the settler. Burning of unwanted wood characterized every one of the isolated clearings which spread through the mixed forests of the Quebec Appalachians in the first half of the nineteenth century. About this there is no dispute; what remains to be determined is whether the disposition of the forest represented true waste in the sense that the trees of the forest never achieved the status of a resource or whether, in the context of the period, the use of the forest was relatively rational and efficient.

The pioneer use of the forests of Stanstead Township may be examined at two levels — from the perspective of the individual farm and in terms of overall township statistics such as those enumerated in the various censuses of Lower Canada in the period under study.

By 1851, still almost twenty years before the construction of the first railway through Stanstead Township, there were 633 farms in the township averaging just over 100 acres each in extent. On each farm commonly about one half, or fifty acres, was cleared of forest and improved for farming. These values are also representative of neighbouring townships and may be used as a useful datum line for the pre-railway pioneer farm of the Eastern Townships.

The pace of settlement and the resultant population increase in Stanstead Township, while rapid in the period 1800–1830, declined towards mid-century in large part because of the occupation of most of the available land (Table 1). The flow of settlement from New England to Quebec as a whole dropped sharply after 1830 when farmland in the trans-Appalachian regions south of the Great Lakes became more readily accessible.

Within each farm unit the rhythm and pattern of forest utilization varied with the age of the farm. Initial forest clearing was rapid, averaging at least five acres per year for the first five years

1825	
1020	
1831	4226
1844	4142
1851	

Table 1

after initial settlement. For the next decade three acres per year were cleared on average but on farms of fifteen years or more the rate fell to one acre or less per year. The rate of clearing depended on the availability of labour, most commonly family members, for wage labour was scarce and therefore expensive on the frontier.

The initial priority for the pioneer farmer was to clear sufficient forest to be able to produce crops enough to provide sustenance for the immediate family. But the New England agricultural frontier was a commercial one. The Yankee settlers who came to Stanstead in the early 1800s were in no way deterred by the political boundary between the United States and British North America. Their objective was to become part of the expanding staple agricultural economy of North America. The fact that the Eastern Townships did not become an integral part of this economy in the pre-railway era attests not to their motivation or lack of it but to the environmental and economic realities of farming in the Appalachian fringe. Land clearing and farm enlargement beyond the simple needs of the family continued at a pace constrained by available labour such that, by mid-century, the average farm contained fifty acres of land completely cleared of forest vegetation and devoted to either cultivation or pasturage. The remainder of the farm served as a woodlot, a source of domestic wood products and a source of supplementary income for the farmer.

Viewing the township of Stanstead as a whole, the magnitude of the environmental impact, as it would be called today, was clear by mid-century. Of the total land area of Stanstead of 75,466 acres, 66,891 acres (88.6% of the township) had been granted by the Crown and were occupied. After scarcely fifty years from the time of initial settlement, in conditions of economic isolation, almost one half (34,995 acres of 46.3%) of the township had been cleared of its timber and the land put under cultivation or pasturage. This total removal of the forest was distinct from the additional selective harvesting of wood on farm woodlots. The amount of cleared farmland peaked in 1881, by which date 62% of the township had been cleared and thereafter, in common with many other parts of the Appalachian uplands in Quebec, progressive farm abandonment added annually to the acreage of regenerating forest.

Data relating to the precise number of acres cleared per year in Stanstead in the decades of the first half of the nineteenth century are not available but the rates of land clearing can be confidently inferred from population and farmstead increase (Table 2) calculated with allowance for the maturation of individual farms.

Average Number of Acres Cleared Per Year in Stanstead

1800–1810	620 acres
1810-1820	1010 acres
1820-1830	
1830–1840	
1840–1850	609 acres

Τ	<i>`ahle</i>	2
-	non	~

In being able to determine the average number of acres cleared per year in the study area through the pioneer period it is possible to approximate a volume of wood cut from these agricultural lands (always excluding wood cut from the non-agricultural or woodlot portion of each farm).

It is important at this point to examine the nature of the forests of Stanstead and the relationship between settlement and farm location and forest type.

The Forests:

The forests of Appalachian Quebec lie in the ecotonal region between the northern conifers of the boreal zone and the hardwood forests of the eastern and southern continental area. They are both coniferous and deciduous communities, comprised of a large variety of individual species. Of primary importance in the consideration of the impact of the agricultural frontier on these forests was this diversity of species and the predominance of deciduous forests on the upland surfaces which were the principal foci of early settlement.

The generalized relationship between the major species and environmental factors in the Eastern Townships is outlined by Rowe. J. Derek Booth

Sugar maple (*Acer saccharum*), yellow birch (*Betula lutea*), white spruce (*Picea glauca*), balsam fir (*Abies balsamea*), white pine (*Pinus strobus*) and hemlock (*Tsuga canadensis*) are the species associated with the richer, well-drained sites. Red spruce (*Picea rubens*) is well distributed through the Section with the above-mentioned species ... On the more exposed sites and on thinner soils the prevailing dominants appear to be white spruce, balsam fir and white birch (*Betula papyrifera*). In swampy depressions coniferous stands of eastern cedar (*Thuja occidentalis*), tamarack (*Larix laricina*) or black spruce (*Picea mariana*) are usually found, but hardwood swamps with black ash (*Fraxinus nigra*) are of only occasional occurrence. Following fires and other disturbance, the aspen (*Populus tremuloides*), white birch and wire birch (*Betula populifolia*) pioneer the first stages of forest succession. (Rowe, 1964).

This forest cover was, at the time of first settlement, virtually continuous over the whole of the Eastern Townships. The only unforested regions were those small areas of natural grassland related to river bottomland or beaver meadows and areas which were in a subseral stage of regeneration following natural clearing as, for example, by forest fire or wind throw.

The question now arises as to what productive use the predominantly hardwood timber of all of those acres cleared for farming could have been put. During the pioneer period, by far the most significant resource use of the forest was as a source of potash.

The Potash Industry:

A pioneer activity which has been frequently linked with the widespread and indiscriminate burning of the forest was the manufacture of potash for export to Great Britain for use primarily as a cleanser in the textile industry. This trade was an important component of the staple economy of British North America in the first half of the nineteenth century. Timber burning on unoccupied lands has been portrayed as a winter activity which provided a frontier farmer with the opportunity to pursue his vendetta against the forests even beyond his own modest clearing.

In the first instance, it is a matter of debate as to whether the manufacture of potash constitutes an inherently more wasteful use of wood than does the manufacture of lumber or pulp.

The implied yardstick of forest utility employed by the "destructionists" seems often to be a function of the number of cords of pulpwood or feet of lumber which could be derived from an acre of land while the production of potash is regarded as merely a fortuitous adjunct to massive and indiscriminate burning of acres of forest which somehow had a higher intrinsic resource potential than that of cleanser in the British textile industry.

In any case, it can be shown that even in the hardwood forest in southern Quebec, where the manufacture of potash was carried on on a relatively large scale, all of the potash manufactured could have been derived from lands being cleared for permanent agricultural settlement and that widespread forest cutting beyond the agricultural frontier was both unnecessary and unlikely.

By 1831, towards the end of the peak period of forest clearing, there were eleven potasheries operating in Stanstead Township (Census of Lower Canada, 1831). At an estimated average annual production of 65 barrels (Booth, 1972) for each ashery and adopting the widely used ratio of one barrel of potash to one acre of forest (Guillet, 1968), slightly more than seven hundred acres of trees were being converted to potash annually at this time.

The potash industry was one of those that was intimately linked to the rhythm of forest clearing; by 1851, when the pace of forest clearing had slackened to an average of less than one acre per farm, there were no asheries operating in Stanstead Township and the focus of the industry had shifted north into counties such as Shefford which were just then experiencing, at mid-century, a large initial influx of French Canadians.

It is probable that as many as twenty asheries operated within Stanstead Township in the period 1810–1830 converting proportionate acreages into potash salts.

Firewood:

A second ubiquitous use of wood in nineteenth century Canada, both on the isolated farming frontier and later, with the advent of railways, in urban areas, was for firewood.

Even at the level of the small farm, approximately one third of an acre of wood was consumed annually for heating purposes and, by 1830, over 180 acres of wood were burned each year in Stanstead Township as firewood. Almost all of this wood was derived from deciduous trees, principally maple and beech, and it is again safe to assume that, with forest clearing proceeding even at a diminished rate on each farm, most of this wood would have been derived not from farm woodlots but from land cleared for cultivation or pasture.

Lumber:

A third demand for timber was for sawn lumber to be used principally in farmhouse and outbuilding construction. Although initially a very small element in the demand for forest products, by 1831, 13 sawmills were operating in Stanstead producing approximately 1,950,000 feet of lumber per year. By 1850, still supplying an entirely internal demand, 18 sawmills were producing almost 3,000,000 feet of lumber. This rate of production represented an acreage cut of approximately 200 acres per annum in 1831 and 300 acres by 1851. (Census of Lower Canada 1831, Census of Canada 1851).

While the trees which were prized in the manufacture of potash and for firewood were exclusively the deciduous species, virtually all of the timber used for sawlogs was softwood. Most highly valued was the white pine, found only in small quantities in Stanstead, followed by the white spruce and red pine. Tamarack and hemlock were not widely used in the pioneer sawn timber industry.

Discussion:

The pattern of land evaluation and subsequent settlement and timber clearing in Stanstead was one closely correlated topographically to the upland surfaces covered in a predominantly deciduous forest. Within the New Englanders' hierarchy of species indicators of soil potential, trees such as the butternut occupied the pinnacle while species such as white pine, and the whole association of conifers in general, were reckoned to grow on soils of inferior quality. Consequently, the brunt of forest clearing fell on the mainly deciduous uplands or, in the context of the individual farm, on the best drained and highest surfaces. River valleys and low-lying areas of poor drainage, clothed commonly in conifers, were left uncleared to serve as farm woodlots.

It is, in large part, this correlation between deciduous forest and land cleared for agriculture that permits the assumption that most of the timber consumed in the manufacture of potash salts or for firewood came from these same lands.

It has been suggested that so potentially lucrative was the potash trade that settlers would, during the winter months, go into the unbroken forest and burn indiscriminantly. But these same accounts of pioneer life never fail to record the arduousness of forest clearing. Indeed settlers from the British Isles were often counselled not to even attempt it but rather to buy already cleared farms from Americans accustomed to the labour of felling the forest. It is difficult to give credence to the notion that settlers would devote much time or effort to burning down someone else's trees when their own puny clearing beckoned.

Given the mixed nature of Stanstead's virgin forest, however, it is not unreasonable to assume that some of the trees on lands being cleared for cultivation were conifers and were therefore potential sawlogs. The systematic separation and stockpiling of sawlogs from land cleared further reduced the amount of timber "wasted" in the process of "making land."

The construction of sawmills was an early priority in Stanstead as elsewhere on the frontier. The first mill in the Township was erected in 1803 in Rock Island (Hubbard, 1874, p.32). The availability of sawn timber permitted the replacement of the first generation log houses and farm outbuildings with frame structures of superior quality.

One measure of the maturity of the pioneer landscape in southern Quebec at mid-century was the relative proportion, in any region, of log as opposed to frame buildings. By mid-century, 87% of the houses in Stanstead Township were of frame construction (Census of Canada, 1851–52) while only 9% of the dwellings were built of the original logs.

A discussion of the term "waste" inevitably involves not only considerations of human attitude towards a potential resource commodity but also must take into account available technology and resource development practices. In the white pine square timber trade, which dominated the staple economy of British North America through much of the first half of the nineteenth century, the initial abundance of the resource, the means of transport of the timber in large rafts to export from Quebec City and the very nature of the resource product, a squared tree trunk, resulted in wastage well in excess of 25% of the wood cut.

Mid-nineteenth century sawmilling technology, which included the practice of using only the lowermost portions of the tree free of knots, the cutting of substantial slabs to square logs, and even the kerf of the primitive saws, typically resulted in a 50% loss of wood in the production of sawn timber from sawlogs.

Against these contemporary yardsticks of "waste," the utilization of timber by the frontier farmer must be seen as something less than profligate. By using even conservative conversion factors for acreages required to produce the quantities of potash, lumber and firewood which were generated in the frontier farming economy of Stanstead, to say nothing of the rest of the considerable range of wooden domestic and farming implements, it may be concluded that, by 1830, over 90% of the forest cleared was being put to productive use as potash, firewood, lumber or in some domestic capacity.

*** * ***

RESUME

L'exploitation forestière, telle que pratiquée au 19^e siècle lors de la colonisation dans l'Est du Canada, a été interprétée souvent comme un gaspillage des ressources. L'omniprésence de la forêt aurait constitué une barrière naturelle aux efforts des colons pour obtenir des terres cultivables. Le défrichement des terres constituait par conséquent un élément central dans l'agrandissement de la zone agricole.

Les conclusions de notre étude sur l'utilisation des ressources forestières dans un canton du sud du Québec dans la première moitié du 19^e siècle suggèrent le contraire, car dans l'économie des Cantons de l'Est, une grande quantité de produits domestiques et commerciaux dérivaient de la forêt mixte des Appalaches, principalement lorsque le bois était brûlé.

Les données disponibles sur les quantités de bois de charpente, de potasse, de bois de chauffage et des produits forestiers indiquent qu'une grande proportion du bois coupé a été utilisé de façon productive. La forêt n'aurait par conséquent pas joué un rôle de barrière, mais elle aurait constitué une ressource, même dans les limites d'une économie en période de colonisation.

BIBLIOGRAPHY

- BOOTH, J.D., Changing Forest Utilization Patterns in the Eastern Townships of Quebec, 1800 to 1930, McGill University, Unpublished Ph.D. Thesis, 1972.
- BRITISH AMERICAN LAND COMPANY, *Information Respecting the Eastern Townships...*, London: W.J. Ruffy, 1833.
- Canada, Native Trees of Canada, Bulletin 61, Sixth Edition, Department of Forestry, Ottawa: Queen's Printer, 1963.
- CATERMOLE, W., *Emigration: The Advantage of Emigration to Canada*, London: Simpkin and Marshall, 1831.

Census of Lower Canada, 1825, 1831, 1842.

- Census of Canada, 1851-52, 1860-61.
- DAY, C.M., *History of the Eastern Townships*, Montreal: John Lovell, 1869.
- DEFEBAUGH, J.E., *History of the Lumber Industry of America*, 2 Vols., Chicago: The American Lumberman, 1907.
- EVANS, F.A., *The Emigrant's Directory and Guide*, Dublin: William Curry Jun. and Co., 1833.
- *Extracts From Letters Written During a First Year's Residence in the Eastern Townships of Lower Canada*, London: J.L. Cox & Sons, 1 1837.
- GUILLET, E.C., *Pioneer Arts and Crafts*, Toronto: University of Toronto Press, 1968.
- HARRIS, R.C. & J. WARKENTIN, *Canada Before Confederation*, Ottawa: Carleton University Press, 1991.
- HUBBARD, B.F., *Forests and Clearings*, Montreal: The Lovell Printing and Publishing Company, 1874.
- HUGHSON, J.W. AND C.C.J. BOND, *Hurling Down the Pine*, Old Chelsea, Quebec: The Historical Society of the Gatineau, 1964.
- Information Respecting the Eastern Townships of Lower Canada addressed to Emigrants and Others, Montreal: J. Starke and T.A. Starke, 1835.
- INNIS, H.A. AND A.R.M. LOWER (EDS), Selected Documents in Canadian Economic History 1783–1885, Toronto: University of Toronto Press, 1933.
- Lower, A.R.M., *Great Britain's Woodyard*, Montreal: McGill-Queen's University Press, 1973.
 - —. *Settlement and the Forest Frontier in Eastern Canada,* Vol. IX of Canadian Frontiers of Settlement, Toronto: MacMillan, 1936.
 - *—. The North American Assault on the Canadian Forest,* Toronto: Ryerson, 1938.
- MARTEL, J., *Histoire du Système Routier des Cantons de l'Est Avant 1855*, Unpublished M.A. Thesis, University of Ottawa, 1960.
- MCILWRAITH, T.F., *The Adequacy of Rural Roads in the Era before Railways: An Illustration from Upper Canada*, Canadian Geographer, 14, Winter 1970, 334-60.
- Rowe, J.S., *The Forest Regions of Canada*, Bulletin 123, Forestry Branch, Department of Northern Affairs and National Resources, Ottawa: Queen's Printer, 1964.
- SMALL, H.B., *Canadian Forests. Forest Trees, Timber and Forest Products,* Montreal: Dawson Brothers Publishers, 1885.
- WARRINGTON, C.J.S. & R.V.V. NICHOLLS, A History of Chemistry in Canada, Toronto: Pitman and Sons, 1949.